1200 Solved Problem on Economics

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Content	Page Number
Mathematical Economics (50 Problems)	1-18
Indian Economy & World Economy (150 Problems)	1-46
Microeconomics (500 Problems)	1-172
Macroeconomics (400 Problems)	1-130

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MATHEMATICAL ECONOMICS

1. **Differentiate the following functions:**
   (a) f(x) = $6x^3 + 2x^2 - x + 12$.
   (b) $f(x) = 4\sqrt{x}$
   (c) $f(x) = e^{-x}(x - 2)$.
   (d) $f(x) = 4x^3/(2x^2 - x)$
   (e) $f(x) = \ln(x^{-3})$.

ANS: The derivatives are:

(a) $f'(x) = 18x^2 + 4x - 1$.
(b) $f'(x) = 2/\sqrt{x}$.
(c) $f'(x) = -e^{-x}(x - 2) + e^{-x} = e^{-x}(3 - x)$.
(d) $f'(x) = [12x^2(2x^2 - x) - (4x - 1)4x^3/(2x^2 - x)^2$.
(e) $f'(x) = [1/x^{-3}][-3x^{-4}] = -3/x$.

2. **Determine whether the following functions are strictly convex, strictly concave, or neither over the specified intervals:**
   (a) $f(x) = x^2 - 3x + 4$, for x = any real number.
   (b) $f(x) = \ln x$, for x > 0.
   (c) $f(x) = e^{ax}$, for x ≦ 0.
   (d) $f(x) = x^3 - 2x^2 + x$, for x ≧ 0.

ANS: The answers are determined by the signs of the second derivatives:

(a) $f''(x) = 2 > 0, and\ f(x)$ is strictly convex.
(b) $f''(x) = -1/x^2 < 0$, and f(x) is strictly concave.
(c) $f''(x) = a^2e^{ax} > 0, and\ f(x)$ is strictly convex.
(d) $f''(x) = 6x - 4$ which does not have a unique sign for x ≥ 0, and f(x) is neither strictly convex nor strictly concave over the entire interval.

3. **Find the values of x_1 and x_2 which maximize**
   $f(x_1, x_2) = 5x_1 + 10x_2 + x_2x_2 - 0.5x_1^2 - 3x_2^2$
   ANS: Setting the partial derivatives equal to zero,
   $f_1 = 5 + x_2 - x_1 = 0$ $\qquad$ $f_2 = 10 - 6x_2 + x_1 = 0$
   these equations have the solution $x_1 = 8$, $x_2 = 3$. The second-order conditions for a maximum are satisfied by this solution:
   $f_{11} = -1 < 0$ $\qquad$ $\begin{vmatrix} f_{11} & f_{12} \\ f_{21} & f_{22} \end{vmatrix} = \begin{vmatrix} -1 & 1 \\ 1 & -6 \end{vmatrix} = 5 > 0$

4. **Let f(x_1, x_2) = A$x_1^{\alpha}x_2^{\beta}$, where A, $\alpha, \beta > 0$, be defined for the domain $x_1, x_2 > 0$. Demonstrate that the function is strictly concave within its domain if and only if $\alpha + \beta < 1$.**

ANS: If $\alpha + \beta < 1$, the principal minors of the Hessian will alternate in sign, beginning with minus, as required for strict concavity:

$$f_{11} = \alpha(\alpha-1)Ax_1^{\alpha-2}x_2^{\beta} < 0$$

$$\begin{vmatrix} f_{11} & f_{12} \\ f_{21} & f_{22} \end{vmatrix} = \begin{vmatrix} \alpha(\alpha-1)Ax_1^{\alpha-2}x_2^{\beta} & \alpha\beta Ax_1^{\alpha-1}x_2^{\beta-1} \\ \alpha\beta Ax_1^{\alpha-1}x_2^{\beta-1} & \beta(\beta-1)Ax_1^{\alpha}x_2^{\beta-2} \end{vmatrix} = \alpha\beta(1-\alpha-\beta)A^2x_1^{2(\alpha-1)}x_2^{2(\beta-1)} > 0$$

Conversely, $\alpha + \beta \geq 1$ will violate the requirement that the Hessian be positive, and concavity cannot hold.

5. **Find the values for x_1 and x_2 that maximize f (x_1, x_2) = $x_1^2x_2$ subject to the requirement that $5x_1 + 2x_2 = 300$. Demonstrate that the appropriate second-order condition is satisfied.**

ANS: Form the Lagrange function

$$V = x_1^2x_2 + \lambda(5x_1 + 2x_2 - 300)$$

Where λ is an undetermined multiplier, and set its partial derivatives equal to zero:

$$\frac{\partial V}{\partial x_1} = 2x_1x_2 + 5\lambda = 0 \qquad \frac{\partial V}{\partial x_2} = x_1^2 + 2\lambda = 0$$

$$\frac{\partial V}{\partial \lambda} = 5x_1 + 2x_2 - 300 = 0$$

Substitute $2x_2 = 5\,x_1/2$ from the first two equations into the third:

$$5x_1 + \frac{5x_1}{2} - 300 = 0$$

Which gives the solution $x_1 = 40$, $x_2 = 50$.

The second-order condition, which requires that the bordered Hessian be positive, is satisfied:

$$\begin{vmatrix} 2x_2 & 2x_1 & 5 \\ 2x_1 & 0 & 2 \\ 5 & 2 & 0 \end{vmatrix} = 40x_1 - 8x_2 = 1200 > 0$$

6. **Find functions of two variables with the domains $x_1, x_2 > 0$ that are**
   - **(a) Quasi-concave, but not strictly quasi-concave and not concave.**
   - **(b) Strictly quasi-concave, but not concave.**
   - **(c) Quasi-concave, but not strictly quasi-concave and not strictly concave.**
   - **(d) Strictly quasi-concave and concave, but not strictly concave.**

ANS: A function is concave if $f_{11} \leq 0$ and H = $f_{11}f_{22} - f_{12}^2 \geq 0$, and strictly concave if the strict inequalities hold. A function is quasi-concave if D = $f_{12}^2f_1f_2 - f_{11}f_2^2 - f_{22}f_1^2 \geq 0$, and strictly quasi-

concave if the strict inequality holds. The reader may verify that the following functions have the desired properties by evaluating the appropriate determinants:

(a) $f(x_1, x_2) = -(\ln x_1 - \ln x_2)$.
(b) $f(x_1, x_2) = x_1 x_2$.
(c) $f(x_1, x_2) = x_1 + x_2$.
(d) $f(x_1, x_2) = x_1^{0.5} x_2^{0.5}$.

7. The locus of points of tangency between income lines and indifference curves for given prices p_1, p_2 and a changing value of income is called an income expansion line or Engel curve. Show that the Engel curve is a straight line if the utility function is given by
U = $q_1^{\gamma} q_2$, $\gamma > 0$.

ANS: Form the function V = $q_1^{\gamma} q_2 + \lambda(y - p_1 q_1 - p_2 q_2)$ and set its partial derivatives = 0.

$\gamma q_1^{\gamma-1} q_2 - \lambda p_1 = 0$ $\quad$ $q_1^{\gamma} - \lambda p_2 = 0$ $\quad$ y - $p_1 q_1 - p_2 q_2 = 0$
Which yields $p_1 q_1 = \gamma p_2 q_2$, a positively sloped straight line through the origin.

8. Let a consumer's utility function be U = $q_1^6 q_2^4 + 1.5 \ln q_1 + \ln q_2$ and his budget constraint $3q_1 + 4q_2 = 100$. Show that his optimum commodity bundle is the same as in Exercise 2.3. Why is this the case?

ANS:- V is a monotonic transformation of the utility function. Specifically, V = U^4 + ln U.

9. Prove that if the consumer is indifferent between commodity bundles $(q_1^0, \ldots, q_n^0)$ and $(q_1^{(1)}, \ldots, q_n^{(1)})$ and has a homothetic utility function, she will also be indifferent between the bundles $(tq_1^0, \ldots, tq_n^0)$ and $(tq_1^{(1)}, \ldots, tq_n^{(1)})$.

ANS: Using vector notation let g(q) be a homogeneous function and let f(q) be a monotonic increasing function of g. Since the two functions provide the same ordering, g(q^0) = g($q^{(1)}$. From homogeneity
$g(tq^0) = t^k g(q^0) = t^k g(q^{(1)}) = g(tq^{(1)}$ and finally, it follows that $f(tq^0) = f(tq^{(1)})$.

10. Construct an indirect utility function that corresponds to the direct function U = $\alpha \ln q_1 + q_2$. Use Roy's identity to construct demand functions for the two goods. Are these the same as the demand functions derived from the direct utility function?

ANS :- Maximization of utility subject to the budget constraint $v_1 q_1 + v_2 q_2 = 1$ yields the demand functions

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$q_1 = \frac{\alpha v_2}{v_1}$ q = $\frac{1}{v_2} - \alpha$

And the indirect utility function

U = $\alpha \ln\left(\frac{\alpha v_2}{v_1}\right) + \frac{1}{v_2} - \alpha$

With the derivatives

$\frac{\partial U}{\partial v_1} = -\frac{\alpha}{v_1}$ $\frac{\partial U}{\partial v_2} = -\frac{1-\alpha v_2}{v_2^2}$

$finally, by$ Roy's identity

$q_1 = \frac{-\alpha/v_1}{[-\alpha v_1/v_1 - v_2(1-\alpha v_2)/v_2^2]} = \frac{\alpha v_2}{v_1}$

$q_2 = \frac{-(1-\alpha v_2)/v_2^2}{[-\alpha v_1/v_1 - v_2(1-\alpha v_2)/v_2^2]} = \frac{1}{v_2} - \alpha$

Which are the same as the demand functions derived above.

11. Let the consumer's utility function be $f(q_1, q_2, q_3) = q_1 q_2 q_3$, and her budget constraint y = $p_1 q_1 + p_2 q_2 + p_3 q_3$. Consider $q_1 + (p_2/p_1)q_2 = q_c$ as a composite good. Formulate the consumer's optimization problems in terms of q_c and find the demand function for q_c.

ANS: The consumer maximizes $q_1 q_2 q_3$ subject to $y = p_1 q_1 + p_2 q_2 + p_3 q_3 = p_1 q_c + p_3 q_3$. Substituting $q_c = q_1 + p_2 q_2/p_1$ in her utility function, write the Lagrange function as

V = $\left(q_c - \frac{p_2}{p_1} q_2\right) q_2 q_3 + \lambda(y - p_1 q_c - p_3 q_3)$ and set the partial derivatives equal to zero:

$q_2 q_3 - \lambda p_1 = 0$ $\left(-\frac{p_2}{p_1}\right) q_2 q_3 + \left(q_c - \frac{p_2}{p_1} q_2\right) q_3 = 0$

$(q_c - \frac{p_2}{p_1} q_2) q_2 - \lambda p_3 = 0$ $y - p_1 q_c - p_3 q_3 = 0$

$solving$ for q_c yields $q_c = (2y/3p_1)$.

12. A consumer who conforms to the von Neumann-Morgenstern axioms is faced with four situations A, B, C, and D. She prefers A to B, B to C, and C to D. Experimentation reveals that the consumer is indifferent between B and a lottery ticket with probabilities of 0.4 and 0.6 for A and D respectively, and that she is indifferent between C and a lottery ticket with probabilities of 0.2 and 0.8 for B and D respectively. Construct a set of von Neumann-Morgenstern utility numbers for the four situations.

ANS: choose two points on the utility scale arbitrarily: for example, U(A) = 200 and U(D) = 100. Then

U(B) = (0.4)(200) + (0.6)(100) = 140

U(C) = (0.2)(140) + (0.8)(100) = 108

13. A consumer who obeys the von Neumann-Morgenstern axioms and has an initial wealth of 160,000 is subject to a fire risk. There is a 5 percent probability of a major fire with a loss of 70,000 and a 5 percent probability of a disastrous fire with a loss of 120,000. Her utility function is U = $W^{0.5}$. She is offered an insurance policy with the deductibility provision that she bear the first 7620 of any fire loss. What is the maximum premium that she is willing to pay for this policy?

ANS: The consumer can only reduce the dispersion of outcomes in this case. She cannot eliminate uncertainty. Equate the expected utilities from insurance and no insurance:
$(0.10)(152{,}380 - R)^{0.5} + (0.90)(160{,}000)^{0.5}$
$= (0.05)(90{,}000)^{0.5} + (0.05)(40{,}000)^{0.5} + (0.90)(160{,}000)^{0.5} = 385$
The value R = 11,004 provides a solution for this equation.

14. Determine the domain over which the production function $q = 100(x_1 + x_2) + 20x_1x_2 - 12.5(x_1^2 + x_2^2)$ is increasing and strictly concave.

ANS: The MPs, $f_1 = 100 + 20x_2 - 25x_1$ and $f_2 = 100 + 20x_1 - 25x_2$, are positive over the domain $0.8x_1 + 4 > x_2 > 1.0x_1 - 5$, and $f_{11} = f_{22} = -25 < 0$, $f_{11}f_{12} - f_{12}^2 = 225 > 0$ throughout two-dimensional space. It is also necessary to impose the condition that the input values be nonnegative.

15. Assume that an entrepreneur's short-run total cost function is $C = q^3 - 10q^2 + 17q + 66$. Determine the output level at which he maximizes profit if p = 5. Compute the output elasticity of cost at this output.

ANS: Equating the MC to price:
$3q^2 - 20q + 17 = 5$ and $3q^2 - 20q + 12 = 0$
Which has the roots q = 6 and $q = \frac{2}{3}$. At q = 6, $d^2C/dq^2 = 6q - 20 = 16 > 0$, hence this is the maximum profit solution; MC is decreasing at $q = \frac{2}{3}$.
The output elasticity of cost at q = 6 is
$\frac{C}{q}\frac{dq}{dC} = \frac{q^3-10q^2+17q+66}{q}\frac{1}{3q^2-20q+17} = \left(\frac{24}{6}\right)\left(\frac{1}{5}\right) = 0.8$ since dq/dC = 1/(dC/dq).

16. An entrepreneur uses one input to produce two outputs subject to the production relation $x = A(q_1^{\alpha} + q_2^{\beta})$ where $\alpha, \beta > 1$. He buys the input and sells the outputs at fixed prices. Express his profit-maximizing outputs as functions of the prices. Prove that his production relation is strictly convex for $q_1, q_2 > 0$.

ANS: Total profit is $\pi = p_1q_1 + p_2q_2 - rx = p_1q_1 + p_2q_2 - rA(q_1^{\alpha} + q_1^{\beta})$

Setting the partial derivatives equal to zero.

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$\frac{\partial \pi}{\partial q_1} = p_1 - r\alpha A q_1^{\alpha-1} = 0$ $\frac{\partial \pi}{\partial q_2} = p_2 - r\beta A q_2^{\beta-1} = 0$

Where, $q_1 = \left(\frac{p_1}{r\alpha A}\right)^{1/(\alpha-1)}$ $q_2 = \left(\frac{p_2}{r\beta A}\right)^{1/(\beta-1)}$

The production relation is strictly convex for $q_1, q_2 > 0$ if the principal minors of the relevant Hessian are positive within this domain. The second direct partials are the first-order minors:

$\frac{\partial^2 x}{\partial q_1^2} = \alpha(\alpha-1)Aq_1^{\alpha-2}$ $\frac{\partial^2 x}{\partial q_2^2} = \beta(\beta-1)Aq_2^{\beta-2}$

These are both positive for $q_1, q_2 > 0$ since $\alpha, \beta > 1$ by hypothesis. Finally,

$\frac{\partial^2 x}{\partial q_1 \partial q_2} = 0$ and $\frac{\partial^2 x}{\partial q_1^2}\frac{\partial^2 x}{\partial q_2^2} - \left(\frac{\partial^2 x}{\partial q_1 \partial q_1}\right)^2 > 0$

17. An entrepreneur uses two distinct production processes to produced two distinct goods, Q_1 and Q_2. The production function for each good is CES, and the entrepreneur obeys the equilibrium condition for each. Assume that Q_1 has a higher elasticity of substitution and a lower value for the parameter α than Q_2. Determine the input price ratio at which the input use ratio would be the same for both goods. Which good would have the higher input ratio if the input price ratio were lower? Which would have the higher use ratio if the price ratio were higher?

ANS: let k_1 and k_2 denote the input use ratios for Q_1 and Q_2 respectively, and let r denote the input price ratio. The equilibrium conditions are

$k_1 = a_1 r^{\sigma_1}$ and $k_2 = a_2 r^{\sigma_2}$

by hypothesis: $\sigma_1 > \sigma_2$ and $a_1 < a_2$. The input use ratios would be the same if $k_1 = k_2$: $a_1 r^{\sigma_1} = a_2 r^{\sigma_2}$ which implies that $r = (a_2/a_1)^{1/(\sigma_1-\sigma_2)}$. Dividing the expression for k_1 by that for k_2,

$\frac{k_1}{k_2} = \frac{a_1}{a_2} r^{(\sigma_1-\sigma_2)}$

since $\sigma_1 - \sigma_2 > 0$ by hypothesis, a price ratio greater than $(a_1/a_2)^{1/(\sigma_1-\sigma_2)}$ would make $k_1 > k_2$ and conversely.

18. Use Sherphard's lemma to find the production function that corresponds to the cost function $C = (r_1 + 2\sqrt{r_1 r_2} + r_2)q$, and demonstrate that it is CES.

ANS: By Shephard's lemma

$\frac{\partial C}{\partial r_1} = \left(1 + r^{-1/2}\right)q = x_1$ $\frac{\partial C}{\partial r_2} = \left(1 + r^{-1/2}\right)q = x_2$

Where $r = r_1/r_2$. Solving for $r^{1/2}$,

$r^{1/2} = \frac{q}{x_1 - q} = \frac{x_2 - q}{q}$

which yields the production function

$q = \frac{x_1 x_2}{x_1 + x_2} = \frac{1}{1/x_1 + 1/x_2} = 0.5[0.5x_1^{-1} + 0.5x_2^{-1}]^{-1}$ which by (5-7) is CES with $\sigma = 0.5$ ($\rho = 1$), $A = 0.5, and\ \alpha = 0.5$.

19. A linear production function contains four activities for the production of one output using two inputs. The input requirements per unit output are

$\boldsymbol{a_{11} = 1}$ $\boldsymbol{a_{12} = 2}$ $\boldsymbol{a_{13} = 3}$ $\boldsymbol{a_{14} = 5}$
$\boldsymbol{a_{21} = 6}$ $\boldsymbol{a_{22} = 5}$ $\boldsymbol{a_{23} = 3}$ $\boldsymbol{a_{24} = 2}$

ANS: The input requirements for a unit of output producing half with the first activity and half with the third are
(0.5)(1, 6) + (0.5)(3, 3) = (2, 4.5)
The second activity requires (2, 5) and consequently is inefficient.

20. Construct a short-run supply function for an entrepreneur whose short-run cost function is C = $\boldsymbol{0.04q^3 - 0.8q^2 + 10q + 5}$.

ANS: AVC = $0.04q^2 - 0.8q + 10$ and its minimum is found by setting its derivative equal to zero:
$\frac{d(AVC)}{dq} = 0.8q - 0.8 = 0$
$hence\ q = 10$, at which point AVC = 6 and MC = $0.12q^2 - 1.6q + 10$. Substitute p = MC, multiply through by 12.5, and solve for q = $(20 \pm 5\sqrt{3p - 14})/3$. The positive branch gives outputs at which MC is increasing. Hence

$S = 0$ if p < 6 and S = $\frac{20 + 5\sqrt{3p - 14}}{3}$ if p ≧ 6

21. The long-run cost functions for each firm that supplies Q is C = $\boldsymbol{q^3 - 4q^2 + 8q}$. Firms will enter the industry if profits are positive and leave the industry if profits are negative. Describe the industry's long-run supply function. Assume that the corresponding demand function is D = 2000 – 100p. Determine equilibrium price, aggregate quantity, and number of firms.

ANS: Firms will have a profit maximum of zero if p = MC = AC, which occurs at the minimum of the AC curve. AC = $q^2 - 4q + 8$ and reaches a minimum at q = 2, at which point p = 4. The long-run supply curve is horizontal and the amount supplied is 2n where n is the number of firms. At p = 4 the quantity demanded is 1600. Hence 1600 = 2n, and n = 800.

22. Construct an effective supply curve for an industry which has two sources of supply: (1) domestic production with the supply curve S = 20 + 8p, and (2) an unlimited supply of imports at a fixed price of 20.

ANS: The entire supply will come from domestic sources as long as price is less than 20. When price reaches 20, domestic supply is 180. Thereafter, the supply curve is horizontal. Domestic supply remains at 180, price remains at 20, and imports are q – 180.

23. Assume fifty years supply commodity Q at location I and fifty at location II. The cost of producing output q_i for the i^{th} firm (in either location) is $0.5q_i^2$. The cost of transporting the commodity to the market from location I is 6 dollars per unit and from location II, 10 dollars per unit. Determine the aggregate supply function.

ANS: The cost functions including cost of transportation are $c_1 = 0.5q_1^2 + 6q_1$ for firms in location I and $C_2 = 0.5q_2^2 + 10q_2$ for firms in location II. The first-order conditions for profit maximization are $(q_1 + 6) = p = (q_2 + 10)$, and the two types of supply functions for the firms are

$S_1 = 0$ if $0 \leqq p < 6$ and $S_1 = p - 6$ if $6 \leqq p$

$S_2 = 0$ if $0 \leqq p < 10$ and $S_2 = p - 10$ if $10 \leqq p$

The aggregate supply function is

$S = 0$ if $0 \leqq p < 6$, $S = 50p - 300$ if $6 \leqq p < 10$

And $S = 100p - 800$ if $10 \leqq p$

24. Consider the following markets which are characterized by lagged supply response:

(a) $D_t = 40 - 10p_t$; $S_t = 2 + 9p_{t-1}$.

(b) $D_t = 30 - 5p_t$; $S_t = 20 - p_{t-1}$.

Determine equilibrium price and quantity for each market. Assume an initial price 20 percent below the equilibrium price for each market, and determine the number of periods necessary for each price to adjust to within 1 percent of equilibrium

ANS: If $p_0 = 0.8p_e$, the time path is $p_t = [1 - 0.2(A/a)^t]p_e$ and $0.99p_e \leqq p_t \leqq 1.01p_e$ when

$-0.05 \leqq (A/a)^t \leqq 0.05$.

(a) Substituting for A and a gives $-0.05 \leqq (0.09)^t \leqq 0.05$. Taking the logarithm of $0.9^t = 0.05$ gives $t \approx 28.4$.

(b) Substituting gives $0.2^t = 0.05$ for the right limit which is attained for $t \approx 1.8$.

25. A monopolist uses one input X, which she purchases at the fixed price r = 5 to produce her output, Q. Her demand and production functions are p = 85 -3q and $q = 2\sqrt{x}$ respectively. Determine the values of p, q, and x at which the monopolist maximizes her profit.

ANS: The monopolist's profit is

$\pi = (85 - 3q)q - 5x = \left(85 - 6\sqrt{x}\right)\left(2\sqrt{x}\right) - 5x = 170\sqrt{x} - 17x$

$maximizing,$
$\frac{d\pi}{dx} = \frac{85}{\sqrt{x}} - 17 = 0$
$which$ has the solution $\sqrt{x}$ = 5, x = 25. Since $d^2\pi/dx^2 = -42.5x^{-3/2} < 0$, this is maximum. When x = 25,
$q = 2\sqrt{x} = 2\sqrt{25} = 10$ and p = 85 – 3q = 55

26. Let the demand and cost functions of a multiplant monopolist be p = a – b(q_1 + q_2), C_1 = $\alpha_1 q_1 + \beta_1 q_1^2$, and C_2 = $\alpha_2 q_2 + \beta_2 q_2^2$ where all parameters are positive. Assume that an autonomous increase of demand increases the value of a, leaving the other parameters unchanged. Show that output will increase in both plants with a greater increase for the plant in which marginal cost is increasing less fast.

ANS: The monopolist's profit is

$\pi = a(q_1 + q_2) - b(q_1 + q_2)^2 - \alpha_1 q_1 - \beta_1 q_1^2 - \alpha_2 q_2 - \beta_2 q_2^2$

Set the partial derivatives equal to zero:

$\frac{\partial \pi}{\partial q_1} = a - 2b(q_1 + q_2) - \alpha_1 - 2\beta_1 q_1 = 0$

$\frac{\partial \pi}{\partial q_2} = a - 2b(q_1 + q_2) - \alpha_2 - 2\beta_2 q_2 = 0$

Take total differentials with respect to q_1, q_2, and a, rearrange terms,

$2(b + \beta_1)dq_1 + 2bdq_2 = da$

$2b\, dq_1 + 2(b + \beta_2)dq_2 = da$

And solve for dq_1 and dq_2:

$dq_1 = \frac{2\beta_2}{D} da$ $dq_2 = \frac{2\beta_1}{D} da$; where $D = 4[b(\beta_1 + \beta_2) + \beta_1\beta_2] > 0$.

Hence, $dq_1/da > 0$. Furthermore, since the rate of change of MC in the i th plant is $dMC_i/dq_i = 2\beta_i$, output will increase more in the first plant if MC is increasing faster in the second ($\beta_2 > \beta_1$). It will increase more in the second if $\beta_1 > \beta_2$.

27. Let the demand and cost functions of a monopolist be p = 100 – 3q + $4\sqrt{A}$ and $C = 4q^2 + 10q + A$ where A is the level of her advertising expenditure. Find the values of A, q, and p that maximize profit.

ANS: Profit is

$\pi = (100 - 3q + 4\sqrt{A})q - (4\, q^2 + 10q + A)$

Setting the partials equal to zero,

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$\frac{\partial \pi}{\partial q} = \left(100 - 6q + 4\sqrt{A}\right) - (8q + 10) = 0$

$\frac{\partial \pi}{\partial A} = \frac{2q}{\sqrt{A}} - 1 = 0$

From the second equation q = $\sqrt{A}/2$. Substituting in the first equation and solving for $\sqrt{A}$ = 30 and A = 900, the corresponding output and price are q = 15, p = 175. It can be verified that the second-order conditions are satisfied.

28. Consider a market characterized by monopolistic competition. There are 101 firms with identical demand and cost functions:

$p_k = 150 - q_k - 0.02 \sum_{\substack{i=1 \\ i \neq k}}^{101} q_i$

$C_k = 0.5q_k^3 - 20q_k^2 + 270q_k$ k = 1, ……, 101

Determine the maximum profit and the corresponding price and quantity for a representative firm. Assume that the number of firms in the industry does not change.

ANS: The k th firm equates is MR and MC:

$MR_k = 150 - 2q_k - 0.02.$

29. Let duopolist I, producing a differentiated product, face an inverse demand function given by $p_1 = 100 - 2q_1 - q_2$ and have the cost function $C_1 = 2.5q_1^2$. Assume that duopolist II wishes to maintain a market share of $\frac{1}{3}$. Find the optimal price, output, and profit for duopolist I. Find the output of duopolist II.

ANS: I's profit is

$$\pi_1 = q_1(100 - 2q_1 - 0.5q_1) - 2.5q_1^2 = 100q_1 - 5q_1^2$$

Setting the first derivative equal to zero, and solving for q_1 yields

$\frac{d\pi_1}{dq_1} = 100 - 10q_1 = 0$

$q_1 = 10$ $q_2 = 5$ $p_1 = 75$ $\pi_1 = 500$

30. Let two duopsonists have production functions $q_1 = 13x_1 - 0.2x_1^2$ and $q_2 = 12x_2 - 0.1x_2^2$ where x_1, x_2 are the input levels employed by the duopsonists. Assume that the input supply function is $r = 2 + 0.1(x_1 + x_2)$ where r is the supply price of the input, and that q_1 and q_2 are sold in competitive markets for prices $p_1 = 2$ and $p_2 = 3$. (a) Find the input reaction functions. (b) Determine the Cournot equilibrium values for x_1, x_2, and q_1, q_2, π_1, π_2.

ANS: The profit functions are

$\pi_1 = 2(13x_1 - 0.2x_1^2) - [2 + 0.1(x_1 + x_2)]x_1$

$\pi_1 = 3(12x_2 - 0.1x_2^2) - [2 + 0.1(x_1 + x_2)]x_2$

Setting the appropriate partial derivatives equal to zero yields the input reaction functions

$x_1 = 24 - 0.1x_2$ $\qquad$ $x_2 = 42.5 - 0.125x_1$

Solving the reaction functions for x_1 and x_2, and substituting in the production and profit functions yields

$x_1 = 20$ $\qquad$ $q_1 = 180$ $\qquad$ $\pi_1 = 200$

$x_2 = 40$ $\qquad$ $q_2 = 320$ $\qquad$ $\pi_2 = 640$

31. Consumers distributed uniformly along a straight-line road are the potential market for two duopoloists whose decision problem is where to locate their sales offices. Demand is completely inelastic, and consumers will purchase from whichever sales office is nearer. Assume that the road is 4 miles long and that, for simplicity, each firm has exactly five possible strategies: it may locate itself at either end or at the 1-mile, 2-mile, or 3-mile markets. Let the payoffs to the duopolists be their respective market shares. (a) Is this a zero-sum (or constant-sum) game? (b) What is the payoff matrix? (c) What are optimal strategies for the duopolists?

ANS: The sum of the market shares equals one. Consequently, this is a constant-sum game. The payoff matrix in terms of I's shares is

I/II	0-mile	1-mile	2-mile	3-mile	4-mile
0-mile	0.500	0.125	0.250	0.375	0.500
1-mile	0.875	0.500	0.375	0.500	0.625
2-mile	0.750	0.625	0.500	0.675	0.750
3-mile	0.625	0.500	0.375	0.500	0.875
4-mile	0.500	0.375	0.250	0.125	0.500

Each dupolist will locate at the midpoint (the 2-mile market) with equal shares

$\underset{i}{max}\ \underset{j}{min}\ a_{ij} = \underset{j}{min}\ \underset{i}{max}\ a_{ij} = 0.500$

32. Let the buyer and seller for the bilateral monopoly discussed in Sec 8.5 have the production functions $q_1 = 270q_2 - 2q_2^2$ and $x = 0.25q_2^2$ respectively. Assume that the price of q_1 is 3 and the price of x is 6. (a) Determine the values of q_2, p_2 and the profits of the buyer and seller for the monopoly, monopsony, and quasi-competitive solutions. (b) Determine the bargaining limits for p_2 under the assumption that the buyer can do no worse than the monopoly solution and the seller can do no worse than the monopsony solution.

ANS: For the monopoly case the buyer's profit maximum is derived from

$\pi_B = 3(270q_2 - 2q_2^2) - p_2q_2$ $\quad\quad$ $\frac{d\pi_B}{dq_2} = 810 - 12q_2 - p_2 = 0$

And the demand function is $p_2 = 810 - 12q_2$. The monopolistic seller's profit maximum is derived from

$\pi_S = (810 - 12q_2)q_2 - 1.5q_2^2$ $\quad\quad$ $\frac{d\pi_S}{dq_2} = 810 - 27q_2 = 0$

The monopoly solution is

$q_{2S}^* = 30$ $\quad\quad$ $p_{2S}^* = 450$ $\quad\quad$ $\pi_{BS}^* = 5400$ $\quad\quad$ $\pi_{SS}^* = 12{,}150$

For the monopsony case the seller's profit maximum is derived from

$\pi_S = p_2q_2 - 1.5q_2^2$ $\quad\quad$ $\frac{d\pi_S}{dq_2} = p_2 - 3q_2 = 0$

And the supply function is $p_2 = 3q_2$. The monopsonistic buyer's profit maximum is derived from

$\pi_B = 3(270q_2 - 2q_2^2) - (3q_2)q_2$ $\quad\quad$ $\frac{d\pi_B}{dq_2} = 810 - 18q_2 = 0$

The monopsony solution is

$q_{2B}^* = 45$ $\quad\quad$ $p_{2B}^* = 135$ $\quad\quad$ $\pi_{SB}^* = 3037.50$ $\quad\quad$ $\pi_{BB}^* = 18{,}225$

The quasi-competitive solution is obtained by equating price and MC

$q_{2C}^* = 54$ $\quad\quad$ $p_{2C}^* = 162$ $\quad\quad$ $\pi_{SC}^* = 4374$ $\quad\quad$ $\pi_{BC}^* = 17{,}496$

With a total profit of 21,870. The bargaining limits are $135 \leq p_2 \leq 450$.

33. Consider a two-person two-commodity, pure-exchange economy with paper money. The utility functions are $U_1 = q_{11}q_{12}^{0.5}$ and $U_2 = q_{21}q_{22}^{0.5}$. Consumer I has initial endowments of 30 units of Q_1, 5 units of Q_2, and 43 units of money; II has respective endowments of 20, 10, and 2. Each of the consumers desires to hold a money stock equal to one-fifth of the value of her initial commodity endowment. Determine equilibrium money prices for Q_1 and Q_2. Show that the equilibrium prices would triple if the initial money stocks of I and II were increased to129 and 6 respectively.

ANS: The budget constraint for the ith consumer includes her excess demand for money:

$p_1E_{i1} + p_2E_{i2} + 0.2(p_1q_{i1}^0 + p_2q_{i2}^0) - q_{i3}^0 = 0$ $\quad\quad$ i = 1,2

Where q_{i3}^0 is i's initial money stock. Individual excess demand functions are obtained from the consumer's first-order conditions.

Setting aggregate excess demand equal to zero for each of the commodities,

$E_{11} + E_{22} = 10 - \frac{12p_2}{p_1} + \frac{2q_3^0}{3p_1} = 0$

$E_{12} + E_{22} = \frac{9-20p_1}{p_2} + \frac{q_3^0}{p_2} = 0$

Where $q_3^0 = q_{13}^0 + q_{23}^0$ is the aggregate money stock. Multiplying the first equation by p_1 and the second by p_2, and rearranging terms,

$-10p_1 + 12p_2 = \frac{2q_3^0}{3}$ $\qquad$ $20p_1 - 9p_2 = \frac{q_3^0}{3}$

These linear equations have the same solution

$p_1 = \frac{q_3^0}{15}$ $\qquad$ $p_2 = \frac{q_3^0}{9}$

It is obvious that commodity prices vary in proportion to the aggregate money stock. If money endowments are 43 + 2 = 45, prices are $p_1 = 3$, $p_2 = 5$. If money endowments are tripled to 129 + 6 = 135, prices are tripled to $p_1 = 9$, $p_2 = 15$.

34. Find equilibrium prices for the three-commodity system given by
$E_2 = 2p_2^2 + 22p_2 - 13p_2p_3 - 64p_3 + 20p_3^2 + 48 = 0$
$E_3 = p_2 - 2p_3 + 2 = 0$

ANS: Substitution for p_2 from the second equation into the first gives the quadratic equation $p_3^2 - 5p_3 + 6 = 0$ with the roots 3 and 2. The second equation gives 4 and 2 as the corresponding values for p_2. Thus, there are two equilibrium solutions: ($p_2 = 4$, $p_3 = 3$) and ($p_2 = 2$, $p_3 = 2$).

35. An economy satisfies all the conditions for Pareto optimality except for one producer who is a monopolist in the market for her output and a monopolist in the market for the single input that she uses to produce her output. Her production function is q = 0.5x, the demand function for her output is p = 100 – 4q, and the supply function for her input is r = 2 + 2x. Find the values of q, x, p, and r that maximize the producer's profit. Find the values for these variables that would prevail if she satisfied the appropriate Pareto conditions.

ANS: The producer's profit is $96q - 12q^2$, and its maximization yields q = 4, x = 8, r = 18, and p = 84. Total cost with r as a parameter is

C = rx = 2rq

The Pareto condition is that price equal the appropriate MC:

100 – 4q = 2r = 2[2+2(2q)] = 4 + 8q with the solution q = 8, x = 16, r = 34, p = 68.

36. Consider an economy with two consumers, two public goods, one ordinary good, one implicit production function, and a fixed supply of one primary factor that does not enter the consumer's utility functions. Determine the first-order conditions for a Pareto-optimal allocation. In particular, what combination of RCSs must equal the RPT for the two public goods?

Troy University Resources

ANS: Let q_{11} and q_{21} be the quantities of the ordinary good, q_2 and q_3 the quantities of the public goods, and x^0 the fixed quantity of the primary factor. A Pareto-optimal allocation is found by maximizing the utility of the first consumer subject to the condition that the second enjoy a fixed level of utility and subject to the requirement that the production function be satisfied.

Maximize V = $U_1(q_{11}, q_2, q_3) + \lambda[U_2^0 - U_2(q_{21}, q_2, q_3)] + \theta F(q_{11} + q_{21}, q_2, q_3, x^0)$

Where F denotes the production function. The first-order conditions are

$$\frac{\partial V}{\partial q_{11}} = \frac{\partial U_1}{\partial q_{11}} + \theta F_1 = 0 \qquad \frac{\partial V}{\partial q_2} = \frac{\partial U_1}{\partial q_2} - \lambda \frac{\partial U_2}{\partial q_2} + \theta F_2 = 0$$

$$\frac{\partial V}{\partial q_{21}} = -\lambda \frac{\partial U_2}{\partial q_{21}} + \theta F_1 = 0 \qquad \frac{\partial V}{\partial q_3} = \frac{\partial U_1}{\partial q_3} - \lambda \frac{\partial U_3}{\partial q_3} + \theta F_3 = 0$$

And the requirements that the constraints be satisfied.

The RPT between the public goods is F_2/F_3. Moving the last terms in the equations on the right to their right-hand sides and dividing one by the other, and then substituting for λ its solution from the equations on the left,

$$\frac{F_2}{F_3} = \frac{\frac{\partial U_1}{\partial q_2} - \lambda \frac{\partial U_2}{\partial q_2}}{\frac{\partial U_1}{\partial q_3} - \lambda \frac{\partial U_3}{\partial q_3}} = \frac{\frac{\partial U_1/\partial q_2}{\partial U_1/\partial q_{11}} + \frac{\partial U_2/\partial q_2}{\partial U_2/\partial q_{21}}}{\frac{\partial U_1/\partial q_3}{\partial U_1/\partial q_{11}} + \frac{\partial U_2/\partial q_3}{\partial U_2/\partial q_{21}}}$$

Which requires that the RPT equal the ratio of the sums of the RCSs of the consumers between the ordinary good and the public goods.

37. Assume that the cost functions of two firms producing the same commodity are
$C_1 = 2q_1^2 + 20q_1 - 2q_1q_2$ $C_2 = 3q_2^2 + 60q_2$
Determine the output levels of the firms on the assumption that each equates its private MC to a fixed market price of 240. Determine their output levels on the assumption that each equates its social MC to the market price.

ANS: Equating private MCs to price,

$$\frac{\partial C_1}{\partial q_1} = 4q_1 + 20 - 2q_2 = 240 \qquad \frac{\partial C_2}{\partial q_2} = 6q_2 + 60 = 240$$

which have the solution $q_1^c = 70, q_2^c = 30$.

The social cost function is the sum of the individual cost functions:

$C = 2q_1^2 + 20q_1 - 2q_1q_2 + 3q_2^2 + 60q_2$

the social MCs of the firms are now equated to the market price:

$$\frac{\partial C}{\partial q_1} = 4q_1 + 20 - 2q_2 = 240 \qquad \frac{\partial C}{\partial q_2} = -2q_1 + 6q_2 + 60 = 240$$

which have the solution $q_1^* = 84, q_2^* = 58$.

38. Determine taxes and subsidies that will lead the firms described in Exercise 36 to their Pareto-optimal output levels but leave their profits unchanged. What is the size of the social dividend secured by this change in allocation?

ANS: If unit subsidies of s_1 and s_2 are paid to producers, their cost functions become

$C_1 = 2q_1^2 + 20q_1 - 2q_1q_2 - s_1q_1$ $\qquad$ $C_2 = 3q_2^2 + 60q_2 - s_2q_2$

Letting private MC equal for each producer,

$4q_1 + 20 - 2q_2 - s_1 = 240$ $\qquad$ $6q_2 + 60 - s_2 = 240$

Which for $q_1^* = 84, q_2^* = 58$ yields $s_1 = 0$, $s_2 = 168$.

While the producers were maximizing profits without subsidies, their maximum profits were $\pi_1^0 = 9800, \pi_2^0 = 2700$. After subsidization their profits are $\pi_1^* = 14{,}112, \pi_2^* = 348$. The appropriate lump-sum taxes and social dividend are

$L_1 = \pi_1^* - \pi_1^0 + s_1q_1^* = 4312$ $\qquad$ $L_2 = \pi_2^* - \pi_2^0 + s_2q_2^* = 7392$

$S = L_1 + L_2 - s_1q_1^* - s_2q_2^* = 1960$

39. Assume that there are two consumers and two commodities. Let the utility functions be $U_1 = q_{11}q_{12}$ and $U_2 = q_{21}q_{22}$ with $q_{11} + q_{21} = q_1$ and $q_{12} + q_{22} = q_2$. Show that Scitovsky contours are given by $q_1q_2 = (\sqrt{U_1} + \sqrt{U_2})^2$.

ANS: A Scitovsky contour is found by maximizing the total quantity of Q_1, given the quantity of Q_2 and the utility levels of the consumers. Using the first-order conditions and the constraints, λ_2 *and* λ_2 can be eliminated with the result

$$U_1^0 - U_2^0 - q_1q_2 + 2\sqrt{U_2^0q_1q_2} = 0$$

letting $q_1q_2 = Z^2$, this is a quadratic equation:

$$Z^2 - \left(2\sqrt{U_2^0}\right)Z + (U_2^0 - U_1^0) = 0$$

Since the solution $\sqrt{U_2^0} - \sqrt{U_1^0}$ might make Z negative, which makes no sense in the present context, the final solution is

$q_1q_2 = Z^2 = \left(\sqrt{U_1^0} + \sqrt{U_2^0}\right)^2$ as required.

40. A consumer's consumption-utility function for a two-period horizon is $U = c_1c_2^{0.6}$; his income stream is $y_1 = 1000$, $y_2 = 648$; and the market rate of interest is 0.08. Determine values for c_1 and c_2 that maximize his utility. Is he a borrower or lender?

ANS: The function to be maximized is

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$V = c_1 c_2^{0.6} + \lambda[(1000 - c_1) + (1/1.08)(648 - c_2)]$

The first-order conditions are

$\frac{\partial V}{\partial c_1} = c_2^{0.6} - \lambda = 0$ $\frac{\partial V}{\partial c_2} = 0.6 c_1 c_2^{-0.4} - \frac{\lambda}{1.08} = 0$

$\frac{\partial V}{\partial \lambda} = 1000 - c_1 + \frac{1}{1.08}(648 - c_2) = 0$ with the solution $c_1 = 1000$, $c_2 = 648$. The consumer is neither borrower nor lender.

41. Consider a bond market in which only consumers borrow and lend. Assume that all 150 consumers have the same two-period consumption-utility function: $U = c_1 c_2$. Let each of 100 consumers have the expected-income stream $y_1 = 10{,}000$, $y_2 = 8400$, and let each of the remaining 50 consumers have the expected-income stream $y_1 = 8000$, $y_2 = 14{,}000$. At what rate of interest will the bond market be in equilibrium?

ANS: The Lagrange function for each consumer is

$V^* = c_1 c_2 + \mu[(y_1 - c_1) + (y_2 - c_2)(1 + i)^{-1}]$

See the partials equal to zero,

$\frac{\partial V^*}{\partial c_1} = c_2 - \mu = 0$ $\frac{\partial V^*}{\partial c_2} = c_1 - \mu(1 + i)^{-1} = 0$

$\frac{\partial V^*}{\partial \mu} = (y_1 - c_1) + (y_2 - c_2)(1 + i)^{-1} = 0$

And solve for

$c_1 = \frac{y_1 + y_2(1+i)^{-1}}{2}$

The consumer's excess demand for bonds is

$y_1 - c_1 = \frac{y_1 - y_2(1+i)^{-1}}{2}$

Bond-market equilibrium requires that aggregate excess demand by the two groups of consumers equal zero:

$100[5000 - 4200(1 + i)^{-1}] + 50[4000 - 7000(1 + i)^{-1}] = 700{,}000 - 770{,}000(1 + i)^{-1}$ with the solution i= 0.10.

42. Consider an entrepreneur engaged in a point-input-point-output wine-aging process. His initial cost is 20, the sales value of the wine is $R(T) = 100\sqrt{T}$, and the rate of interest is 0.05. How long is his optimal investment period?

ANS: The present value of the entrepreneur's profit is

$\pi = 100\sqrt{T}\, e^{-0.05T} - 20$

Which is maximized when $d\pi/dT = 0$:

$\frac{d\pi}{dT} = \left(\frac{50}{\sqrt{T}} - 5\sqrt{T}\right)^{e^{-0.05T}} = 0$ which has the solution T = 10.

43. An entrepreneur is engaged in tree growing. He purchases a seedling for 4 dollars, incurs a cultivation cost flow at a rate of G(t) = 0.4t dollars per year during the life of a tree, and sells the tree at t = T for R(T) = 4 + 8T – T^2 dollars. The market rate of interest is 0.20. Determine an optimal length for his cultivation period, T. Apply the appropriate second-order condition to verify that your solution is a maximum.

ANS: The present value of the entrepreneur's profit is

$\pi = (4 + 8T - T^2)e^{-0.2T} - 4 - \int_0^T 0.4te^{-0.2t}dt$

Setting the derivative with respect to T equal to zero,

$\frac{d\pi}{dT} = (8 - 2T)e^{-0.2T} - 0.2(4 + 8T - T^2)e^{-0.2T} - 0.4Te^{-0.2T} = 0$

With the roots T = (2, 18). The second-order condition requires that

$\frac{d^2\pi}{dT^2} = e^{-0.2T}(-0.04T^2 + 1.2T - 5.44) < 0$ and is satisfied for T = 2, but not for T = 18.

44. An entrepreneur plans for a one-machine horizon. He purchases the machine for 500 dollars. Its scrap value at time T is S(T) = 500 – 40T. The rate of interest is 0.05. The machine yields a quasi-rent flow at the rate Z_t = 85 – 4t dollars per year. When should the entrepreneur retire this machine?

ANS: The present value of the entrepreneur's profit is the present value of the quasi-rent stream, minus the original cost, plus the present value of the scrap value:

$\pi = \int_0^T (85 - 4t)e^{-0.05T}dt - 500 + (500 - 40T)e^{-0.05T}$

Letting $d\pi/dT = 0$ gives the solution T = 10.

45. Ann, Ben, Can, and Den think of one natural number. Ann says it consists of two digits. Ben says it is a divisor of 150. Can says it is not 150. Den says it is divisible by 25. Which one of them is not telling the truth?

ANS: Den is lying. Think about the natural number in question now.

46. A painting job can be completed by 7 painters in 41 days. If 21 more painters join the team 9 days after starting work on the job, then how many more days are required to complete the job?

ANS: 8 more days are required.

47. Three coworkers would like to know their average salary. However, they are self-conscious and don't want to tell each other their own salaries, for fear of either being ridiculed or getting their houses robbed. How can they find their average salary, without disclosing their own salaries?

ANS: Let 3 coworkers be A, B and C. A tells B and not to C that, "if my salary is $a (may or may not be right), then what is the average between two of us" B replies to C and not to A after computing the average based on his own true salary and the salary told by A, "Our average salary is $b= ($a+$true salary of B)/2". Then C computes the overall average, say $c= (2*($b)+ $true salary of C)/3. And C says to A and not to B, "Our average salary is $c". Then A announces the true average.

48. Clark, Daw and Fuller make their living as carpenter, painter and plumber, though not necessarily respectively. The painter recently tried to get the carpenter to do some work for him, but was told that the carpenter was out doing some remodelling for the plumber. The plumber makes more money than the painter. Daw makes more money than Clark. Fuller had never heard of Daw. What is each man's occupation?

ANS: Clark is the carpenter, Daw the painter, and Fuller the plumber.

49. The sales tax you pay while purchasing a toothpaste is

(a) Tax imposed by Central Government
(b) Tax imposed by Central Government but collected by the State Government
(c) Tax imposed by State Government but collected by the Central Government
(d) Tax imposed and collected by the Central Government

ANS: (d) Sales tax is imposed and collected by the state governments, the sales of goods at the consumer's end.

50. What does "Venture Capital" mean?

ANS: Entrepreneuers with ideas but lacking capital seek funds through Venture Capital funds. In RBI's classification such funds fall under Alternative Investment Funds (AIFs).

Indian Economy, World Economy & Social Development

1. Which of the recent reports has emphasised the need to link economic development to the behavioural dimensions of the target population?
(a) Social Forum Report, 2015
(b) World Economic Outlook, 2015
(c) World Development Report, 2015
(d) Human Development Report, 2014

ANS: (c) This is the first such report from the World Bank which accepts the importance of behavior in the domain of Economics. Experts take this instance as the arrival of the "behavioral economics" in the twin international bodies: the IMF and WB.

2. What is correct about 'opportunity cost'?
(a) The amount of money that today's assets will cost in future.
(b) The total amount of money spent on searching an opportunity
(c) The cost of something in terms of alternatives that had to be given up but could have been chosen instead
(d) None of the above

ANS: (c) Basically, opportunity cost is the cost forgone of an alternative.

3. Which of the following is correct about 'comparative advantage'?
(a) One firm having comparative edge on the other due to its specialities
(b) The situation neutralizing the edge between two companies with the right kind of comparative measures.
(c) Specializing in the production of things that individual/companies are relatively good at and trading with others who specialize in what they are relatively good at
(d) Both (a) and (c) are correct.

ANS: (c) This is a situation when nations'/firms' strengths and weaknesses become beneficial for one another and all get benefitted.

4. Consider the following statements and select the 'normative' ones regarding policy making by a democratic government:
1. India spent Rs. 50,000 crore on welfare schemes.
2. India should do more to promote irrigation.
3. India's reservation policy needs expansion.
4. Express Highways are serving economic purpose.

CODE:

(a) 1 and 2
(b) 2 and 3
(c) 3 and 4
(d) 1 and 4

ANS: (b) In a normative statement, some standards or rules of behavior are set or prescribed. For example, suggesting the government to do something.

5. Select the international organisation/Report which recently concluded – "Development policies become more effective when combined with insights into human behavior" – from the given list :

(a) World Development Report 2015
(b) World Happiness Report 2013
(c) World Economic Forum, 2015
(d) Human Development Report, 2015

ANS: (a) The World Bank has argued this in its World Development Report 2015: Mind, Society, and Behaviour. The report has found that policy decisions informed by 'behavioral economics' have delivered impressive improvements in healthcare and education in parts of India.

6. In the context of balance of payments, 'portfolio investment' relates to

(a) Takeover of foreign companies
(b) Purchase of shares in foreign companies
(c) Purchase of real estate in foreign companies
(d) Private remittances to foreign countries

ANS: (b) India allowed foreigners to purchase shares of the Indian companies in 1994, via only the foreign institutional investors (FIIs)− later extended to individuals too (2012−13). Similarly, Indian financial institutions (IFIs) as well as individuals may invest in the shares of the foreign companies− all of these transactions are related to India's current account therefore are all related to the balance of payments.

7. Which of the following will not be true if exchange rates are determined according to purchasing power parity (PPP)?

(a) If two countries have zero rate of inflation, their bilateral exchange rate will be constant.
(b) In response to a monetary shock, there will occur a overshooting of exchange rates.
(c) The prices of goods will be the same in all the countries when converted at the going rate of exchange.
(d) Exchange rate between any two currencies will be equal to the inflation differential between the two concerned economics.

ANS: (b) In practice, exchange rates are not calculated in this way. But if need, be we may do so.

8. While operating a "pegged exchange rate", a government must do which of the following?

(a) Use its forex reserves to intervene in the forex market –foreign currency is sold when the domestic currency is in excess supply and foreign currency is bought when domestic currency is in excess demand.
(b) Use its forex reserves to intervene in the forex market – foreign currency is bought when the domestic currency is in excess supply and foreign currency is in excess demand.
(c) Peg its currency with the strongest currency of the world on voluntary basis.
(d) None of the above.

ANS: (a) In the situations of the exchange instability the central banks of countries intervene in the foreign exchange market (provided the country is following the principles of market economy) with such variable choices.

9. Which of the following will be correct if an economy follows a 'floating exchange rate' regime?
(a) The exchange rate will adjust to keep the current account deficit/surplus just equal to the capital account surplus/deficit.
(b) The government does not need to maintain a forex reserve.
(c) For such regime to follow, the economy must maintain more foreign assets than foreign liabilities.
(d) The current account deficit must be maintained at the zero level by the economy.

ANS: (a) Practically, there is no country in the world with pure form of 'floating exchange rate'.

10. Which of the following statements relates to the trade in 'invisibles'?
(a) Specialised trading in financial assets.
(b) Trade in services, such as project reports, business process outsourcing, etc.
(c) Trade in illegal items, such as drugs
(d) Share trading in the companies, which are registered abroad

ANS: (b) Exports and imports are often classified into 'visibles' (goods – the things we can see) and 'invisibles' (services – the things we cannot see).

11. One of the following is a correct statement regarding the trade−off between 'inflation' and 'unemployment':
(a) There is a short−run but not a long−run trade−off between inflation and unemployment.
(b) There is always a trade−off between inflation and unemployment.
(c) There is a long−run trade−off between inflation and unemployment.
(d) **There is a long−run but no short−run trade−off between inflation and unemployment**.

ANS: (a) Basically, in short−run while increasing inflation induces higher employment in long−run it stops doing so.

12. What does a short−run 'Phillips curve' show?
(a) The rate of money−wage inflation for each level of possible unemployment and for a specific expected rate of inflation.
(b) The rate of money−wage inflation that is generated at full−employment
(c) The rate of money−wage inflation, which was already expected
(d) None of the above

ANS: (a) This is a curve depicting an empirical observation (based on the works of the British economist A. W. Phillips) of the relationship between the level of unemployment and the rate of change of money−wage and, by inference, the rate of change of prices (inflation).

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13. What does a long−run 'Phillips curve' show?
(a) The Level of unemployment at which expectations of and the actual outcome for inflation will be the same
(b) The rate of inflation at which structural and frictional unemployment will be eliminated
(c) The rate of unemployment at which inflation will fall
(d) The rate of inflation at which unemployment will be in equilibrium

ANS: (a) In this curve, the expectation for inflation in an economy at a certain rate of unemployment equalizes the real prevailing rate of inflation.

14. One among the following is 'a measure of the degree of seller concentration in a market that takes into account the total number of firms in the market and their relative size distribution'.
(a) Gini Coefficient
(b) Krugman Curve
(c) Friedman Index
(d) Herfindahl Index

ANS: (d) Herfindahl Index deals with the issue of seller's concentration in a particular market.

15. Two firms are competing against each other in a mature market with no expansion in the market size – one increasing its sales at the cost of the other's sale. This situation can be best described as
(a) Zero−sum game
(b) Constant market theory
(c) Indifference market
(d) None of the above

ANS: (a) The question is based on the Game Theory− a situation in which game players compete for the given total pay−off, so that gains by one player are at the direct expense of the other player/players.

16. 'A line that traces the relationship between the rates of return on bonds of different maturities' is called
(a) Marginal line
(b) Profit Indifference
(c) Coupling of rates
(d) Yield Curve

ANS: (d) The slope of this line suggests whether interest rates are tending to rise or fall. This is a concept of the Capital Market.

17. 'Williamson trade−off Model' is related to which of the following?
(a) Merger of companies
(b) Takeover of companies
(c) Balance Sheet making of an MNC
(d) All of the above

ANS: (a) This model evaluates the possible benefits (lower costs) and detriments (higher prices) of a proposed merger.

18. What is 'winner's curse'?
(a) In takeovers of companies, at times, the real benefit goes to the company, being taken over.
(b) The possibility that the winning bidder in an auction will pay too much cost for an asset.
(c) In mergers, usually the stronger firm gains but it pays a very high cost.
(d) None of the above.

ANS: (b) This takes place due to the fact that the winning bidder places a higher value on the asset than all other bidders− ultimately paying too much for the asset (thus, the curse of winner is that it wins but after paying very high a cost).

19. A method of accounting, which considers revenues and expenses as they accrue, even though cash would not have been received or paid during the period of accrual :
(a) Actuarial Basis
(b) Accrual Basis
(c) zero−based System
(d) Golden Budgeting

ANS: (b) Most of the accounting by the Government of India since 1995−96 has taken place on this basis.

20. Consider the following statements and select the correct code:
1. 'Confidence', considered as one of the essential ingredients of economic prosperity is called 'animal spirit'.
2. Animal spirit is a 'naive optimism'.

CODE:

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (c) The term was coined by J. M. Keynes who called this confidence a 'naïve optimism' by which an entrepreneur puts aside the fact of loss as a healthy person puts aside the expectations of death. The debate regarding the origin of this 'animal spirit' still continues – nobody knows whether this can be created artificially from outside or whether it is an innate thing some are born with!

21. Consider the following statements and select the correct code :
1. Most of the governments run unbalanced budgets.
2. In a balance budget there could be budget surplus but no budget deficit.

CODE:

(a) Only 1
(b) Only 2
(c) Both 1 and 2

(d) Neither 1 nor 2

ANS: (a) When the total expenditures of a government is equal to the taxes and other receipts it is a balanced budget. All budgets with either deficits or surpluses are unbalanced.

22. 'Increasing incomes due to inflation pushes individuals into higher tax slabs and leaves them worse off'. This phenomenon is known as :
(a) Black−Scholes
(b) Bracket Creep
(c) Backwardation
(d) Pauperisation

ANS: (b) We saw this situation in India between 2009 and 2013 when the rates of inflation being on the higher side, peoples' income were increasing, but average Indian were complaining of higher burden of expenditure.

23. What is correct about 'budget line'?
(a) The alternate combinations of goods that can be purchased by a consumer with a given income at given prices.
(b) The segregated items of expenditure which are taken into account when a government makes its budget.
(c) The expenditure pattern of a household which depends solely on fixed income.
(d) The classical dilemma of budgeting when expenditures usually try to cross the total income of the government.

ANS: (a) This shows by a line on the dual axis graph that is why is has such a name.

24. Select the correct statement/statements regarding 'carry trade' using the code given below:
1. Promoting foreign trade on the basis of bilateral terms
2. Borrowing in one currency and investing in another
3. A situation of zero trade balance

CODE :

(a) 1 and 2
(b) 2 and 3
(c) 1, 2 and 3
(d) None of these

ANS: (d) Only statement 2 is correct. Such a situation was seen between 1999−2007 when interest rate in Japan was near zero which allowed companies to borrow cheaper loans inYen and investing them in real estates (specially in the US, Australia and New Zealand) and share market (basically, in India and China).

25. 'A wide acceptance of the idea of 'caveat emptor' among the industrialists is believed to have propelled the development and growth of the industrialised economies'. What does the phrase in inverted commas mean?
(a) Privacy of innovation is supreme.

(b) Let the buyer beware.
(c) Understanding the mood of the consumer.
(d) Creating demand for a new product.

ANS: (b) The Latin phrase means 'let the buyer beware'. The idea says that supplier/producer has no obligation of informing buyers about any defects in the goods or services. The conviction gave rise to dishonest capitalism. Now situations have changed due to several legal safeguards taken by governments around the world.

26. Select the correct statement regarding 'debt swap' :
(a) A situation when unpaid part of loan of a borrower is written off by the lender.
(b) A phenomenon of replacing old loans with newer ones.
(c) Two bodies exchange their mutual loans on the same rate of interest.
(d) None of the above

ANS: (b) This was announced by the Government of India in 2003 to provide the states to go for cheaper loans (as the interest rate has fallen by then) by swapping their older loans.

27. Consider the correct code about 'derivatives' from the following statements:
1. Derivatives are instruments of raising capital.
2. They may have fixed assets as their collaterals.

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (C) Derivatives are the financial assets that 'derive' their value from other assets, such as shares, debentures, bonds, securities, etc.

28. 'Disgorgement' has been recently in news in India which stands for:
(a) Influencing public policy with the help of power−brokers.
(b) Allowing rich individuals and firms to stash their income away from India.
(c) Repayment of illegal incomes to those who were affected by the action.
(d) Pressurising tax havens of the world to share the details of accounts owned by Indians.

ANS: (c) This has been a common term in the developed economies though in India it is a new thing. The wrongdoers who earned by illegal means pay back the money with interest to those who were affected by the such actions (be it an individual, firm or the government).

29. Experts believe that the falling of share indices around the world in early 2008 was a 'domino effect' of the sub−prime crisis originating in the US economy. Select the correct meaning of the phrase in the inverted commas from the following choices:
(a) One economic event causing a series of similar events one after the other.
(b) Contractual effect due to higher economic integration among the World economies.

(c) Siphoning−in of the world incomes by a major economy towards itself.
(d) All of the above.

ANS: (a) A similar situation is cited from the mid−1996 when almost all major stock markets of the world all major stock markets of the world crashed in the wake of the South East Asian financial crisis emanating from Indonesia, Malaysia and Thailand.

30. 'People generally spend a smaller part of their budget on food as their income rises'. Which of the following is this situation referring to?
(a) Fischer's Dilemma
(b) Conspicuous Consumption
(c) Engel's Law
(d) Andean Theory

ANS: (c) The idea was suggested in 1857 by the Russian statistician Ernst Engel.

31. Select the correct statement about the Market Based Instruments (MBIs) approach to managing environment:
(a) It restricts the behaviour of the polluters.
(b) It incentivises the behaviour of the polluters by commands.
(c) It punishes the behaviour of the polluters by sending signals.
(d) None of the above.

ANS: (d) The MBIs approach sends economic signals (indicative in nature) to the polluters to modify their behavior. In response to the economic signals by the government the polluters voluntarily start the process of changing/modifying their polluting behaviour− also known as Economic Based Instruments (EBIs) approach to managing environment. Opposite to it, is the 'Command/control approach', the regulating body announces policies for environment management which are enforced as obligatory measures on the polluters (these measures are 'imperative' in nature).

32. The provision under which a foreign company offers shares to its employees overseas is known as :
(a) Consols
(b) Disgorgement
(c) ESOPs
(d) FoB

ANS: (c) This is employee stock option plans (ESOPs). This was allowed in India in February 2005.

33. Consider the statements given below and select the correct code :
1. In a situation of a 'fiscal drag', tax receipts of the government increases.
2. There is a general downturn in the total demand in the economy due to 'fiscal drag'.

CODE :

(a) Only 1
(b) Only 2

(c) 1 and 2
(d) Neither 1 nor 2

ANS: (c) '***Fiscal drag'*** is the restraining effect of the progressive taxation economies feel on their expansion. As people move from lower to higher tax brackets (slabs), the demand created by them falls (as they pay more personal tax).

34. Which of the following is applied as a measure by the governments to neutralize the negative impact of fiscal drag?
(a) Usually, personal tax allowances are increased.
(b) Indirect tax concessions are announced.
(c) Deflationary policies are announced.
(d) Interest rates are revised downward.

ANS: (a) 'Fiscal drag' results in higher tax collections by the government (also see question no. 5, for better understanding) but there is a fall in total demand in the economy (the negative impact of 'fiscal drag' or this is what we call as 'fiscal drag'). The best way is to provide some cushion on the front of personal tax (direct taxes which are paid by individuals such as income tax, interest tax, dividend tax, etc.)

35. Consider the following statements and select the correct one/ones using the code given below :
1. Fed Rate is the US counterpart of India's Repo Rate.
2. The official rate for the call Money Market in India is the current Repo Rate, which is announced by the RBI.

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (c) Federal Fund Rate (which is also known as Fed Fund Rate or Fed Rate) is the rate of interest that banks charge each other on overnight loans in the USA (in Indian market it is known as the Call Money Market), which is announced by the US central bank Federal Reserve (in India its counterpart is the RBI).

36. Match List−I with List−II and select your answer using the code given below :

LIST−I **Business Cycle**	**LIST−II** **Symptoms in Economy**
1. Slackness	A. Low demand, low inflation, high unemployment, voluntary retirement scheme prevalent.
2. Stagnation	B. Low demand, low inflation, increase in rate of unemployment.
3. Depression	C. Low demand, low inflation, growth rate not increasing, investment takes place
4. Recession	D. Low demand, low inflation, high unemployment, forced labour cut in practice.

CODE :

(a) A – 2, B−3, C−1, D−4
(b) A−4, B−1, C−3, D−2
(c) A−4, B−1, C−2, D−3
(d) A−3, B−2, C−4, D−1

ANS: (c) These are the different stages belonging to the concept of 'business cycle' or 'economic cycle'.

37. Select the correct statement about the 'Fisher Effect' :
(a) Higher the income one earns, lower part of it he spends on the fulfillment of food.
(b) Consumer non−durables are the major drivers of high economic growth in the developed economies driven by the rise of consumerism.
(c) The nominal rate of interest on a loan is the sum of the real interest on a loan is the sum of the real interest rate and the rate of inflation expected over the duration of the loan.
(d) International trade's volume is directly proportional to the expansion of the multinational companies away from their home countries.

ANS: (c) A concept propounded by the great US economist Irving Fisher (1867−1947) which suggests a direct relationship between inflation and nominal interest rates – changes in the rate of inflation induces matching changes in the economical rate of interest.

38. Select the correct statement/statements about a 'life insurance' company using the code given below :
1. In a joint−stock life insurance company, the company has no capital to begin with.
2. In a mutual−stock life insurance company, the company has some capital to commence its business with.

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (d) Basically both these statements are incorrect – while a 'joint stock' life insurance company has some capital base to begin its business with, a 'mutual−stock' life insurance company does not have any such capital,

LIC of India is a mutual−stock company, but benefits of its business go fully to the Government of India (which is unlike the other such life insurance companies in the world –there the profits are shared by the policy−holders themselves).

39. Select the correct statement/statements using the code given below :
1. A 'forward contract' binds the seller and buyer to pay and deliver the commodity on an agreed price on a future date.
2. A 'forward trade' allows the seller and buyer of shares to postpone payment and defer delivery.

CODE :
(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (c) A 'forward contract' must not be confused with 'future contract', as in it, the term of the contract cannot be decided by the mutual needs of the parties involved (which is possible in a 'forward contract'). A 'forward trade' allows such facilities but for this a certain change is paid – it is not allowed in all shares, too.

40. Name the famous theory of economics, which analyses the situations involving two or more interacting decisions makers with competing and conflicting interests, which also has its application in the formulations of nuclear strategies, ethics and evolutionary theory :
(a) Greater Fool Theory
(b) Goodhart's Theory
(c) Fisher Theory
(d) Game Theory

ANS: (d) The theory is credited to John von Neumann, a mathematician (1928).

41. Select the correct difference between the NEER and REER :

(a) While in NEER the current rate of inflation is adjusted, it is not adjusted in REER.
(b) While the rate of inflation is adjusted in REER, it is left unadjusted in NEER.
(c) While the NEER is calculated by the IMF for a currency, the REER is calculated by the economy whose currency it is.
(d) While REER shows the nominal value of the exchange rate of a currency, the NEER shows it in comparative context.

ANS: (b) Every economy keeps calculating its NEER (Nominal Effective Exchange Rate) and REER (Real Effective Exchange Rate) of its currency on a regular basis.

42. Select the incorrect statement/statements about the concept 'Gini Coefficient', using the code given below :
1. It is an inequality indicator in an economy, which was developed taking the clue from the 'Phillips Curve'.
2. The coefficient varies from zero to one−where zero shows absolute inequality and one indicates the situation of perfect equality.
3. It has been a highly useful tool in achieving perfect equality in Finland, Norway and Sweden.

CODE :
(a) 1 and 2

(b) 2 and 3
(c) 3 and 1
(d) 1, 2 and 3

ANS: (d) Perfect equality is just an ideal concept which has not been possible till date in any economy. It has not been developed from the Phillips Curve. In the statement 2 if we do it in opposite form it becomes correct.

43. 'Greater Fool Theory' used in the stock market stands for :
(a) A theory of analyzing the psychology of the investor in an over−valued stock
(b) A theory, which explains someone buying over valued stocks with the conviction that a greater fool will be there to buy them.
(c) A theory just opposite to the 'Castle−in−the−air Theory
(d) A theory, which analyses the situations under which technical analysts of stock market intellectually manipulate the select group of stock/shares

ANS: (b) '***Greater Fool Theory'*** is also known as the '***Castle−in−the−air Theory'***.

44. Select the correct statement/statements related to fiscal policy making using the code given below :
1. The proposition that a government should borrow only for 'investment' and not to finance the 'current expenses' is known as the 'golden rule' of budgeting.
2. The proposition of 'golden rule' basically, developed from the idea of 'zero−based budgeting' and 'balanced budgeting'.

CODE :
(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (a) Basically, the idea of 'golden rule' is older and the two concepts discussed in statement 2 developed in the process of follow−up to it.

45. Which of the following laws suggests that attempts by a central bank to regulate the level of lending by banks imposing certain controls can be circumvented by the banks searching alternatives out of the regulatory preview'?
(a) Flag of Convenience Law
(b) Swiss Syndrome Law
(c) Goodhart's Law
(d) Okun's Law

ANS: (c) The law is named after its developer, Charles Goodhart, a former advisor to the Bank of England and Professor at the London School of Economics. The law states that once a social or economic indicator is made target for the purpose of conducting social or economic policy, then it will lose the information content that would qualify it to play such a role. The law was stated in 1975, which has close similarities to **Campbell's Law** (1976) and the **Lucas Critique** (1976).

46. Select the correct statement/statements regarding Foreign Currency Convertible Bonds (FCCBs) using the code given below :

1. FCCBs are counted as part of the external debt.

2. They are usually used by the Indian companies to raise short−term loan in foreign currency.

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (a) FCCBs are the tools of raisisng long−term loan in foreign currency.

47. What is correct about the 'uncovered interest parity' in international finance?

(a) Inflation in two economies have direct impact on the real interest rates and foreign trade between them.

(b) The difference in the nominal interest rates between two economies determines the movement of nominal exchange rate between their currencies.

(c) Banking industry of the developed economies intentionally charging lower nominal interest so that cheaper investments can propel their foreign trade.

(d) A situation of under−recovery of international loans by the lending countries due to higher inflation rates in the borrower's economies.

ANS: (b) When this happens we see the value of the currency of the country with the lower nominal interest rate incrasing (appreciation), i.e., depreciation in the currency where the nominal interest rate is comparatively higher. This is known as 'International Fisher Effect' –propounded by the US economist **Irving Fisher.**

48. Consider the following statements and select the correct code given below :

1. Gallup Poll is immensely used for market research and election forecasting, named after the US statistician who developed it.

2. Galloping inflation is a kind of hyperinflation, which behaves the way Gallup survey is conducted.

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (a) Galloping inflation is nowhere connected to the Gallup survey. Hyperinflation (high as well as double digit) when it increases very fast is called **Galloping Inflation.**

49. 'Bad' money forces 'good' money out of circulation− proposes Gresham's Law. In light of this law, select the incorrect statement/statements given below, using the code: What Gresham's Law suggests :

1. **The Law may be easily analysing the circulation of 'black' money in the Indian economy−usually getting deposited in the tax havens.**
2. **The Chinese currency Yuan becoming more dependable than the US dollar today−is also its example.**

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS : (c) The Law proposed by Sir Thomas Gresham (an advisor to Queen Elizabeth – I of England) does not deal with 'black', 'white' or any weakening world currency, nor is it correct in the case of paper currencies. The law is correct once metallic currencies are in circulation, which have proportional intrinsic value−such currencies are hoarded (as in the case of price rise).

50. What is correct about 'induced investment', Select your answer using the code given below:

1. **An investment, which takes place in response to the level of national income.**
2. **It may go for increase as well as decrease.**

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (c) It is a comparative terminology used in the financial market analysis.

51. Select the correct statement/statements from the recently released Economic Census−2014, using the code given below :

1. **An estimated 47 million people left the agriculture sector since fiscal 2005.**
2. **Indian workers who are escaping the overcrowded farm sector.**
3. **59 million tiny enterprises in India employ 127 million people.**

CODE :

(a) Only 1
(b) 2 and 3
(c) Only 3
(d) 1, 2 and 3

ANS: (d) Such a mass movement of people away from the farm sector and into factories has been a feature of the development story in most Asian countries that have emerged out of mass poverty in recent

decades− from Japan to South Korea to Malaysia to China. The average enterprise employs just 2.2 people which resembles the *neighbourhood workshop* rather than a modern factory.

52. Which one of the following determinants do belong to the list of the 'impossible trinity' showing central bank's dilemma involved with making credit and monetary policy? Select your answer using the code given below :

1. Fixed exchange rate
2. Stable rate of inflation
3. Free capital flows
4. Independent monetary policy

CODE :

(a) 1 and 2
(b) 1, 3 and 4
(c) 2 and 3
(d) 1, 2 and 4

ANS: (b) This task is not only challenging but impossible for the central banks of the world. That is why it has 'impossible' word prefixed to it; and 'trinity' because they are three.

53. Select the correct statement about the term 'hog cycle' from the given list of statements below :

(a) It describes the phenomenon of cyclical fluctuations of supply and prices in the livestock markets.
(b) It shows the fluctuations in the sugar production following a low and high, every three years.
(c) It indicates the technical analysis concerning the cyclical rise and fall in the prices of the blue chip shares after every change in government at the national level.
(d) The cycle show the behaviours of industrial activities in the developing countries, which get affected by the agricultural performance in the concerned countries.

ANS: (a) This was first observed in the pig markets of the USA by M. Ezekiel and in Germany by A. Hannan. This is also known as pork cycle or cattle cycle−in recent times, the term 'hog cycle' has been used to show such situations in other sectors of the economy also.

54. Select the correct statement/statements about the 'Laffer curve' using the code given below

1. It suggests that higher tax rates initially increases government's tax collection but after a point it makes it fall.
2. But it is tough to know whether a country's tax rates are on this curve because higher tax rates also increases the instances of tax version.

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2

(d) Neither 1 nor 2

ANS: (a) Statement 2 is also correct regarding the curve but it is its criticism as we. The Arthur Laffer's proposition of 1974 links average tax rates revenue collected by the governments.

55. What is correct about the 'liar loans' from the given list of statements?
(a) The loans forwarded by the banks on the false claims of income or credit−worthiness of the borrower.
(b) The loans which show false statement in the credit ledges of the banks.
(c) The loans which have been sold and resold many times in the process of their recoveries.
(d) None of the above.

ANS: (a) This is usually done by loan−brokers for their clients in procurring loans for them from the banks. The whole gamut of the US sub−prime crisis revolved around the high scale incidents of 'liar loans'.

56. Select the correct statement/statements about 'capital consumption' using the code given below :
1. The situation when losses of a company in consecutive year make it obliged to pay its current expenses using the capital base of the company.
2. A situation when listed companies under report their capital base so that they may use it to start a new venture.

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (d) This is another name of the 'depreciation' (wear and tear) which a productive fixed asset goes through in the process of production. Different fixed assets have different rates of annual depreciation−vary from country to country.

57. What is correct about the 'life−cycle hypothesis'?
(a) The idea that in the whole life−time a person spends a little bit more money than he/she earns.
(b) The idea that current consumption of a person is not dependent on his/her current income but the anticipated lifetime income.
(c) The idea that the life−cycle of a firm is directly proportional to the level of constructive destruction it applies.
(d) **The idea that while a firm completes the life−cycle of its production techniques the technology applied outgrows**.

ANS: (b) This hypothesis has very high applied value in real life economic management−usually used by the private sector companies in product−placement and their customer−targeting strategies.

58. Select the correct statement/statements regarding the 'Lorentz curve' and give your answer using the code given below :

1. In it, the slope of the curve is proportional to per capita income at each point of the population distribution.

2. In the case of complete inequality in income, the curve is a straight line.

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (a) Straight line on this curve shows complete equality of income.

59. The two statements given below put together make a famous theory in economics. What is that?

1. Every economy at a point has fixed amount of work to be done.

2. The fixed amount of work in an economy may be shared in different ways to create fewer or more jobs.

CODE :

ANS: (d) Though the idea was applied in USA (in early 1930s) and France (late 1990s), most economists consider this is a fallacy as the amount of work to be done in economies is

60. Select the correct statement/statements about the Manual or Financial and Banking Statistics, using the code given below :

1. A manual published biannually by the Basel−based Bank of International Settlement.

2. The document provides the updated data on the World Bank together with the new prudential norms of running banking industry.

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (d) The first of its kind, the manual was released by the RBI, which works as reference guide and provides a methodological framework for compilation of statistical indicators encompassing various sectors of the Indian economy.

61. 'In a particular time−period more someone consumes something, the utility and importance of the consumed item goes on falling for the person'. The situation is best explained by the economic idea.

(a) Factorial Fall Theory

(b) Menu Cost Loss

(c) Consumption Limit
(d) None of the above

ANS: (d) The correct idea is 'diminishing marginal utility', which proposes that with consumption of every additional unit of a product in a particular time period the utility of the product goes on diminishing/ decreasing.

62. Select the correct statement/statements from the given list using the code :
1. A situation when people think that they are getting richer during the times of inflation is known as 'money illusion'.
2. It is believed that lower levels of 'money illusion' are beneficial to 'grease the wheels' of the economy.

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS: (c) The phrase was coined by the economist J.M. Keynes.

63. 'Countries with competing and conflicting interest pursuing their best strategies in full knowledge of each other's strategies in full knowledge of each other's strategies none has any incentive to change their strategy, once the level of equilibrium is reached'− which of the following ideas best describe the situation?
(a) Null Hypothesis
(b) Numeraire Equilibrium
(c) Lucas Equation
(d) None of the above

ANS: (d) This is 'Nash Equilibrium', a concept in 'game theory' named after its founder **John Nash**, a Nobel Laureate in Economics.

64. The goods whose demand increase as income of the people increases are :
(a) Inferior goods
(b) Giffen goods
(c) Normal goods
(d) None of the above

ANS: (c) Inferior goods are just the opposite of 'normal goods'.

65. Select the correct statement/statements about the 'Lorenz curve' from the given list using the code :
1. A straight line on it represents complete equality of income.
2. With greater curvature in it, the inequality of income rises proportionally− this inequality is measured by the 'Gini Coefficient'.

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS : (c) 'Gini Coefficient' measures the inequality in income in an economy.

66. Select the correct statement/statements regarding the 'Barro Misery Index', using the code given below.

1. The index measures the economic misery in a country by adding the inflation rate, growth rate and the bank rate of a particular time.
2. Higher the value on the index, higher misery is believed to prevail in the country.

CODE :

(a) Only 1
(b) Only 2
(c) 1 and 2
(d) Neither 1 nor 2

ANS : (b) The index was proposed by the US economist Robert Joseph Barro in the early 1970s, which is often confused with 'Misery Index' credited to another US economist Arthur Okun who came in the late 1960s. While Okun's index considers only the inflation and unemployment rates, Barro added the GDP growth rate and Bank Rate to it in addition where GDP growth rate and Bank Rate to it in addition where GDP growth rate is negatively added for calculation purpose.

67. Consider the following statements and select the correct one/ones using the code given below :

1. 'Opportunity cost' is a measure of the cost of using resources to produce one particular good or service in terms of the foregone alternatives.
2. 'Economic cost' is a measure of the cost of the resources, which were spoiled as the collateral damage in the process of producing a particular good or service.

CODE :

(a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

ANS : (a) 'Opportunity Cost' and 'Economic Cost' are synonymous.

68. Select the correct statement/statements about 'Pareto optimality' using the code given below :

1. It deals with distribution in an economy at the optimum level of taxation prevailing in the economy.

2. **It suggests that in an economy somebody may be made better off by making somebody else worse off.**
3. **The idea works as a guide to finance managers in deciding how to spend limited funds.**

CODE :

(a) Only 1
(b) 2 and 3
(c) 1 and 3
(d) 1, 2 and 3

ANS : (b) The concept is not connected to taxation. This idea of the Italian economist Vilfredo Pareto (1843–1923) suggests that 'nobody can be made better off without making someone else worse off'.

69. Select the proposition/propositions, which are correct as per the famous 'Parkinson's Law' proposed in the 20th century:
1. **Expenditure rises automatically to meet the rise in income.**
2. **Work expands to fill the time in which it has to be done.**
3. **Subordinates multiply at the rate, which is dependent on the amount of work produced.**

CODE :

(a) Only 1
(b) 1 and 2
(c) 2 and 3
(d) 1, 2 and 3

ANS : (b) Subordinates multiply at a 'fixed' rate that is 'independent' of the amount of work produced. The idea was proposed by the British writer Cyril North Cote Parkinson (1909–93), though seems fictitious they are true, devised with lounge organizations in mind and it is to such organizations that they apply, unless managers take steps to ensure that they do not.

70. Which one of the following decisions follows the idea of 'prisoner's dilemma'? select the correct answer using the code given below :
1. **Companies fixing prices of their products at levels less than they could in the trust that other companies do not fix lower prices.**
2. **The dilemma ultimately hampers the companies, which fixes the higher prices.**

CODE :

(a) Only 1
(b) Only 2
(c) 1 and 2
(d) Neither 1 nor 2

ANS : (a) This is a situation in the concept of the 'Game Theory'.

71. Which of the following is/are correct as per the 'theory of random walk'? Select the answer using the code:

1. When there is no way of knowing the next change in the price of financial assets.

2. Investors cannot outperform the market consistently.

CODE :

(a) Only 1
(b) Only 2
(c) 1 and 2
(d) None of the above

ANS : (c) When it becomes impossible to predict the next step, it is the situation of 'random walk'. As opposed to this, economists also suggests 'non−random walk theory' according to which the prices of financial assets are always predictable –it means that investors can outperform the market with consistency.

72. Select the correct one/ones from the given list of statements using the code given below :

1. Higher the price−earning ratio shares they have, higher the investment they are able to attract.

2. Shares with lower price−earning ratios attract lower investment.

3. Lower the price−earning ratios, higher the investmemnts the shares are able to attract.

CODE :

(a) Only 1
(b) Only 2
(c) Only 3
(d) None of the above

ANS : (c) Price earning ratio of shares is calculated by dividing their market price by their earning per share.

73. Select the correct statement/statements which are correct as per the famous 'Say's Law' using the code given below :

1. Economic systems are 'supply−led'.

2. All accruing income is to be spent.

3. Aggregate supply creates its own aggregate demand in an economy.

CODE :

(a) 1 and 2
(b) 2 and 3
(c) 1 and 3
(d) 1, 2 and 3

ANS : (d) The famous idea was given by the French economist Jean Baptiste Say (1767 – 1832). The proposition gives an important clue in order to achieve full employment level all that is needed is to

Troy University Resources

increase the aggregate (total) supply in an economy. The process of economic reforms started in India in 1991 was a 'supply−led' method to encourage growth and development, kick−started by the process of unshackling the potential of private capital, be it Indian or foreign. But in practice, some income 'leak' into saving, taxation, etc., and there is no guarantee that all income is 'injected' back as spending. Due to this, another group of economists suggest that economic systems are 'demand−led' and they advise to attend demand vigorously for growth and development.

74. Consider the statements given below and select those ones, which will be correct as per the concept of 'Pigou effect'.
1. Wealth effect on the economy.
2. An increase is the real value of the money.
3. Higher demand and higher employment.

CODE:

(a) 1 and 2
(b) 2 and 3
(c) 1 and 3
(d) 1, 2 and 3

ANS : (d) The concept of the British economist Arthur Ceil Pigou (1877−1989) suggests that during the periods of deflation (price fall), there is a kind of 'wealth effect'. As the value of money increases, people feel wealthier, which induces higher demand creation from the finally increasing employment.

75. What is correct about the 'second−best theory'?
(a) An idea, which suggests a way out of the situation when all optimal conditions are not met, is an economic model.
(b) An idea, which meets all the conditions of development model, in welfare economics.
(c) An idea, which proposes that all the conditions for an ideal level of investment cannot be met, in an economy.
(d) The idea of non−commitment to meeting the conditions required for the change in an economy.

ANS : (a) An idea concerning welfare economics, which suggests what happens when one or more conditions cannot be met to go for the'second−best situation' of meeting as many conditions as it is possible to be met. This was pronounced by the Canadian economist Richard Lipsey and the Australian economist Kelving Lancaster (in a paper co−authored by them titled *'The General Theory of Second Best'*, 1956).

76. Consider the following statements and select the incorrect one/ones using the code given below :
1. Expenditures done on advertisement, research and development are known, as 'essential costs'.
2. The costs, which are borne on account of salaries, fringe benefits, pensions and provident funds, are known as 'sink cost'.

CODE :

(a) Only 1
(b) Only 2
(c) 1 and 2
(d) None of the above.

ANS : (c) The expenditure on the items discussed in statement 1 is 'sink cost'. There is nothing like 'essential cost' in business economics.

77. The World Trade Organization has a provision under which member countries need to cut their trade tariff to zero in a phased−manner for which the 'Swiss formula' is applied. Select the incorrect statement/statements related to using the code given below:

1. In the Swiss formula, tariff cuts are proportionally higher for the countries, which have higher initial rates.
2. This is a linear method of tariff cuts.

CODE :

(a) Only 1
(b) Only 2
(c) 1 and 2
(d) None of the above

ANS : (b) This is a non−linear method of tariff cut. The formula originated at Switzerland Round of Negotiation of the General Agreement on Trade and Tariff (GATT).

78. Consider the statements given below:

1. WTO makes it obligatory for the member countries to rationalise their agriculture subsidies.
2. Some economies of Europe and America provide as high as 220 per cent subsidies to their agriculture in the 'green box' while its level is just below 10 per cent in case of most of the developing economies, that too including 'blue box'.

To rationalize such kind of subsidies which 'method' of 'subsidy cut' looks suitable?

(a) Linear
(b) Non –linear
(c) Proportional
(d) Regressive

ANS : (b) As in the case in 'Swiss formula' countries with rates of subsidies cutting them with higher rates and vice versa looks suitable.

79. Consider the following statements and select the correct one/ones about the 'Veblen effect' using the code given below :

1. Consumers may have an 'upward−sloping demand curve' as opposed to a 'downward−sloping demand curve' because they practice conspicuous consumption.
2. Quantity demanded of a particular good varies directly with a change in price.

CODE:

(a) Only 1
(b) Only 2
(c) 1 and 3
(d) None of the above.

ANS : (c) A 'downward−sloping demand curve' means that the quantity demanded varies inversely to the price, i.e., demand falls with price rise. Demand changing directly with a price change means as price increases, demand increases. The idea was proposed by the US economist Thorstein Bunde Veblen (1857−1929).

80. Select the policy decision/decisions a government should take to promote foreign investments in the economy:
1. Allowing full convertibility to its currency in current and capital accounts.
2. Reducing or withdrawing the 'withholding tax'.
3. Prohibitory laws for its nationals for overseas investments.

CODE :

(a) 1 and 2
(b) 2 and 3
(c) 1 and 3
(d) 1, 2 and 3

ANS : (a) The 3rd statement is neutral to the issue of attracting foreign investment and its promotion. Once the domestic currency becomes fully convertible in the capital account such prohibitory laws are not possible. That is why India believes in not allowing such convertibility at the full scale as the economy does not want foreign exchange taking flight from the economy (since it is itself trying to attract it).

81. Which of the following Nobel laureates in Economics sees development in terms of 'freedoms' and 'capabilities'?
(a) Joseph Stiglitz
(b) Paul Krugman
(c) Jeffrey Sachs
(d) None of the above

ANS : (d) This is Amartya Sen who opined that enhancing the lives and the 'freedoms' we enjoy should be the concerns of development known as the 'capabilities' approached to development.

82. Which of the following five year plans was first to see the visible influence of the 'Washington Consensus'?
(a) Sixth Plan
(b) Seventh Plan
(c) Eighth Plan
(d) Ninth Plan

ANS : (b) This Plan (1985−90) promoted the first lot of liberal policies in the economy with Mr. Rajiv Gandhi as the PM.

83. One of the two categories of measures, which India decided to take in the reform period was 'microeconomic stabilisation'. What was the main objective of this?

(a) Government committed to promote all those things by which the 'aggregate demand' in the economy could be enhanced.

(b) The main objective of these measures was promoting all those policy incentives which could enhance the 'aggregate supply' in the economy.

(c) Its main objective was to strengthen the fundamentals of the economy, such as fiscal deficit, inflation, foreign currency reserves.

(d) Its main objective was diluting the dominance the dominance of state in the economy and promoting the private sector in place, arrived at by unshackling the potential of private capital and entrepreneurship.

ANS : (a) Such measures are related to 'demand creation' for which the need was to increase the purchasing power of the population−only possible through creating enough opportunities of gainful employment, trade, business, etc.

84. Select the correct statement, which defines the 'third generation of economic reforms' in India:

(a) Decentralization of the development and the reform process of the other generations.
(b) Promoting financial inclusion and literacy.
(c) Promoting economic reforms with the 'human face'.
(d) None of the above.

ANS : (a) This generation of reform was announced by the Government in 2000−07 simultaneously with the Second Generation of Economic Reforms.

85. Select the correct set of determinants which the process of the 'second generation of economic reforms' includes in India, using the code given below:

1. Factor Market Reforms
2. Reforms in the government institutions
3. Public Sector Reforms
4. Legal System Reforms

CODE:

(a) 1 and 2
(b) 2, 3 and 4
(c) 2 and 3
(d) 1, 2, 3 and 4

ANS : (d) All are the determinants of this generation of economic reforms which commenced in the financial year 2002−03.

86. 'Structural reform measures' was one of the two categories of measures of announced by the Government to be taken under the process of economic reforms in India. These measures deal with –

1. Redefining the role of state in the economy
2. Attempting higher participation of private capital−Indian and foreign
3. Increasing aggregate supply in the economy.

Select the answer using the code given below:

(a) 1 and 2
(b) 2 and 3
(c) 1 and 3
(d) 1, 2 and 3

ANS : (d) These measures synchronized everything, which could encourage the supply in the economy.

87. Select the incorrect statement/statements about Indian planning, using the code given below:

1. It adopts 'systems approach' to planning, which follows the stand of social neutrality.
2. Indian planning includes the 'normative approach', which follows the social−technical standpoint.

CODE:

(a) Only 1
(b) Only 2
(c) 1 and 2
(d) None of the above

ANS : (b) Indian planning maintains a value−neutral approach to the socio−cultural diversities/realities. Opposite to it, in the 'normative approach' planning is done according to the social realities.

88. Select the incorrect statement/statements regarding 'regional planning' in India, using the code given below :

1. National Planning in India precedes Regional Planning.
2. Damodar Valley Corporation (DVC), the first experiment in regional planning in India, was modeled on the Volta River Project of Ghana.

CODE:

(a) Only 1
(b) 1 and 2
(c) Only 3
(d) Neither 1 nor 2

ANS : (b) National Planning in India commenced in 1951 with the First Five Year Plan (1951−56) while the DVC was set up in 1948 itself. The DVC was modeled on the first regional plan the Tennessee Valley Authority (TVA) of USA founded in 1916 (on which the Volta River Project is also modelled).

89. Select the incorrect statement/statements concerning the wholesale price index (WPI) in India, today using the code given below:

1. **The data of WPI for the 'primary articles' are released now on monthly basis following the general international practice aimed at giving a real trend of price levels.**
2. **The data of WPI for the 'manufactured items' and the 'fuel and power' group are released now on a weekly basis so that the industries get the correct and timely signals of the market situations.**

CODE:

(a) Only 1
(b) Only 2
(c) 1 and 2
(d) None of the above

ANS : (c) Since November 2009, the Ministry of Commerce & Industry releases two sets of WPI−based inflation data. One set of data for the 'manufactured products' released monthly so that the industrial sector gets more stable picture about the prices (this is the prevalent tradition in most of the economies). The other set of WPI data is for the 'primary articles' and the 'fuel & power' groups released on the weekly basis so that the government may monitor the sensitive items they include, more promptly.

90. Select the correct regarding traits of the stage of 'boom' in economies:

1. **Prolonged increase in demand**
2. **A visible supply−lag prevails**
3. **Creation of a seller's market**

CODE:

(a) 1 and 2
(b) 1 and 3
(c) 2 and 3
(d) 1, 2 and 3

ANS : (d) Economic activities get intensified−economy feels the pressure of creating more supply as demands run high (known as supply−lag), producers and suppliers develop an upper edge in such situations (suppliers' market).

91. Select the incorrect statement/statements about the fiscal policy of the modern economies using the code given below :

1. **As development comes in, there are lesser challenges on the expenditure front for the governments.**
2. **More development means more government expenditure.**
3. **Governments in the developed countries have been able to limit their expenditures dur to higher levels of development.**

CODE:

Troy University Resources

(a) 1 and 2
(b) Only 2
(c) 1 and 3
(d) Only 3

ANS : (c) This is based on empirical experience and falsifies the layman logic. But in reality, as an economy moves ahead on the ladder of development its expenditures go on increasing. This is primarily due to the increase in expenditures in maintaining/sustaining the achieved level of development and secondarily on account of even higher aspirations of development.

92. Given below are some major symptoms of an economy:
1. Lower inflation with low aggregate demand
2. Unemployment rate increasing steadily
3. Voluntary labour cuts by industries

Select the correct phase of 'economic cycle' in which the economy seems to be undergoing through:

(a) Recession
(b) Depression
(c) Stagnation
(d) Slowdown

ANS : (a) Recession is one of the economic/business cycle of the economies, which has the common symptoms of : a general fall in aggregate demand of goods and services; lower levels of inflation; falling rate of employment/rising rate of unemployment; production houses applying varying tools of labour cuts (but they are 'voluntary' and not 'forced'). With every symptom being the same, if the production houses start going of 'forced labour cuts', this is the phase of 'Depression' which visited the market economies of Europe and America in 1929 (The Great Depression).

93. Select the incorrect statement/statements regarding the exchange rate management by the International Monetary Fund (IMF), using the code given below:
1. Exchange rate of the member countries was managed by the IMF as per the 'fixed currency system' till 1976, which did not allow the market forces.
2. 'Floating currency system' was first used in 1971 by the UK.

CODE:

(a) Only 1
(b) Only 2
(c) 1 and 2
(d) None of the above

ANS : (a) 'Fixed currency system', functioned from 1945 to 1971, after the UK shifted to the 'floating system', the IMF allowed option to the member countries in selecting the system of exchange rate management through either of these two.

94. Select the incorrect periodic publications from the IMF related to its function of 'surveillance':

1. World Economic Outlook
2. World Development Report
3. International Capital Markets
4. Global Financial Report

CODE:

(a) 1 and 2
(b) 2 and 4
(c) 2 and 3
(d) 1 and 4

ANS : (b) While the World Economic Outlook is a major bi−annual publication, the International Capital Markets is an annual release.

95. Select the major issues due to which India's export is yet to take off, as demarcated by the GoI, using the code given below:

1. Lack of proper product diversification
2. Inverted duly structure
3. Lack of proper export infrastructure
4. Trade facilitation
5. Interwinning of domestic and external−sector policy

CODE:

(a) 1 and 3
(b) 2, 3 and 4
(c) 1, 3 and 5
(d) 1, 2, 3, 4 and 5

ANS : (d) All of them are the reasons behind subdued export performance of India−the issues have been elaborated by the ***Economic Survey 2013−14.***

96. Which one among the following sectors has attracted the highest foreign direct investment inflows into India in the last 24 years?

(a) Automobile industries
(b) Services sector
(c) Food processing
(d) Special Economic Zones

ANS : (a) Overall, the telecommunication sector has been the highest FDI attracting sector of the Indian economy.

97. The Reserve Bank of India calculates four components of money supply, M_1, M_2, M_3 and M_4. Select the incorrect pair out of the following:

(a) M_1 = includes currency and coins with the public; demand deposits of the banks and other deposits with the RBI

(b) M_2 = includes M_1 and demand deposits of the post offices

(c) M_3 = includes the sum of M_1 and M_2

(d) M_4 = includes the sum of M_3 and demand as well as time deposits of post offices

ANS : (c) M_3 stands for the sum of M_1 and total deposits of the banks (i.e., demand and time deposits of the banks). These Components of Money in India were defined by the 2nd Working Group on Money Stock set up by the RBI in 1972. The 3rd Working Group on the Money Stock has already submitted its report to the RBI in 1998. As per it, the new components of money in India are: M_0, M_1, M_2 and M_4. Together with the new stock of money, the Working Group has suggested simultaneous liquidities of the respective stocks also namely L_0, L_1, L_2 and L_3.

98. A state of 'equilibrium' for a consumer means

(a) A state of saving rate equal to the growth rate of the economy for the consumer

(b) A state of zero saving for the consumer and full expenditure

(c) The consumer is unable to fulfill needs with the given income

(d) The consumer is able to fulfill needs with as given level of income

ANS : (d) Though this ideal stage is reached only in hypothesis, with the changing time consumers not only demand new goods and services but also new times come with alternatives of it.

99. Consider the following list of some Financial Institutions of India:

1. Financial Finance Corporation of India

2. Industrial Credit and Investment Corporation of India

3. Industrial Development Bank of India

4. Unit Trust of India

Which of the financial institutions have gone for reverse merger?

(a) 1 and 2
(b) 2 and 3
(c) 1 and 3
(d) 3 and 4

ANS : (b) ICICI was allowed to do so in 2000 while the IDBI went for the same in 2002 into ICICI Bank Ltd. And IDBI Bank Ltd., respectively. In 'reverse merger', a senior/mother firm gets merged with its junior/daughter firm.

100. Consider the following international economic organizations:

1. International Bank for Reconstruction and Development (IBRD).

2. International Finance Corporation (IFC).

3. International Fund for Agricultural Development (IFAD)

4. International Monetary Fund (IMF)

Which of the above given agencies is/are not sponsored by the United Nations?

(a) 1 and 2
(b) Only 1
(c) 2 and 3
(d) None of the above

ANS: (d) All are sponsored by the UNO.

101. Consider the following statements related to the RBI:

1. **Reserve Bank of India was privately owned before its nationalistaion.**
2. **After nationalization the RBI seized to function as a bank.**
3. **Now RBI does not subscribe to the primary issue of the G−Secs.**

Which of the above is/are not correct?

(a) Only 1
(b) 1 and 2
(c) Only 3
(d) None of the above

ANS : (d) All the statements are correct. Statement 3 says about the reality after implementing the clause of the Fiscal Responsibility and Budget Management Act (FRBMA) dealing with it in the 2006−07 financial year.

102. Consider the following statements related to service delivery in India:

1. **'Aadhaar' will be used for guaranteed delivery of public services in India in the coming times.**
2. **GoI estimates a 40−50 per cent leakage in the PDS food grains which will supposedly stop after the 'Aadhaar' gets implemented.**
3. **Subsidies on PDS kerosene and domestic LPG are borne by the Consolidated Fund of India.**

Which of the statements given above are correct?

(a) 1 and 2
(b) 2 and 3
(c) 1 and 3
(d) 1, 2 and 3

ANS : (d) The leakage in PDS food grains had been discussed by the *Economic Survey 2010−11.*

103. Small –scale industries (SSIs) are in most cases, not as efficient and competitive as the large−scale ones. Yet the government provides preferential treatment and reservations in a range of products to the small firms because small−scale industries−

1. **Provide employment in a decentralized way which promotes the cause of inclusive growth**
2. **Have performed better in exporting manufactured products than the large scale ones**
3. **Provide jobs to low−skill workers, who otherwise may not find employment avenues elsewhere.**

Troy University Resources

Select the correct code given below:

(a) 1 and 2
(b) 2 and 3
(c) 1 and 3
(d) 1, 2 and 3

ANS : (d) All are correct about the state of the SSIs in India. Though, even after special incentives they get from the governments they are facing tough challenge from the competition being posed by big industries which have been allowed entry into the hitherto reserved sectors of the SSIs. India is still to make a foolproof policy for them.

104. Depreciation means –

(a) Some fixed assets losing price with the passage of time
(b) Loss of value by the movable properties over the time of their use
(c) Loss in value of the equipments of a plant over time due to their use
(d) Gaining of value by a domestic currency in its foreign exchange market

ANS : (c) This is 'wear' and 'tear' in a fixed/ immovable asset due to its use. For different assets, the rates of depreciation are announced by the countries, which may be similar or different among countries.

105. Deficit financing leads to inflation in general, but it can be checked if –

(a) Government expenditure leads to increase in the aggregate supply in ratio of the aggregate demand
(b) Only aggregate demand is increased
(c) All the expenditure is used for the national debt payment only
(d) Fresh currencies are printed by the government to fulfill its deficit financing needs

ANS : (a) The basis reason for price rise in situations of deficit financing is that governments fail to equalize the total demand of the economy by the total supply.

106. Which of the following items would not appear in a company's balance sheet?

(a) Value of the raw materials held by the company
(b) Cash held in the banks in the company's Current Account
(c) Sales revenue of the company
(d) Total issues capital of the company

ANS : (c) The revenues a company gets out of its sale of the manufactured items are not shown in the balance sheet of a company.

107. The exchange rate of a currency in its forex market depends on:

1. Its current account deficit and the fiscal deficit
2. The currency regime economy follows for exchange determination
3. Inflation, printing of fresh currencies, levels of forex earnings

CODE:

(a) 1 and 2

(b) 2 and 3
(c) 1 and 3
(d) 1, 2 and 3

ANS : (d) Exchange rate of a currency depends on so many variables as given in the question. If the economy follows the 'floating currency regime' for the exchange rate determination, the exchange rate is directly linked to all those factors which affect the availability of domestic nd foreign currencies in the economy−higher the supply of foreign currency, higher the value domestic currency will have and vice−versa.

108. Consider the following statements: India continues to be dependent on imports to meet the requirement of oilseeds in the country because−

1. **Farmers prefer growing food grains which have highly remunerative supports prices announced by the GoI.**
2. **rain−dependent oilseed production is highly risk.**
3. **There is an organized market for it which is cheaper too making imports easier than producing them.**

Select the correct ones using the code given below:

CODE:

(a) 1 and 2
(b) 2 and 3
(c) 1 and 3
(d) 1, 2 and 3

ANS : (d) Though India is today self−dependent in the area of its edible oils requirements, it does not come from our indigenous production of oilseeds. India exports high value edible oils and imports low−value of it to become self−dependent in this area. Rainfed farming of food grains may give some crops in the cases of monsoon failures though oilseeds fail completely in such a situation. There have been other reasons for the same also –lack of fundamental research in the seeds, special emphasis by GoI on the food grains, etc.

109. Select the correct advices given by the Narsimhan Committee−I regarding the Priority Sector Lending (PSL) obligation of the banks operating in India, using the code given below:

1. **Cutting it to 10 per cent from its present level of 40 per cent.**
2. **Shuffling of the items covered by it**
3. **Phasing out of the PSL obligation**

CODE:

(a) Only 1
(b) 1 and 2
(c) Only 3
(d) 1, 2 and 3

ANS : (d) All are the correct recommendations of the Committee on Financial System (CFS), which is popular as the Narsimhan Committee−I set up in 1991. In the follow−up, the government did cut down the PSL obligation for the foreign banks from 40 to 32 per cent and again increased 40 per cent in 2014. Meanwhile, some new items were put inside it with none of the older ones being put one of it. It is believed that the purpose of the criteria of PSL has not been served fully. That is why the government continues with the old pattern of the PSL targets.

110. Non –Tax Revenues of the Central government can be increased by –

1. **Cutting the postal deficits**
2. **Accepting foreign grants**
3. **Increasing fees and penalties**
4. **Controlling the losses of the PSU's**

CODE:

(a) 1 and 2
(b) 2 and 3
(c) 1, 3 and 4
(d) 1, 2, 3 and 4

ANS : (d) All are the necessary measures taken towards increasing the non−tax revenues of the Central government.

111. Which of the following is not a part of India's national debt?

(a) Provident Fund
(b) Life Insurance policies
(c) National Saving Certificate
(d) Long –term Government Bonds

ANS : (b) Life Insurance policies are not considered a part of the national debt.

112. An economy in the 'state of equilibrium' means at the point where plans to save and to invest are equal, and then government expenditure must be such that−

(a) The total saving by the government is being spent by the year end
(b) Total government expenditures must be equal to the total government income
(c) Saving rate is higher than the government requirement of investment
(d) Deficit in the current account together with falling saving and investment

ANS : (b) An economy in equilibrium means the government's plans of saving and investment are of same the size. In such a situation, the income and expenditures of the government are also the same.

113. Select the incorrect statement/statements about the co−operative banks in India from the given choices, using the code given below :

1. **Co –operative banks are small−sized units organized in the co−operative sector, which operate both in urban and non−urban centers.**
2. **They are regulated by the RBI, Banking Regulation Act, 1949 and Banking Laws (Co−operative Societies) Act, 1965.**

CODE:

(a) Only 1
(b) 1 and 2
(c) Only 2
(d) None of the above

ANS : (d) Both the statements are correct about co−operative banks. These banks are traditionally centred around communities, localities and work place groups and they essentially lend to small borrowers and business. While the co−operative banks in *rural areas* mainly finance agriculture based activities including farming, cattle, milk, hatchery, personal finance, etc., along with some small−scale industries and self−employment driven activities, the co−operative banks in *urban areas* mainly finance various categories of people for self−employment, industries, small scale units and home finance. Co−operative Banks in India are registered under the Co−operative Societies Act.

114. Select the incorrect statements related to the national income accounting of the economy, using the code given below :

1. An economy may have its NDP and GDP of the same value.
2. None of the developing economies had their NDPs and GDPs of the same values for any year.
3. Few developing economies have been able to have their NDPs and GDPs of the same values but at the Purchasing Power Parity (PPP) only :

CODE:

(a) 1 and 2
(b) 2 and 3
(c) 1 and 3
(d) 1, 2 and 3

ANS : (c) We get the value of the NDP (Net Domestic Product) of an economy by excluding the value of 'depreciation' (i.e., the wear and tear that a fixed asset goes in for in the process of its use) from the value of its GDP(Gross Domestic Product). As it is impossible to make depreciation zero, they can never be equal in values.

115. Select the correct statement/statements related to the Central Sales Tax (CST) and the VAT (Value Added Tax) from the list given below, using the code given below:

1. CST is a destination−based tax of the Centre while VAT is an origin−based tax of the States.
2. CST is inconsistent with the VAT.
3. CST is a cascading−type tax not rebatable against the VAT.

CODE:

(a) Only 1
(b) 1 and 2
(c) Only 3

Troy University Resources

(d) 1, 2 and 3

ANS : (d) CST is levied under the provision of the CST Act, 1956 on the sale of goods of the course of inter−state trade or commerce levied by the Center by virtue of Entry 92A of the Union List, but the same is assigned to the states within which the tax is leviable, by virtue of provisions of Article 269 of the Constitution of India. Thus, CST and VAT are inconsistent (similarly, it will be inconsistent with the proposed GST also). This is why after extensive consultations between the Center and States, the roadmap for ***phasing out*** the CST by March 31, 2010 (i.e., before the date appointed for the introduction of the GST) has been finalized (the data ha got automatically forwarded ahead as the GST was not implemented by that data and seems to get implemented by that data and seems to get implemented from April 1, 2016). According, the process of phasing out of the CST commenced with reduction in CST from 4 per cent to 3 per cent with effect from (w.e.f.) April 1, 2007 and further to 2 per cent w.e.f. June 1, 2008. Further cut in it suspended due to delaying of the GST implementation. States have been getting compensation from the Centre for the losses accruing due to the CST phase out.

116. Which among the following are counted as 'public expenditure'? Select the correct answer using the code given below :

1. **Expenditures categorized as 'consumption'**
2. **Expenditures known as 'investment' and 'capital creation'**
3. **Expenditures in 'running the government'**
4. **Expenditures in forwarding 'external grants'**

CODE:

(a) 1 and 2
(b) 2 and 4
(c) 1, 2 and 3
(d) 1, 2, 3 and 4

ANS : (d) Every expenditure, which is affected by the governments is known as 'public expenditure' be it plan, non−plan, development, non−development, revenue or capital.

117. Consider the statements related to the Regional Rural Banks (RRBs) given below and select the incorrect ones using the code given below:

1. **They were conceived as institutions that combine local feel and familiarity with the rural problems, which the cooperative possess.**
2. **They were conceived on the line of a business organization with the ability to mobilize deposits, like a commercial bank.**
3. **Originally they were intended to provide institutional credit to the weaker sections of the society called 'target groups'.**

CODE:

(a) 1 and 2
(b) 2 and 3
(c) 1, 2 and 3
(d) None of the above

ANS : (d) The RRBs were modeled to have the local touch of the 'cooperatives' and the business touch of the Scheduled Commercial Banks (SCBs). Since April 1997, they have been allowed to break free from the ceilings on the interests they forward on deposits or charge on loans. These were the part of the measures taken to consolidate the loss−making RRBs. In September 2005, the GoI initiated a process of amalgamation of the banks in a phased manner. Accordingly, the total number of RRBs has come down to 47 (from 196) by mid−2015.

118. Select he incorrect one/ones out of the statements given below about the composition of SEBI. Use the code to answer the questions:

1. It has a total of 6 members excluding the Chairman, on its Board.
2. Central Government appoints 4 members representing 4 ministries.
3. RBI and the Banking Division have one member each on the Board.

CODE:

(a) Only 1
(b) 2 and 3
(c) Only 3
(d) 1, 2 and 3

ANS : (d) It has a total of 6 members including the Chairman− 2 members from the Central Government representing the Ministries of Finance and Law, 1 member from the RBI and 2 are appointed by the Central Government (but they do not represent any Ministries).

119. Which one of the following statements regarding Census 2011 is true?

(a) It is the 15th Census of the country and seventh after Independence.
(b) It is the 12th Census of country and fifth after Independence.
(c) It is the 11th Census of the country and fifth after Independence.
(d) It is the 13th Census of the country and seventh after Independence.

ANS : (a) The provisional figures of Census 2011 were released by the Ministry of Home Affairs on March 31, 2011. The final data were released by end −2011 or early 2012. The Office of the Registrar General and Census Commissioner, India, under the Union Ministry of Home Affairs, is the nodal authority for conducting decennial Census in the country. Census 2011 is the 15th National Census of the country since 1872 and the 7th after Independence.

120. Under the State Bank of India Bill, 2010 the partnership of Central Government in this bank would be reduced to what per cent?

(a) 50 per cent
(b) 51 per cent
(c) 49 per cent
(d) 40 per cent

ANS : (b) The holding of Central Government in the State Bank of India would be reduced to 51 per cent from the present 55 per cent in the process of raising more capital from the market.

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121. Which of the following are correct about India's present Social Sector Expenditure? Select the correct answer using the code given below:

1. **Expenditure on education is 3.3 per cent of the GDP.**
2. **Health expenditure is 1.4 per cent of the GDP.**
3. **Total social sector expenditure accounts to 28.4 per cent of the GDP.**

CODE:

(a) Only 1
(b) Only 2
(c) 1 and 2
(d) 1, 2 and 3

ANS : (d) This India's total expenditure i.e., the General Government (Plan & Non−Plan expenditures of Centre as well as the States). The information is based on the Economic Survey 2013−14.

122. What is correct about the newly launched welfare scheme 'Sabla'?

(a) This is for the well−being and overall empowerment of adolescent girls.
(b) This targets windows and provides them self−employment.
(c) The Integrated Child Development Programme will be later merged with it.
(d) The scheme has been launched has been launched in the states of Bihar, UP and Maharashtra for now, to be universalized across the country later.

ANS : (a) Rajiv Gandhi Scheme for Adolescent Girls (also known as 'Sabla) was launched on November 19, 2010 on the existing platform of the Integrated Child Development Programme in 82 districts of India on 'pilot' basis. An integrated package of services will be provided to girls aged 11−18 years including 600 gms of food grains; 18−20 gms of protein and micro−nutrients, at a rate of Rs. 5 per beneficiary a day for 300 days a year.

123. Select the correct statement related to the 'Ambedkar Hastshilp Vikas Yojana":

(a) A scheme of Government of India to promote handicrafts among the rural women of India belonging to the Scheduled Caste category
(b) A scheme to promote tribal handicrafts
(c) A scheme of the Government of Maharashtra to promote handicrafts among the Mahar women of the state.
(d) A scheme of the Government of Uttar Pradesh to promote women empowerment in the state through handicrafts

ANS : (b) The Government of India has classified six tribes of India as the Primitive Tribal Groups (PGTs) namely Irula, Kota, Kurumba, Kattunaicken, Paniyan and Toda. Toda women are deft/skilled in embroidery works.

124. Select the correct statements regarding 'tax expenditure' from the given choices, using the code given below:

1. **It is, basically tax foregone.**
2. **The GoI puts a report on it before the Parliament.**
3. **Tax expenditure of India is more than fifty per cent of it total tax collections.**

CODE:

(a) Only 2
(b) 1 and 2
(c) 2 and 3
(d) 1, 2 and 3

ANS : (d) Report on the 'collection rate' and 'tax expenditure' is presented by the Government of India before the Parliament, every year (commencing in 2005−6), under the FRBM Act, 2003.

125. Which one of the following statements is not true about Game Theory?
(a) It is a branch of economics that uses models to study interactions between country, individuals and organizations.
(b) It was devised in 1944 by John von Neumann and Oscar Morgenstern.
(c) It was often used in political or military context to explain conflicts between countries but has of late been used to map trends in the business world, ranging from how cartels sell prices to how companies can better their goods and services in new market.
(d) Robert J. Aumann and Thomas C. Schelling were awarded Nobel Prize for Economics (2005) for their work on this theory.

ANS : (a) Game Theory is a branch of Applied Mathematics, which uses models to study interactions between countries, individuals and organizations.

126. Arrange the total collections of the following taxes as per their decreasing sizes, using the code given below:
1. Income Tax
2. Service Tax
3. Excise Duty
4. Corporate Tax
5. Custom Duty

CODE :

(a) 1−2−3−4−5
(b) 2−1−3−5−4
(c) 3−4−1−2−5
(d) 4−1−3−5−2

ANS : (d) As per the *Economic Survey 2013−14.*

127. The compound annual growth of the herbal product's export of India has increased by almost 17 per cent. Select the top four export destinations for the same from the following –
(a) UK, USA, Germany, Japan
(b) Germany, Vietnam, Sweden, UK
(c) France, USA, China, Pakistan
(d) USA, Pakistan, Germany, Japan

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ANS : (d) The top four herbal products' export destinations of India are USA (35.7%), Pakistan (10.6%), Germany (5.8%), Japan (8.3%). The value of exports of this segment increased to Rs. 570.8 crore in 2009−10 (from Rs. 306.3 crore in 2005−06).

128. During the Eleventh Five Year Plan the centrally sponsored scheme of 'Assistance for Development of National Parks and Sanctuaries' was modified and renamed as 'Integrated Development of Wildlife Habitats' with the following components. Select the correct answer using the code given below:

1. **Support to Protected Areas.**
2. **Protection of wildlife outside Protected Areas.**
3. **Recovery Programme for saving critically endangered species and habitats.**

CODE:

(a) 1 and 2
(b) 2 and 3
(c) 1 and 3
(d) 1, 2 and 3

ANS : (c) Protected Areas include National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves. Two other schemes also run side by side, i.e., the 'Projected Tiger' and 'Protected Elephant'.

129. According to the UN 'State of World Cities Report' the world's mega cities are merging to form vast 'mega−nations', which may stretch hundreds of miles across countries, the largest of these regions home to about 120 million people is located in which one of the following countries?

(a) Japan
(b) China
(c) Brazil
(d) **India**

ANS : (b) The largest 'mega region' of the world is Hong Kong−Shenzhen−Guangzhou region of China. Other mega regions have been formed in Japan and Brazil and are developing in India. West Africa nad elsewhere. The report also says that just over half of the world lives in cities, by 2050 over 70 per cent of the world will be urban dwellers with only 14 per cent of people in rich countries will live outside cities and this figure will be 33 per cent in case of poor countries.

130. Which one of the following is not included in Industrial Protection Index?

(a) Mining
(b) Manufacturing
(c) Construction
(d) Electricity

ANS : (c) Industrial Production Index includes Mining. Electricity and Manufacturing only.

131. Who among the following is the writer of the famous book *Everybody Loves a Good Drought*?

(a) R.K. Pachauri
(b) P.Sainath
(c) Navjot Lahiri
(d) Dileep Joshi

ANS : (b)

132. Which one of the following statements with reference to census and National Population Register (NPR) is not true?

(a) The census is a purely statistical exercise while the NPR involves individual data collection.
(b) The individual's information under Census Act and those under NPR is fully confidential.
(c) While the census data is updated only once in 10 years, NPR is more dynamic where every birth and death will have to be registered.
(d) The census and NPR have the backing of two different legislations.

ANS : (b) Under Section 15 of the Census Act, the individual's information is confidential but a part of the NPR information that is collected during the census operation like name, nationality, etc. is displayed in all villages and wards so that people can object and rectify mistakes in the list.

The census and the NPR have the statutory backing of two different legislations−the Census Act of 1948 and Census Rules and the Citizenship Act, 1955 and the Citizenship (Registration of citizens and

133. Name the state/states which has/have already implemented the Universal Public Distribution system through the centre is still to take decision to do so throughout the country:

1. Tamil Nadu
2. Karnataka
3. Bihar
4. Kerala
5. Rajasthan

CODE:

(a) 1 and 2
(b) Only 2
(c) 4 and 5
(d) 1 and 4
(e) Only 5

ANS : (d) On the suggestion of M.S. Swaminathan.

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134. Consider the statements taken from the Global Hunger Index 2015 and select the correct ones using the code given below:

1. **India has the highest number of under−weight children under five in the world and 70 per cent of children are anaemic.**
2. **The proportion of undernourished people in the overall population has fallen from 21.5 per cent in 2004−06 to 17 per cent in 2011−13.**
3. **India's proportion of children underweight fell from 45.1 per cent in 2005−06 to 30.1 per cent in 2013−14.**
4. **India's 'hunger' status no longer ranks as 'alarming' but has instead been reclassified as 'serious'.**

CODE:

(a) 1 and 3
(b) 1, 2 and 4
(c) 2, 3 and 4
(d) 1, 2, 3 and 4

ANS : (a) Global Hunger Index is released every year by the International Food Policy Research Institute's (IFPRI).

135. Select the correct findings of the GoI as per the NSS data. Select your answer using the code given below:

1. **India has seen a shift in the expenditure behavior.**
2. **Expenditure shift away from food is higher in the rural population than the urban.**
3. **The shift away from food does not conform with the famous Engel's law.**

CODE:

(a) Only 2
(b) 1 and 2
(c) 2 and 3
(d) 1, 2 and 3

ANS : (b) The shift in the consumer's behavior is in conformity with Engel's Law which states that the income spent on food, as a percentage of overall income, decreased as income rises.

136. Which one of the following statements regarding Census 2011 is incorrect?

(a) Census 2011 will for the first time include 'others' as an option on gender should respondents choose to identify themselves as neither males nor females.
(b) A significant change in this census is an expansion in the definition of disability to allow better capturing of country's disabled population.
(c) A marginal worker under this census would be defined formally as a person working less than 100 days a year.
(d) Census 2011 will for the first time introduce a date of birth question in order to rectify this.

ANS : (c) Under Census 2011, the category of marginal workers has been split into 3−6 months and less than 3 months. This is so because people who got work only on NREGA sites for the mandated 100 days a year can be identified.

137. Which of the following would not follow a 'repo rate' cut by the RBI?
(a) Interest rate cut by the hands in the country
(b) Subdued activity in the business of the Discount and Finance House of India
(c) More investment in the economy
(d) A general uptrend in the aggregate demand

ANS : (b) A rate cut in 'repo' promises cheaper money in the economy by making the cost of working capital cheaper for the banks which leads to more money flow in the system. The DFHI is the 'market maker' in the money market of India.

138. Reliable estimates of employment and unemployment are obtained by NSSO in the country. Select the correct one/ones by code:
1. Data is collected through quinquennial surveys.
2. Latest data puts total unemployed youths at 8.87 million.
3. Urban employment rate is at 4 per cent while rural is at 10.1 per cent.

CODE:

(a) Only 1
(b) 1 and 2
(c) 1 and 3
(d) 1, 2 and 3

ANS : (b) Last survey done in 2004−05 and latest in 2010−11. Youth is 15−29 years. At all India level, the rural unemployment rate is 4 per cent while for urban areas it is 10.1 per cent (data released March 2011).

139. Which of the following is correct about 'net income'?
(a) Total revenue minus expenses of a firm in an accounting period
(b) Total profit made by a firm after paying direct taxes
(c) The net balance in hand after deducting depreciation
(d) None of the above

ANS : (a) The total revenue of a firm minus all expenses during the same period in an accounting period is net income. If income tax and interest are not deducted, it is called 'operating profit' (it may be negative i.e. loss). 'Net income' is also called earnings, net earnings or net profit.

140. What is correct about the 'Easterlin Paradox'?
(a) The idea that economic growth does not necessarily lead to personal satisfaction.
(b) The idea that checking inflation by monetary measures leads to lesser per capita income.
(c) The idea that corruption is directly proportional to prosperity.
(d) The thinking that discoveries of new antibiotics leads to greater resistance in microbes.

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ANS : (a) The idea was forwarded by the economist Richard Easterlin in 1975. To prove his idea he quoted the poll results of post−World War II of Japan between 1950−70, a period of unprecedented boom in the economy, when life satisfaction fell down for more number of people.

141. According to a recent study conducted by the National Sample Survey Organisation (NSSO) which one of the following is the correct order of states having highest slum population in descending order?

(a) Maharashtra, UP, West Bengal, MP
(b) UP, MP, Maharashtra, West Bengal
(c) UP, Maharashtra, West Bengal, MP
(d) Maharashtra, West Bengal, UP, MP

ANS : (a) According to NSSO study Maharashtra has 1.8 crore people living in slums, UP (1 crore), West Bengal (85 lakh) and MP (64 lakh).

142. "Today, the economy is depressed, loosely speaking, because we ran up too much debt and built too many shopping malls, and nobody is in the mood for a new burst of spending". Name the Nobel prize winning economist who passed this comment about the US economy, recently:

(a) Paul Krugman
(b) Joseph Stiglitz
(c) Paul A Samuelso
(d) Thomas L Friedman

ANS : (a) The comment came (in The New York Times, later quoted by almost all important dailies of the world) in the wake of the financial crisis that the US economy kick−started by the Sub−Prime Crisis.

143. Western economies define 'Recession' quite differently from the other countries of the world. Select its correct definition as used in the west:

(a) Two consecutive quarters of falling GDP
(b) Unemployment growth rate of above 1 per cent
(c) Employment growth rate of less than 1 percent
(d) Economic growth rate of below 2 per cent

ANS : (a) The definition is used in whole of the Europe together with the North American economies−this was also the reason why US and other European economies were declared recession−hit easily in the last many months.

144. Gross Domestic Capital Formation is defined as

(a) Flow of expenditure devoted to increased or maintaining of the capital stock
(b) Expenditure incurred on physical assets only
(c) Production exceeding demand
(d) Net addition to stock after depreciation

ANS : (a) This denotes the situation of increase in the capital stock of the economy. For this to take place, an economy needs to increase not only its income saving also.

145. Which of the following is the most appropriate cause of exports surplus in an economy?

(a) If the company has diversified exports which are compulsive imports for other economies.
(b) If the economy has almost put everything in the negative list of import and has healthy forex reserves.
(c) If the economy promotes exports and imports without any barriers with incentives given to the exporters.
(d) None of the above.

ANS : (a) This has been the case of the developed economies of the world whose over had surplus in its trade accounts.

146. Revenue of the State Governments are raised from the sources, except

(a) Entertainment tax
(b) Expenditure tax
(c) Agricultural income tax
(d) Land revenue

ANS : (b) Expenditure tax is imposed by the Central Government, which is a kind of 'direct tax' –states in India can impose income tax on the 'agricultural income' of the farmers.

147. Match List I with List II and select the correct answer using the codes given below:

List I	List II
A. WTO	**1. Provides loans to address balance of payment problems**
B. IDA	**2. Multilateral trade negotiation body**
C. IMF	**1. Forwarding soft loans**
D. IBRD	**2. Facilitating lending for reconstruction and development**

CODE:

(a) A−2, B−3, C−4, D−1
(b) A−2, B−3, C−1, D−4
(c) A−3, B−2, C−4, D−1
(d) A−3, B−2, C−1, D−4

ANS : (b) The international organizations have been matched with their mandated functions, here.

148. National Income in India is the

(a) Net National Product at market price
(b) Net National Product at factor cost
(c) Net Domestic Product at market price
(d) Net Domestic Product at factor cost

ANS : (b) National income in India is calculated at the 'factor cost' and the 'constant prices'. It means it is not measured at the 'market cost' and the 'current prices'.

149. To derive Net National Product at factor cost from Gross National Product at factor cost we need to

(a) Adjust the value of depreciation to it
(b) Deduct indirect taxes from it
(c) Deduct subsidies from it
(d) Add inflation to it

ANS : (a) In the National Product, we have got two types of national incomes –one with and the other without adjusting the loss due to depreciation –the former is 'Net' while the latter is 'Gross'.

150. A higher GDP per capita may not mean that the quality of life has really improved because –

1. It shows about the gross income of the people just as an average and does not mean the same the same translating at the micro level.
2. The concept of per capita income lacks the element of inclusiveness.

Select the correct code:

(a) Only 1
(b) Only 2
(c) 1 and 2
(d) Neither 1 nor 2

ANS : (c) Both the statements are correct about the concept of 'per capita income'. It means same even if it is calculated at the NDP, GNP and NNP levels. It is just an average and hardly says anything about the real level incomes of the individuals.

MICROECONOMICS

CHAPTER 1

BASIC ECONOMIC CONCEPTS

1. **Which of the following would be the best definition of the study of economics?**
   - **(A) Economics is the study of how the stock market operates.**
   - **(B) Economics is the study of money.**
   - **(C) Economics is the study of how scarce resources are allocated to unlimited wants.**
   - **(D) Economics is the study of how firms decide to make hiring decisions.**
   - **(E) Economics is the study of how governments set production goals.**

ANS:- (C) Economics is the study of how individuals , households, firms and entire societies choose to allocate scarce resources. Societies face unlimited wants, but because resources are scarce, decisions must be made on how to best allocate them. Resources might be allocated in markets, by using money, or by a central planning agency in the government. Therefore, all choices besides C represent parts of the study of economics, but not the definition of the field itself.

2. **Which of the following best describes a microeconomic question?**
   - **(A) What is the value of US dollar in terms of other foreign currencies?**
   - **(B) Should a particular firm enter a market?**
   - **(C) Is the company of Japan in a recession?**
   - **(D) What is the value of the goods and services that the United States produces every year?**
   - **(E) What is the aggregate price level in an economy?**

ANS:- (B) Microeconomics is a combination of $micro$, meaning small, and $economics$. Therefore, microeconomics is "small" decision-making about how to allocate scarce resources. Microeconomics focuses on economic decision-making of household, firms, and individuals. All of the other choices reflect questions that may arise in the study of microeconomics, which focuses on problems and questions that face an economy as a whole rather than an individual decision-maker. For instance, typical microeconomics questions involve individual firm decisions on production and hiring, and individual and household decisions on purchasing and whether or not to work.

3. **Sally is asked by her teacher to write a paper based on a macroeconomic topic. Which of the titles would be appropriate for a macroeconomics paper?**
   - **(A) Are Inflation and Unemployment related?**
   - **(B) Women's Labor Force Decisions Following Marriage**
   - **(C) Does a mother's level of Education Influence Purchasing Decisions?**
   - **(D) How did Households make Housing Decisions during The Great Depression?**
   - **(E) How do Families Decide How Much Health Insurance to Purchase?**

ANS:- (A) Macroeconomics is a combination of $macro$, meaning large, and $economics$. Therefore, macroeconomics is about "large" decision-making, not on how individuals choose to allocate scarce resources, but on how these resources are allocated for an economy as whole. All of the other choices reflect problems that a microeconomist would consider. Macroeconomics tends to be concerned with issues such as unemployment in a society, rather than at an individual level. Other macroeconomics issues include aggregate production in a

company (as opposed to the production of a firm or single industry) and a raise in the general price level (as opposed to an increase in a single price).

4. The idea of _____ in economics is that we have unlimited wants but limited resources.

(A) Opportunity costs.
(B) Scarcity
(C) Marginal analysis
(D) Specialization
(E) Normative economics

ANS:- (B) In economics, the term $scarcity$ refers to the fact that all of the economic resources (land, labor, capital, and entrepreneurial ability) are limited. Scarcity is an important concept because if it were not for scarcity, economics would not be a particularly important field of study. If society was faced with unlimited wants but also had unlimited resources, we could satisfy the unlimited wants without having to make trade-offs.

5. Consumers, firms, and governments face _____ because we are faced with the problem of _____.

(A) Marginal analysis; scarcity
(B) Specialization and trade; normative economics
(C) Trade-offs ; specialization
(D) Trade-offs; scarcity
(E) Marginal analysis; trade-offs

ANS:- (D) Scarcity means that every time a decision is made to allocate a resource toward a particular use, we are also deciding to divert that resource from another use. Trade-offs occur because we cannot allocate resources to everyone of our desires. We refer to the costs of these trade-offs as opportunity costs. Marginal analysis is the decision-making process that a rational decision-maker uses to decide how to make those trade-offs.

6. Normative analysis can best be shortened to _____, while positive analysis is best shortened to _____.

(A) The next best alternative ; the way things should be
(B) The way things should be; the way things are
(C) The way things should be; the next best alternative
(D) The way things are; the next best alternative
(E) The way things are; the way things should be

ANS:- (B) Normative analysis, sometimes called normative economics, is prescriptive. It says what should happen and is a recommendation for what should happen. An easy way to remember this is to think of social norms ----the way we think people should behave in society. An example of a normative economic statement would be something like “income should be equitably distributed “ or “taxes should be lower”. On the other hand, positive economics, sometimes called positive analysis, is descriptive. It says how things are or how the economy actually works rather than how it should work. An example of a positive economic statement would be something like “an increase in income will result in more goods being purchased” or “an increase in the price of a good will lead to higher profits for a firm”.

7. **What is the best definition of the term $marginal$?**
    - **(A) Instead of**
    - **(B) The additional one**
    - **(C) The average one**
    - **(D) The cheapest one**
    - **(E) The most expensive one**

ANS:-(B) The shortcut way of remembering what the term $marginal$ means in economics is "the last" or "the next" one. For instance, in marginal decision-making, an agent is deciding on whether or not to use one more or one less, based on the additional benefit from the last one (marginal benefit) and the additional cost of the last one (marginal cost). Common mistakes that students make in economics are focusing on the cheapest unit, the most expensive unit, or the average.

8. **Jim is at an all-you-can-eat buffet and is considering whether or not to get another plateful of food. What type of analysis should he be doing if he is thinking rationally?**
    - **(A) Marginal analysis**
    - **(B) Positive analysis**
    - **(C) Normative analysis**
    - **(D) Free-market analysis**
    - **(E) Collective analysis**

ANS:- (A) Marginal analysis is decision making based on the marginal benefit and marginal cost of a decision. In this case, Jim is deciding whether the marginal (next) plate of food from the buffet will be worth the cost that would be associated with that additional plate of food, such as monetary cost, additional exercise he might have to do later, or physical discomfort from eating more. According to marginal analysis, as long as the benefit he receives from $one\ more$ plate of food is more than the cost of eating $one\ more$ plate of food, he will continue to eat. He will stop eating when he believes that the marginal cost will exceed the marginal benefit from the next plate of food.

9. **A centrally planned system would be characterized by which of the following?**
    - **(A) Prices effectively allocate resources.**
    - **(B) Private ownership of resources ensures that they are distributed equally.**
    - **(C) Firms have the ultimate choice on what and how much they produce.**
    - **(D) Government decides the best allocation of resources.**
    - **(E) There are no economic resources.**

ANS:- (D) The characteristics of a free market economy are that prices allocated resources in a market setting with minimal government intervention and established property rights. In a centrally planned system, resources are allocated by a central planning authority (usually a government), which decides what and how much is produced, who enjoys the production, and how much of the production each individual is entitled to. Since governments do the allocation, rather than prices, any price that exists in a centrally planned economy will not carry very much information and may be arbitrarily set, Firms may have little, if any, decision-making ability, as the production has been dictated by the central planning authority.

10. **The nation of a Maxistan is moving from a centralized planning system to a market-based economy. Which of the following will be part of their transition?**
    - **(A) Resources will move toward being rationed by prices rather than by a central government.**
    - **(B) Resources will no longer be rationed, because there is no more scarcity.**
    - **(C) Maxistan will move toward public ownership of resources.**

(D) Maxistan will increase government involvement in production decisions.

(E) Firms will begin to consult government agencies for which resources they should use in production.

ANS:- (A) In going from a centrally planned economy to a market-based economy, Maxistan is moving from a centralized rationing system to a decentralized rationing system, namely, prices. Scarcity still exists, so some sort of rationing function is still necessary to allocate scarce resources. In moving to a market economy, Maxistan will need to shift to freedom of individuals to acquire resources to produce goods and services and to choose which of their resources to sell to others, private ownership to those resources, an economy driven by self-interest, competition, and prices for goods that are determined by markets with no (or minimal) government intervention.

11. The $rationing\ function\ of\ prices$ implies that prices do which of the following?

(A) All individuals get exactly what they need.

(B) If prices for goods exist, rationing is not necessary since scarcity no longer exists.

(C) Goods are allocated based on the ability and willingness to pay for a good.

(D) Individuals are free to pay whatever they wish for an item, regardless of how much it costs to produce.

(E) Private ownership of goods means that prices aren't necessary to ration goods.

ANS:- (C) The rationing function of prices refers to the fact that in a competitive market, prices send signals to both buyers and sellers. Price indicates to sellers the willingness and ability of consumers to pay for a good, and price indicates to buyers the cost of producing a good. In other words, prices coordinate the market in a market-based system in the way a government might coordinate the allocation of goods in a non-market-based economy.

12. Which of the following would be counted in the category of resources called $capital$?

(A) Money raised by firms through issuing stocks.

(B) The time it takes for an intervention to get a patent.

(C) The ability of a business owner to combine resources

(D) The common stock that a family owns in a firm

(E) The factory that a firm uses to produce goods.

ANS:- (E) Capital which is frequently abbreviated as K in economics, is a good that is produced and is in turn used to produce other goods. A factory is produced in the sense that it is constructed from other resources , using labor and land (including the natural resources that are included in land, like cement and energy), and the is used to produce goods. Students often confuse the colloquial use of the word $capital$ in finance. Firms may "raise capital", which usually means gathering money through issuing bonds or stocks, or other financial strategies. Usually, this money is then used to purchase capital such as equipment or machinery, or to construct a production facility.

13. The four economic resources are

(A) Land, labor, capital, money

(B) Natural resources, capital, land, money

(C) Land, entrepreneurial ability, capital, labor

(D) Land, income, capital, entrepreneurial ability

(E) Income, inflation, capital, land

ANS:- (C) The four resources are land (usually abbreviated lowercase l). Labor(L), capital (K), and entrepreneurial ability (which has various abbreviations). Contrary to the assumptions of many students, money is not an economic resource. Money is merely a tool that is used to facilitate the exchange of resources, goods, and services.

14. In the production of cookies, which of the following would be considered the economic resource of land?

(A) The wheat flour used in the cooking dough
(B) The bowl you use to mix the cooking dough
(C) The work of the person mixing the cooking dough
(D) The recipe to mix the cooking dough
(E) The rack to cool the finished cookies

ANS:- (A) Included under the category of land are natural resources, such as actual land, energy, the production of the land (primary products such as agriculture), and minerals. A bowl or a cooling rack would be considered capital because it is produced. The work of the person mixing the dough would be considered labor, since it is the work of a person.

15. Suppose a café owner wants to increase the number of people she can serve lunch to and is considering whether to put in more tables or hire another server. Which two resources is the owner considering as substitutes in production?

(A) Labor and land
(B) Labor and entrepreneurial ability
(C) Labor and capital
(D) Capital and entrepreneurial ability
(E) Capital and land

ANS:- (C) To some degree, all of the economic resources are substitutable. In this case, the café owner wants to increase production (the number of meals served), which can be done in one of two ways. The café can either increase the capital investment by buying and installing more tables, which could enable more people to be seated in the café at any given time. Alternatively, the café could hire another server, which would enable more people at any given time to be served. In either case, the total number of meals served in the café would increase.

16. Which of the following categories of economic resources would describe heating oil for a home furnace?

(A) Entrepreneurship
(B) Land
(C) Investment
(D) Capital
(E) Labor

ANS:- (B) Land is a catchall phrase in economics that refers not just to actual land that you can stand on, but any natural resource. One of the critical natural resources that is included in this category is any resource that produces energy. Heating oil, which is a petroleum product, would be considered land even though it is not the colloquial use of the word $land$.

17. Max is considering going to culinary school to become a chef. Which of the following considerations captures the idea of his implicit opportunity costs?

(A) How much money he can borrow to pay tuition
(B) How much hours per week he will work as a chef once he graduates
(C) How much tuition he will have to pay
(D) How many years it will take to him to graduate
(E) How much income he will forego when he quits his current job

ANS:- (E) Opportunity cost refers to the value of the next best alternative. Opportunity costs are different from explicit costs such as tuition or books. If he goes to school, he will not be able to work at all or at minimum, he will not be able to work as much as when he is not in school. Therefore, the income that he will lose when he goes to school would be considered an opportunity cost.

18. Eli is deciding whether or not to provide his employees with a retirement plan. Which of the following statements would be considered normative?

(A) Employees may have more incentive to work harder if he provides a retirement plan.
(B) Employees may save more on their own if he provides a retirement plan.
(C) Employers have a moral obligation to provide employees with retirement plans.
(D) Employees may be less likely to quit their jobs for another position if he provides a retirement plan.
(E) The retirement plan will cost him at least $500,000 per year.

ANS:- (C) A normative statement is prescriptive, describing what should be done rather than the way things are, which would be a positive statement. For instance, a positive statement would be, "Employees may be less likely to quit," because it is a probable response rather than prescriptive. When evaluating whether a statement is normative or positive, the word *should* (explicit or implied) is a giveaway that the statement is normative.

19. Joe is a college football player considering whether to attend another year of college or to enter the NFL draft and become a professional football player. Which of the following thoughts reflects the concept of marginal analysis?

(A) Another year of college football will make me better prepared in the future, but I risk getting injured if I do so.
(B) I should have a college degree.
(C) If I continue in college, I will give up $405,000 in income.
(D) I played on average 10 games per year as a college player and will play an average of 15 games per year in the NFL.
(E) If I continue in college, I will give up a salary as well as potential income from endorsing products.

ANS:- (A) Marginal analysis involves evaluating the additional cost and additional benefit of a decision. Whether or not one should have a college degree is normative analysis. The foregone income of playing an additional year in college is an opportunity cost that should be part of a marginal analysis, but is not a marginal analysis itself. Choice D is just a statement of the trade-off that Joe is facing, rather than an analysis of his choices. However, Choice A evaluates the benefits of one more year of college (being a better prepared, and ostensibly better paid, player in future) as well the costs of one more year (the risk of a career-ending injury).

20. Amanda gets an additional $20 in income for working an additional hour, but she has to pay $25 in child care costs. Based on this information, we can say that Amanda should _____ because _____.

(A) Work more hours; marginal costs exceed marginal benefits
(B) Work fewer hours; marginal costs exceed marginal benefits
(C) Work more hours; the opportunity cost of working is $45
(D) Work fewer hours; the opportunity cost of working is $45
(E) Continue working the same amount; the opportunity cost of not working exceeds the opportunity cost of working

ANS:- (B) A rational person consumes to the point where marginal cost is equal to the marginal benefit. In this case, the marginal cost (MC) of working another hour, $25 dollars, exceeds the marginal benefit (MB) of an additional $20 income. When MC > MB, you should decrease the consumption of the good in question. This is a

general rule in economics. If MC < MB , increase consumption. If MC > MB, decrease consumption. If MC=MB, this is the optimal amount of consumption.

21. The opportunity cost of a choice X is best described as the

(A) Combined value of all alternatives that are more valuable than choice X.
(B) Combined value of all alternatives that are inferior to choice X.
(C) Total cost, including the cost of the next best alternative to choice X
(D) Cost of scarcity
(E) Cost of a free market system

ANS:- (C) When there are no explicit, or out-of pocket, costs, opportunity costs are the value of single next best alternative. For instance, suppose you have the choice of working as a babysitter at $8 per hour, restaurant cashier at $9 per hour, landscaper at $10 per hour, or dog walker at $11 per hour. The opportunity cost of being a dog walker is $10, because the next best alternative is being a landscaper.

22. Suppose Marjorie currently values a pair of shoes at $50, and the price of a pair of shoes is $40. What is Marjorie's best course of action?

(A) Stop consuming shoes, since she is saving money.
(B) Increase her consumption of shoes until her income is spent.
(C) Increase her consumption of shoes until they cost $50 for all pairs of shoes.
(D) Increase her consumption of shoes until the price of the last pair of shoes she buys equals her value of them.
(E) Decrease her consumption of shoes.

ANS:- (D) The optimal consumption point is where the marginal benefit (MB) equals the marginal cost (MC). Since Marjorie values shoes at $50, her optimal decision is to continue to buy shoes until the value she places on the last pair is equal to the $40 price tag. For now, since she is only paying $40, it would be optimal, assuming that she is still within her budget constraint, for Marjorie to buy more shoes.

23. Sue is a college president considering several construction projects: build a gym, a dormitory, or a science building. Construction costs for each building are the same. If she builds a gym, the college will earn an additional $120,000. If she builds a dormitory, the college will earn an additional $120,000. If she builds a science building, the college will earn an additional $100,000. What is the opportunity cost of building a dormitory?

(A) $120,000, the foregone earnings from the gym
(B) $120,000, the foregone earnings from the science building
(C) $220,000 the foregone earnings from the science building and the gym
(D) $20,000, the foregone earnings from the gym less the earnings from the science building
(E) There is no opportunity cost.

ANS:- (A) Opportunity cost is the cost of the next best alternative, and the next best alternative to building a dormitory, which earns $120,000, is building a gym, which also earns $120,000. Note that it would not be correct to add up all of the next best alternatives. It would also be incorrect to subtract the value of the next best alternative, which would yield zero opportunity cost.

24. Suppose a state-operated pizza parlor set the price and quantity of pizza produced in an economy. Which of the following might result?

I. Price may not reflect the true cost of production.

II. The manager of the pizza parlor may not be motivated to seek better ways to produce.

III. An inefficient amount of pizza may be produced.

(A) I only
(B) II only
(C) I and II only
(D) II and III only
(E) I, II, and III

ANS:- (E) In a command economy, the price that is set by the government would not necessarily reflect the true cost of production of a good, as it would in a market-based economy. This is because in the long run a producer in a market-based economy would not be willing to produce at a loss, whereas in a command-and-control economy, the producer may not have a choice. Similarly, since producers in a command-and-control economy will not be the beneficiaries of any improvements in production, they will have little incentive to innovate and find more efficient ways to produce. As a result, more or less may be produced than both producers and consumers would otherwise like.

CHAPTER 2

PRODUCTION POSSIBILITIES

25. In a production possibilities frontier, which of the following would describe the location of an efficient point of production?

(A) Just on the inside of the curve or line
(B) On the inside of a curve, but not on the inside of a straight line
(C) Just on the outside of either a curve or a line
(D) On a line or a curve
(E) On a line, but not on a curve

ANS:- (D) A production possibilities frontier (frequently abbreviated as PPF) shows all of the efficient combinations of production of two goods. It is called a frontier because it shows the limit of possibilities given the available resources. A PPF may be a straight line or bowed outward. All the points that lie on the PPF are efficient. All points that lie outside the PPF are unattainable given the current available resources. All points that lie inside the PPF are inefficient, meaning that not all of the resources are being used in production.

26. If there is an increase in the quantity of one of the economic resources that is used to make both good A and good B on a production possibilities frontier, which of the following would be true?

(A) A point that had previously been inefficient will now be efficient.
(B) A point that had previously been efficient will now be unattainable.
(C) A point that had previously been unattainable will now be efficient.
(D) You can increase the production of good A only.
(E) You can increase the production of good B only.

ANS:- (C) If there is an increase in an economic resource that is used to make both good A and good B, then the production possibilities frontier will shift out. That means that the intersection points on both the A axis and B axis will be at higher levels of production: you could produce more of good A, more of good B, or more of both good A and good B. With more resources, a point that was previously unattainable will now be efficient.

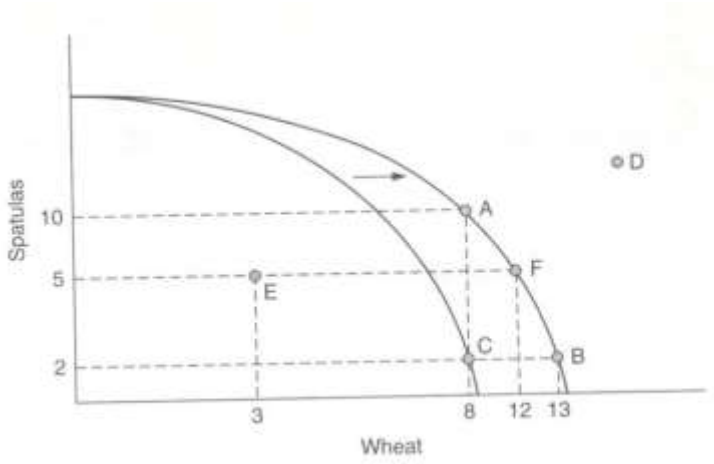


Figure 2.1

27. Refer to Figure 2.1. Suppose a nation wanted to move from producing a combination of spatulas and wheat represented by point E to production represented by point C. Which of the following is true?

(A) An economy currently producing at a point represented by point E could not move to point C unless it experienced economic growth.

(B) An economy currently producing at point E is already producing an unattainable amount and will have to decrease the production of either wheat or spatulas.

(C) An economy currently producing at point E could produce more of both goods and increase production to point C.

(D) An economy currently producing at point E would need to reduce the amount of spatulas it produced in order to produce more wheat to get point C.

(E) An economy currently producing at point E would need to reduce the amount of wheat it produced in order to produce more spatulas to get to point C.

ANS:- (D) Point E is an inefficient combination of production. This means that this economy could increase production given its current resources because it is not currently allocating its resources efficiently, or many of the nation's resources are idle and producing neither spatulas nor wheat. To produce point C, this economy would have to reduce its production of spatulas and reallocate those resources, and the idle resources, to the production of wheat.

28. According to the Figure 2.1, what would be necessary for this economy to shift from producing at point C to point F?

(A) The country would need to become better at producing only spatulas.

(B) The country would need to become better at producing only wheat.

(C) The country would need to become better at producing both goods.

(D) The country would need to reallocate resources away from producing spatulas to producing wheat.

(E) The country would need to reallocate resources away from producing wheat to producing spatulas.

ANS:- (B) Point F is on a production possibilities frontier (PPF) that has rotated outward. Notice that even after this rotation of the PPF, if this country devotes all of its resources to producing spatulas, the amount of spatulas it can make doesn't change. But if it devotes all of its resources to producing wheat, it can now produce more wheat. Therefore, this rotation must have occurred because it now has more economic resources or better technology used in the production of wheat.

29. According to Figure 2.1 , what is the opportunity cost of going from production point E to production point F, assuming that F is attainable?

(A) 0 units of spatulas per unit of wheat
(B) 2 units of spatulas per unit of wheat
(C) 3 units of wheat per spatula
(D) 8 units of spatulas per unit of wheat
(E) 5 units of spatula per unit of wheat

ANS:- (A) Point E, producing 5 units of spatulas and 3 units of wheat, is an inefficient level of production because it lies inside the production possibilities frontier. If the economy moves to point F, it would now be producing 5 units of spatulas and 12 units of wheat. Therefore, the economy would not be giving up anything to reach this combination of production. Note that when an economy is producing at an inefficient level, it is either because resources are not being used efficiently and can be reallocated, or that resources are not being used at all. In this case, moving from point E to point F would not be reallocating resources away from the production of spatulas toward the production of wheat (as would happen in a move from point E to point C). This would indicate that there were resources going unused that could have been used for making wheat.

30. Which of the following could explain the shift of the production possibilities curve in Figure 2.1?

(A) An increase in the stock of a resource used to produce both wheat and spatulas
(B) An increase in the stock of a resource used to produce wheat, but not spatulas
(C) An increase in the stock of a resource used to produce spatulas, but not wheat
(D) A decrease in an economic resource
(E) A decrease in the stock of labor

ANS:- (B) The shift shown in Figure 2.1 shows an increase in the ability to make one of the two goods if all resources were devoted to making that good (wheat), but not an increase in the production of the other good if all resources were devoted to making that good (spatulas). This means that some resource used to make only wheat has increased: for instance, an increase in agricultural labor, an increase in capital used to grow wheat but not spatulas, or an increase in wheat-growing technology.

31. If the production possibilities frontier of a nation has shifted as shown in Figure 2.1. which of the following is true?

(A) Points A, F, and B are allocatively efficient.
(B) Points A, B, and C are productively efficient.
(C) Points A, F, and B are productively efficient.
(D) Points A, B, and C are allocatively efficient.
(E) All points would be productively efficient, but not allocatively efficient.

ANS:- (C) Productive efficiency is producing at a point that is on the production possibilities frontier, meaning that all resources are being put to their best productive use. Allocative efficiency is when the combination of production occurring is the amount that an economy would best like. On any given production possibilities frontier (some books and teachers call it a production possibility curve, or PPC) only one point is allocatively efficient.

However, since A, F, and B are all on the same production possibilities frontier, we can tell that for an economy with that production possibilities frontier, all three of these points would be productively efficient.

32. In Figure 2.1, what information would we need to have to determine whether point A or point F is allocatively efficient?

(A) None---- since point A is roughly halfway between the two axes, we know it is allocatively efficient.
(B) The dollar price of each good
(C) Whether or not we could move from point A to point F without a loss of productive efficiency
(D) Whether or not the marginal benefit of wheat exceeded the marginal cost of wheat at point A or point F
(E) Whether or not the marginal cost of wheat is equal to the marginal benefit of wheat at point A or point F

ANS:- (E) A rational society will consume at the point where the marginal cost of consumption is equal to the marginal benefit. We do not need prices to figure out marginal cost in this case, since we can determine the cost of one good in terms of the units of the other good that is given up. A common mistake that students make is that the best choice is to have equal consumption of the two goods and assume that point A would be the best choice of consumption. This is not a correct assumption , since it is possible that this society highly values wheat and doesn't get much value out of spatulas. In this case, a consumption point such as F more likely would be allocatively efficient than point A. To draw any conclusions , we need to know how a society values these goods in terms of marginal benefit.

33. What can we say about the costs of production in the production possibility frontier in Figure 2.1?

(A) This production exhibits constant costs.
(B) This production exhibits increasing costs.
(C) This production exhibits decreasing costs.
(D) This production is costless.
(E) This production is technology intensive.

ANS:- (B) The production possibilities frontier shown in Figure 2.1 is bowed out, which means that it exhibits increasing costs. For instance, suppose the economy is initially producing at point A. As it moves from point A to point F to point B, it gives up increasing amounts of spatulas to get each additional unit of wheat. This indicates that there are different opportunity costs of production at various levels of production. When a production possibilities frontier is bowed out, the opportunity cost will vary at each point on the curve. But with a straight line, the opportunity cost is the same at every point along the curve.

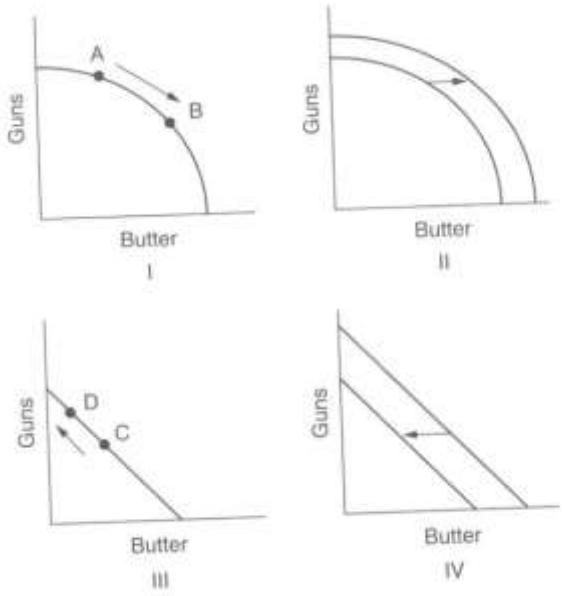


Figure 2.2

34. In Figure 2.2., which of the production possibilities frontier demonstrates economic growth?

(A) I only
(B) IV only
(C) II only
(D) I and II only
(E) II and IV only

ANS:- (C) Economic growth is the ability to produce more goods and services. Economic growth is illustrated in a production possibilities frontier (PPF) by an outward shift. In the PPF shown in I, there is only a reallocation of production, rather than an ability to make more of both goods. In the PPF shown in IV, there is actually a decrease in the ability to produce both goods. Only II shows an outward shift.

35. In Figure 2.2, which of the production possibilities frontier shows a reallocation of resources?

(A) I only
(B) III only
(C) I and III only
(D) I and II only
(E) II and IV only

ANS:- (C) A reallocation of resources is a movement along a single curve. Both I and III show an economy reallocating productive resources away from one good and toward the other good. A shift of as production possibilities frontier as shown in either II or IV doesn't actually us how an economy is currently producing. Rather, II tells us that for any particular allocation of resources, you could produce more of either good, and IV tells us that this economy can now produce less of either good.

36. In Figure 2.2, which of the production possibilities frontier exhibits increasing costs?

(A) I only
(B) I and II only

(C) II and III only
(D) II and IV only
(E) III and IV only

ANS:- (B) Anytime you see a production possibility frontier that is bowed outward, as is shown in I and II, this indicates that the economy has increasing costs. Anytime you see a production possibility frontier that is a straight line, as is shown in III and IV, this indicates that the economy has constant costs.

37. Which of the following best describes absolute advantage?

(A) The ability to produce more of all goods and services given the same resources
(B) The ability to produce a good or service at a lower opportunity cost than another producer
(C) The ability to produce more of all goods and services at a lower opportunity cost than another producer
(D) The ability to produce more goods and services with more resources
(E) The ability to produce at an efficient level when another producer cannot

ANS:- (A) Absolute advantage is the ability to produce more goods and services given the same quantity of resources than another producer. Stated another way, absolute advantage is the ability to produce the same quantity of goods and services with fewer inputs than another producer. Note that you can have absolute advantage in one or more goods. For instance, if Melanie can produce 10 lunches or 12 dinners in a day, and Eric can produce 8 lunches or 10 dinners in a day, Melanie has absolute advantage in producing both goods because using the same level of inputs (a single day) she can produce more lunches or more dinners.

38. For two producers to both experience gains from trade, which of the following must be true?

(A) The trading price of a good must be higher than the opportunity cost of both producers.
(B) The trading price of a good must be lower than the opportunity cost for only one producer.
(C) The trading price of a good must be lower than the opportunity cost for both producers.
(D) The trading price must lie between the opportunity cost for only one good and one producer.
(E) The trading price must lie between the opportunity cost for all producers and all goods.

ANS:- (E) Gains from trade occur when producers specialize in what they have comparative advantage in and then trade at a price that falls between the opportunity costs for each producer. The logic behind this is simple. Suppose you can produce two goods, A and B, and every time you produce 1 unit of good A, you give up 2 units of good B. If another producer comes along and offers to sell you 1 unit of good A, but it will cost you 3 units of good B, you would be unwilling to trade, because you can make good A more cheaply yourself. Likewise, your trading partner will only be willing to sell you a good for more than it costs that partner to produce. Therefore, to trade, the price must fall between the costs for both producers and for all goods.

39. Elistan can produce either 5 monster trucks or 10 cans of silly string in a day. What is the opportunity cost of one can of silly string?

(A) 5
(B) $\mathbf{1/_2}$
(C) $\mathbf{1/_2}$ **monster truck**
(D) $\mathbf{2\ cans\ of\ silly\ string}$
(E) 5 monster trucks

ANS:- (C) To translate the production possibilities curve into an equation, let M stand for monster trucks and S stand for silly strings. For Elistan, 1 day = 5M or 1 day = 10S. To find the opportunity cost of monster trucks, we simply need to solve this for M by dividing both sides of the equation by 5, which gives us M = 2s. If we translate this into words, we are saying producing 1 monster truck requires the equivalent time to produce 2 cans of silly stings. So every time Elistan produces 1 monster truck, it gives up 2 cans of silly string, and when it produces 1 can of silly string, it gives up $^1/_2$ a monster truck. Note that choices A and B are incorrect because opportunity costs are expressed in terms of another good. By saying just "5" or "$^1/_2$" , it is unclear what is being talked about . . . it could be 5 eggplants for all we know.

40. In a single day, Maxistan can produce 8 cheesecakes or 10 prime ribs. In a single day, Elistan can produce 10 cheesecakes or 10 prime ribs. Who has absolute advantage in producing what good?

(A) Elistan has absolute advantage in cheesecakes, but nobody has absolute advantage in producing prime ribs.
(B) Elistan has absolute advantage in producing both goods.
(C) Maxistan has absolute advantage in producing cheesecakes, and Elistan has absolute advantage in producing prime ribs.
(D) Maxistan has absolute advantage in producing prime ribs, and Elistan has absolute advantage in producing cheesecakes.
(E) Neither country has absolute advantage in producing either good.

ANS:- (A) Absolute advantage is the ability to produce more goods given the same inputs. Here, the input is time. In one day, Elistan can produce 10 cheesecakes, but Maxistan can produce only 8 cheesecakes, so Elistan has absolute advantage in producing cheesecakes. In one day Elistan can produce 10 prime ribs and Maxistan can produce 10 prime ribs, so neither has absolute advantage in producing prime ribs.

41. In a single day, Xela can produce 15 fish tanks or 5 butterfly neys. Their potential trading partner, Nire, can produce 15 fish tanks or 3 butterfly nets. Who has the comparative advantage in producing what?

(A) Nire has comparative advantage in producing butterfly nets, and Xela has comparative advantage in producing both goods.
(B) Nire has comparative advantage in producing both goods, and Xela has comparative advantage in producing both goods.
(C) Nire has comparative advantage in producing fish tanks, an Xela has comparative advantage in producing butterfly nets.
(D) Nobody has comparative advantage in producing either good.
(E) Nire has comparative advantage in producing in producing butterfly nets, but neither country has comparative advantage in producing fish tanks.

ANS:- (C) Comparative advantage is having the lower opportunity cost of producing a good. So to solve this, we need to find out what the opportunity cost for each good is for each producer. For Xela, they can use all of their resources to produce 15 fish tanks (F) or 5 butterfly nets (B) , so mathematically, resources = 15F or resources = 5B, which we can rearrange to get 15F= 5B. Solving for F gets F = $^1/_3$B, and solving for B gets 3F = B. So a fish tank equals $^1/_3$ of a butterfly net, and a butterfly net equals 3 fish tanks. For Nire, 15F = 3B, so F = $^1/_5$B and 5F = B. Since Nire gives up less butterfly nets for each fish tank, Nire has comparative advantage in producing fish tanks. Xela gives up less fish tanks to produce butterfly nets, so Xela has comparative advantage in producing butterfly nets.

42. Lilly and Kylie are stranded together on a desert island. In a single day Kylie can make either 2 straw shelters or catch 10 fish. Lily can make 4 straw shelters or catch 8 fish in a day. Which of the following is the correct reason that Kylie should specialize in producing fish?

(A) Kylie should specialize in producing fish because she has absolute advantage in producing fish.
(B) Kylie should specialize in producing fish because she has comparative advantage in producing fish.
(C) Kylie should specialize in producing fish because Lilly has absolute advantage in producing fish.
(D) Kylie should specialize in producing fish because Lilly has comparative advantage in producing fish.
(E) Kylie should specialize in producing fish some of the time, and Lilly should specialize in producing fish some of the time.

ANS:- (B) The basis for specialization and trade is comparative advantage. Whoever has comparative advantage in producing a good (they can produce a good at a lower opportunity cost) should specialize in producing that good. In that case, Kylie has comparative advantage in producing fish as her opportunity cost for producing fish is $^1/_5$ of a shelter, rather than $^1/_2$ of a shelter. Lilly has comparative advantage in producing shelter as her opportunity cost of producing shelter is only is only 2 fish as opposed to the 5 fish Kylie gives up whenever she builds a shelter. Therefore, Kylie should specialize in producing fish and Lilly should specialize in producing shelter.

43. Megan can bake 5 cakes or 10 pies in an hour, and Matthew can bake 3 cakes or 15 pies in an hour. Which of the following statements regarding the possibility for trade between Megan and Matthew is true?

(A) Megan should specialize in making cakes, Matthew should specialize in making pies, and they would both be willing to trade at a price of 4 pies for every cake.
(B) Megan should specialize in making cakes, Matthew should specialize in making pies, and they would both be willing to trade at a price of 6 pies for every cake.
(C) Megan should specialize in making pies, Matthew should specialize in making cakes, and they would both be willing to trade at a price of 4 pies for every cake.
(D) Megan should specialize in making pies, Matthew should specialize in making cakes, and they would both be willing to trade at a price of 6 pies for every cake.
(E) They should not specialize and trade, since Matthew has absolute advantage in producing pies.

ANS:- (A) Matthew has comparative advantage in producing pies because his opportunity cost of a pie is only $^1/_5$ of a cake, as opposed to the $^1/_2$ cake that Megan gives up every time she bakes a pie. Megan has comparative advantage in producing cakes because she gives up only 2 pies for each cake, but Matthew gives up 5 pies for each cake he makes. When two agents specialize and trade, they will be willing to trade if the trading price lies between the opportunity costs for each trader. If Megan produces 5 cakes and trades 2 of those cakes, she will in return get 8 pies, leaving her with 3 cakes and 8 pies. This combination of goods is outside of her production possibilities without trade (it might help to draw her production possibilities frontier to demonstrate this). Likewise, if Matthew produces 15 pies and trades 8 of those for 2 cakes, he is left with 2 cakes and 7 pies, which is also outside of his original production possibilities. Because each person can consume outside of his or her original production possibilities, they are said to both "gain from trade".

44. Annie can grow 100 bales of cotton or 50 tons of lumber on her land. Will can grow 120 bales of cotton or 80 tons of lumber on his land. What terms of trade would both agree to if they can specialize and trade?

(A) They will trade 1 bale of cotton for $^8/_5$ of a ton of lumber.
(B) They will trade 3 bales of cotton for 1 ton of lumber.
(C) They will trade 1 bale of cotton for $^1/_4$ of a ton of lumber.

(D) They will trade 1 bale of cotton for $^5/_8$ of a ton of lumber.

(E) No terms of trade can be agreed on, since Will has absolute advantage in producing both goods.

ANS:- (D) Annie and Will won't agree to trade unless the trading price makes them at least better off than they would be without trading. Suppose Will currently uses $^1/_3$ of his land to produce cotton and the rest to produce lumber, which yields him 40 bales of cotton and $26^1/_3$ tons of lumber, and Annie splits her land between cotton and lumber, which gives her 50 bales of cotton and 25 tons of lumber. If they specialize in what they have comparative advantage in, Annie can produce 100 bales of cotton, and Will can produce 80 tons lumber. At a trading price of $^5/_8$ of a ton of lumber for each bale of cotton, Annie can trade 50 of those bales for 31.25 tons of lumber ($50 \times {}^5/_8 = 31.25$), so she now has 50 bales of cotton and 31.25 tons of lumber, leaving her better off. Will now has 50 bales of cotton and 48.75 tons of lumber. Therefore, since the trading price was between the opportunity costs for each trader, both are left better off and would be willing to specialize and trade.

45. Which of the following describes a situation in which there would be potential for gains from trade?

I. Two potential trading partners having identical opportunity costs

II. A trading price that is greater than the opportunity cost for both of the potential trading partners

III. One of the trading partners having absolute advantage in producing both goods

(A) I only

(B) II only

(C) III only

(D) I and II only

(E) II and III only

ANS:- (C) For there to be gains from trade, there conditions must be met. First, the two parties must have different opportunity costs. Second, each party should specialize in what they have comparative advantage in. Third, the trading price must lie between the opportunity has absolute advantage in both goods, as long as the other conditions are met, there is still the possibility for gains from trade.

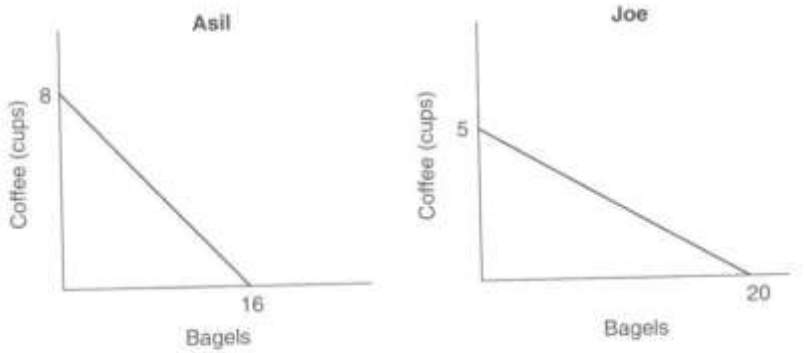


Figure 2.3

46. Refer to Figure 2.3. Which of the following would be an efficient level of production for Asil?

I. 8 cups of coffee and 0 bagels

II. 5 cups of coffee and 6 bagels

III. 4 cups of coffee and 12 bagels

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) II and III only

ANS :- (D) Any level of production that lies on Asil's production possibility frontier (PPF) would be an efficient level of production. The first choice, 8 cups of coffee and 0 bagels, clearly lies on her PPF. According to Figure 2.3, Asil's production possibilities could be described as 8C = 16B. Solving for C and B, we get C = 2B and $^1/_2$C = B. So every time she makes a bagel, she gives up half a cup of coffee. If she moved from making 8 cups of coffee to 5 , she would give up 3 cups of coffee and get 6 bagels (3 × C = 3 × 2B, so 3C = 6B), so the second choice is also efficient. However, if she gave up 1 more cup of coffee, she would not gain 6 more bagels, so choice III is unattainable.

47. Refer to Figure 2.3. What is Asil's opportunity cost of bagels?

(A) 1 cup of coffee
(B) $^1/_2$ cup of coffee
(C) 2 *cups of coffee*
(D) 8 cups of coffee
(E) $^1/_4$ cup of coffee

ANS:- (B) To find Asil's opportunity cost of making bagels, we can use the information given in Figure 2.3. If she devoted all of her resources to making coffee, she will make 8 cups of coffee, so 8C = resources. If she devoted all of her resources to making bagels, she would make 16 bagels, so 16B = resources. Putting this together, we get 8C = 16B. We then solve for B to get her opportunity cost of making bagels, which yields $^1/_2$C = B. Therefore, her opportunity cost of a bagel is half a cup a coffee.

48. Refer to Figure 2.3. Which of the following trading terms would both Joe and Asil find acceptable?

(A) 1 bagel trades for $^1/_5$ of a cup of coffee.
(B) 1 bagel trades for $^1/_8$ of a cup of coffee.
(C) 1 bagel trades for 3 cups of coffee.
(D) 1 bagel trades for $^1/_3$ of a cup of coffee.
(E) 1 bagel trades for 1 cup of coffee.

ANS:- (D) For Asil and Joe to be willing to trade, the trading price must lie between both of their opportunity costs. For Asil, 8C = 16B , so C = 2B and $^1/_2$C = B. For Joe, 5C = 20B, so C = 4B and $^1/_4$C = B. Therefore, any trading price for a bagel would have to be between $^1/_2$ and $^1/_4$ of a cup of coffee.

49. Refer to Figure 2.3. Joe and Asil currently split their time equally between producing coffee and bagels. If the trading trading price is 1 bagel for $^3/_8$ of a cup of coffee, which of the following describes the result of specialization and trade?

(A) Joe would be unwilling to trade at this price, so there would be no gains from trade.
(B) Asil will specialize in bagels, and Joe will specialize in coffe. Asil could sell 3 cups of coffee for 8 bagels produced by Joe. Asil will end up with 4 cups of coffee and 8 bagels, and Joe will end up with 3 cups of coffee and 12 bagels.

(C) Asil will specialize in coffee, and Joe will specialize in bagels. Asil will end up with 4 cups of coffee and 8 bagels, and Joe will end up with 3 cups of coffee and 8 bagels.

(D) Asil will specialize in coffee, and Joe will specialize in bagels. Asil could sell 3 cups of coffee for 8 bagels produced by Joe. Asil will end up with 5 cups of coffee and 8 bagels, and Joe will end up with 3 cups of coffee and 12 bagels.

(E) Asil will be unwilling to trade at this price, so there would be no gains from trade.

ANS:- (D) If Joe splits his time between making coffee and bagels, then $^{5}/_{2}$ C = $2^{1}/_{2}$ cups of coffee and $^{20}/_{2}$ = 10 bagels. If Asil splits her time, then $^{8}/_{2}$C= 4 cups of coffee and $^{16}/_{2}$B = 8 bagels. Asil has the comparative advantage in producing coffee (her opportunity cost is C = 2B), and Joe has the comparative advantage in producing bagels (his opportunity cost is C = 4B). If they each each specialized, Asil would have 8 cups of coffee and Joe 20 bagels before trade. A trade price of $^{3}/_{8}$ of a cup for a bagel would be between $^{1}/_{2}$ and $^{1}/_{4}$ of a cup of coffee, and both be willing to trade. Asil could sell 3 cups of coffee and get 8 bagels for that, leaving her with 5 cups of coffee and 8 bagels. Joe would then have 3 cups of coffee, for which he sold 8 bagels to get, leaving him with 3 cups of coffee and 12 bagels. Both are better off as a result of specializing and trading.

50. Refer to Figure 2.3. Joe has absolute advantage in producing _____, and Asil has comparative advantage in producing _____.

(A) Bagels; coffee

(B) Neither good; bagels

(C) Both goods; bagels

(D) Bagels; neither good

(E) Both goods; neither good

ANS:- (A) Since Joe can make 20 bagels using the same resources and Asil can make only 16, he has absolute advantage in making bagels. Since Asil has the lower opportunity cost of producing coffee, she has comparative advantage in producing coffee. Note that it is just a coincidence that she also has absolute advantage in producing coffee.

51. Refer to Figure 2.3. Every time Joe produces a cup of coffee, he gives up making _____bagels.

(A) 4

(B) 2

(C) $^{1}/_{4}$

(D) 20

(E) 5

ANS :- (A) This question is asking you to find the opportunity cost of coffee for Joe. In a single day he can produce either 5 cups of coffee or 20 bagels, so 5C = 20B. Solving for coffee yields C = 4B. Therefore, every time he gives up a cup of coffee, he gives up making 4 bagels.

52. Refer to Figure 2.3. Suppose Joe wanted to consume 4 bagels and 5 cups of coffee. Which of the following could allow that to occur?

I. Joe gets better at producing bagels but not coffee.

II. Joe gets better at producing both goods.

III. Joe trades with Asil.

(A) I only

(B) II only

(C) III only
(D) I and III only
(E) II and III only

ANS:- (E) If Joe is consuming 5 cups of coffee, there is no way he could also produce 4 bagels, according to the production possibilities frontier in Figure 2.3. If he became better at producing only bagels, then the only way he could still consume 5 cups of coffee is if he spent all of his time producing coffee, so I is not a correct choice. However, if he improved at producing both goods, his production possibilities frontier could shift out and he could consume that amount. Alternatively, the other way to consume at a point beyond his production possibilities is to specialize and trade with Asil.

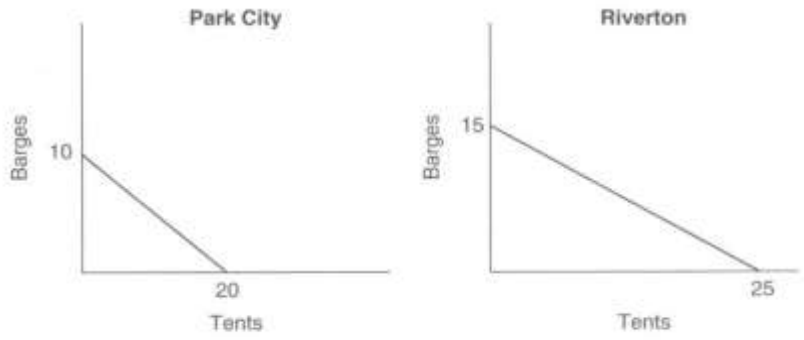


Figure 2.4

53. Refer to Figure 2.4. Park City has absolute advantage in _____ and comparative advantage in _____.

(A) Neither good; tents
(B) Neither good; neither good
(C) Both goods; tents
(D) Both goods; barges
(E) Both goods; both goods

ANS:- (A) If they devoted all of their resources to making barges, Riverton could make more barges than Park City. If they devoted all of their resources to making tents, Riverton could make more tents than Park City. Therefore, Riverton has absolute advantage in making both goods. To find the opportunity cost for barges for Park City, 10B = 20T, so B = 2T and $^1/_2$B = T. For Riverton, 15B = 25T, so B = $^5/_3$T and $^3/_5$B = T. Since $^1/_2 < {}^3/_5$, Park City has comparative advantage in making tents.

54. Refer to Figure 2.4. The city of _____ should specialize in making barges because they have _____ in that good.

(A) Riverton; absolute advantage
(B) Park City; absolute advantage
(C) Park City; comparative advantage
(D) Riverton; comparative advantage
(E) Riverton; total advantage

ANS :- (D) Each city should specialize in the good in which they have comparative advantage. Since Riverton has comparative advantage in making barges, Riverton should specialize in making barges. Since Park City has comparative advantage in making tents, Park City should specialize in making tents.

55. Refer to Figure 2.4. Which of the following is true about the trading situation for Riverton and Park City?

I. We cannot know what the final terms of trade will be for certain.

II. Riverton should be willing to trade with Park City at a price of 6 barges and 11 tents.

III. Riverton should be willing to trade with Park City at a price of 9 barges for 16 tents.

(A) I only

(B) II only

(C) III only

(D) II and III only

(E) I, II, and III

ANS:- (E) Since we know that the two cities have different opportunity costs, we know that there is potential for gains. However, the exact amount of trade that will occur will depend on the price that is negotiated between the two cities. As long as the price of a tent is between $^{1}/_{2}$ and $^{3}/_{5}$ of a barge, as it is in II and III, both cities will be willing to trade because they will be relatively better off than without trade.

56. It takes Jo-Jo 10 minutes to grade a homework question and 15 minutes to grade an essay question. What is the opportunity cost of essay questions for Jo-Jo?

(A) $1^{1}/_{2}$ homework questions

(B) $1^{1}/_{2}$ minutes

(C) 3 homework questions

(D) $^{2}/_{3}$ homework question

(E) $^{2}/_{3}$ minute

ANS :- (A) If it takes Jo-Jo minutes to grade a homework question and 15 minutes to grade an essay question, then in a single hour he can grade either 6 homework questions or 4 essay questions, which would give us 6HW = 4E, or $1^{1}/_{2}$HW = E. Recall that the opportunity cost is the cost of the next best alternative. Here, the next best alternative is grading the other type of question. Note that time is an input to production here, not something of value itself.

57. It takes Jo-Jo 10 minutes to grade a homework question and 15 minutes to grade an essay question. It takes Karl 20 minutes to grade a homework question and 10 minutes to grade an essay question. Who has comparative advantage in grading homework, and what is their opportunity cost?

(A) Karl, 3 essay questions

(B) Jo-Jo, $^{2}/_{3}$ essay question

(C) Jo-Jo, $1^{1}/_{2}$ essay questions

(D) Jo-Jo, 2 minutes

(E) Karl, 2 minutes

ANS:- (B) If it takes Jo-Jo 10 minutes to grade a homework question and 15 minutes to grade an essay question, then in a single hour he can grade either 6 homework questions or 4 essay questions, which would give us 6HW = 4E, or HW = $^{2}/_{3}$E. If it takes Karl 20 minutes to grade a homework question and 10 minutes to grade an essay question, then in a single hour he can grade either grade 3 homework questions or 6 essay questions, which would give us 3HW = 6E, or HW = 2E. Since Jo-Jo has a lower opportunity cost of grading homework questions, he has comparative advantage in grading homework questions.

58. In 2005 Jason produced 200 bottles of cabernet and 120 bottles of pinot noir. In 2007 Jason produced 180 bottles of cabernet and 160 bottles of pinot noir. In 2008 Jason made 220 bottles of cabernet. Assuming that Jason is efficient in all years and his resources have not changed in this constant-cost industry, how much pinot noir did he make in 2008?

(A) 20
(B) 80
(C) 200
(D) 120
(E) 160

ANS:- (B) Here we are given two points that lie on Jason's linear (straight line) production possibilities frontier (PPF). To find the opportunity cost of one good in terms of another with a linear PPF, we need to find the slope of that straight line. To find the slope of a linear curve, we find the rise/run. Suppose we plotted the units of cabernet on the horizontal axis and pinot noir on the vertical axis. Here the rise is the change between 2005 and 2007 in the pinot noir, so 120 – 160 = -40. The run is the change between 2005 and 2007 in cabernet production, which would be 200 – 180 = 20. To find the opportunity cost of cabernet in terms of pinot, -40/20 = -2. Therefore, every time he makes a bottle of cabernet, he gives up 2 bottles of pinot noir. If he went from 200 bottles of cabernet to 220, he must give up 2 bottles of pinot noir for each of the 20 bottles of cabernet, bringing him from 120 bottles of pinot noir to 80.

59. In 2005 Jason produced 200 bottles of cabernet and 120 bottles of pinot noir. In 2007 Jason produced 180 bottles of cabernet and 160 bottles of pinot noir. In 2008 Jason made 220 bottles of cabernet. Which of the following combinations would be efficient production in this constant-cost industry?

I. 260 bottles of cabernet and 0 bottles of pinot noir
II. 140 bottles of cabernet and 200 bottles of pinot noir
III. 120 bottles of cabernet and 220 bottles of pinot noir

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I and III only

ANS:- (A) For this type of question it would be useful to create a figure. We are given two points on Jason's production possibilities frontier (PPF): (120 pinot noir, 200 cabernet) and (160 pinot noir, 180 cabernet), which we can use to find the slope of the PPF. Assuming we put cabernet on the x-axis, the slope is -2. So if he produces 260 bottles of cabernet, he would not be able to produce any pinot noir. If he produced 140 bottles of cabernet, he would be able to produce 240 bottles of pinot noir, so II would not be efficient. III would also be inefficient.

60. On Monday Max baked 3 loaves of bread and 18 cupcakes. On Tuesday Max baked 4 loaves of bread and 18 cupcakes. Assuming Max is efficient and has constant costs, which of the following statements is true about what changed between Monday and Tuesday?

I. Max has more resources to produce both goods.
II. Max has moved along his production possibilities frontier.
III. Max's production possibilities frontier has rotated out.

(A) I only
(B) II only
(C) III only

(D) I and II only
(E) I and III only

ANS:- (E) Suppose Max was being efficient both days, was making the same amount of one good but more of the other good, and was able to make more of one good without having to give up the other. In this case, Max could not only make 18 cupcakes, but also make an additional loaf of bread; so he must be able to produce at least more bread and possibly more cupcakes. Therefore, his production possibilities frontier has either shifted or rotated out.

61. Steve is always efficient and has constant costs. On Friday Steve edited 10 papers and had 4 meetings. On Thursday Steve edited 5 papers and attended 6 meetings. Which of the following statements is true about Steve?

I. Steve would be willing to go to 2 meetings for Patti if she edits 6 papers for him.
II. Steve can attend 10 meetings in a day.
III. Steve can attend 3 meetings and edit 10 papers in a day.

(A) I only
(B) II only
(C) III only
(D) I and III only
(E) II and III only

ANS:- (A) Here we are given two points on a linear production possibilities frontier and we are told that Steve is always efficient. We can use this to determine that every time he goes to 2 meetings, he gives up editing 5 papers. So if he is going to 6 meetings, he can edit 5 papers; if he goes to 8 meetings, he can edit 0 papers, and after that there is nothing more to give up, so II is incorrect. Similarly, if he goes from 4 meetings to 3 meetings, he will be able to edit 12.5 papers, so III would be inefficient. Steve's opportunity cost indicates that when he goes to 2 meetings, he gives up editing 5 papers. So if Patti will exchange 6 papers for 2 meetings, he would be better off.

62. Country A has 200 workers, and country B has 400 workers. In country A, each worker can make 20 pairs of socks or 30 picture frames in a year. In country B, each worker can also make 20 pairs of socks or 30 picture frames in a year. Who has comparative advantage in producing which good?

(A) Neither country has comparative advantage in producing socks, since they have identical opportunity costs.
(B) Country A has comparative advantage in producing socks, and country B has comparative advantage in producing picture frames.
(C) Country B has comparative advantage in producing socks, and country A has comparative advantage in producing picture frames.
(D) Country A has comparative advantage in producing both goods.
(E) Country B has comparative advantage in producing both goods.

ANS:- (A) If country A has 200 workers who each produce 20 socks (S) or 30 picture frames (PF) in a year, then in a single year country A can produce 20 × 200 = 4,000 socks or 30 × 200 = 6,000 picture frames in a year. So for country A, 4,000S = 6,000PF and S = $^{3}/_{2}$PF and $^{2}/_{3}$S = PF. If country B has 400 workers who each produce 20 socks or 30 picture frames, then country B can produce 20 × 400 = 8,000 socks or 30 × 400 = 12,000 picture frames. This becomes 8,000S = 12,000PF , or S = $^{3}/_{2}$PF and $^{2}/_{3}$S = PF. Neither country has comparative advantage in producing both goods. Note that no matter what the opportunity costs had turned out to be, it is mathematically impossible to have comparative advantage in both goods, and this can never be a correct answer.

CHAPTER 3

SUPPLY AND DEMAND

63. The demand for hot dogs will increase if
(A) The price of hot dogs decreases
(B) The population increases
(C) The price of hot dog buns increases
(D) The supply of hot dogs increases
(E) The price of hamburgers decreases

ANS:- (B) A larger population results in more consumers for almost all goods, especially food items. The number of consumers in the market is a demand determinant, or factor that will shift demand curves to the right or left. Simply having more bodies will increase the demand for goods like hot dogs. A decrease in the price of hot dogs will decrease the quantity demanded of hot dogs (a movement along the demand curves), but would not decrease demand (a shift of the entire demand curve). Hot dog buns are a complement to hot dogs, and if the price of hot dog buns increases, the demand for hot dogs will decrease. If the price of the hamburgers, a substitute for hot dogs, goes down, then the demand for hot dogs will decrease.

64. The demand for airplane tickets will decrease if
(A) The supply of airplane tickets decreases
(B) The price of jet fuel increases
(C) The price of an airplane ticket increases
(D) The price of hotel rooms decreases
(E) Consumers believe air travel is becoming unsafe

ANS:- (E) Consumers' tastes and preferences are also a determinant of demand. If a product, like air travel, is deemed unsafe, consumers will have a weaker preference for the product, thus shifting the demand for it to the left. The price of jet fuel, an input into the production of air travel, would affect supply. If the price of an airplane ticket increases, this would decrease the $quantity\ demanded$, rather than decrease demand. If the price of hotel rooms, a complement for air travel, decreases, then the demand for air plane tickets would increase.

65. Which of the following is a demand determinant for chocolate milk?
(A) The price of regular milk, which is often used instead of chocolate milk
(B) The price of chocolate milk
(C) The cost of the corn that feeds the dairy cows that produce the milk
(D) The number of milk produces in the market
(E) The price of the land used to raise the dairy cows

ANS:- (A) A change in the price of regular milk will affect the demand for chocolate milk because regular milk is a substitute good for chocolate milk. A lower price of regular milk would increase the quantity of regular milk demanded, but would shift the demand for chocolate milk to the left because at any given price of chocolate milk it is now relatively more expensive than regular milk. A determinant of demand is a factor that will fundamentally affect (shift) the demand curve. A change in the price results in a movement along the fixed demand curve, not a shift. This is a distinction that, if you're not careful, can often result in points being lost on an exam. Choices C, D, and E are all determinants of supply; they would shift the supply of chocolate milk, but not affect the demand for it.

66. Suppose we are told that no matter the price of a 3-D television, more 3-D televisions have been purchased. One explanation for this trend may be that

(A) Consumers have a stronger preference for 3-D televisions
(B) The number of consumers in the market has decreased
(C) The cost of producing 3-D televisions has increased
(D) The number of firms that produce 3-D televisions has decreased
(E) The number of stores that sell 3-D televisions has decreased

ANS:- (A) If we are told that no matter the price, more 3-D televisions are being purchased, it is an indicator that the demand has increased, or shifted to the right. If you draw a graph where a demand curve has increased or shifted to the right, you can see that at every possible quantity the price that consumers are willing and able to pay has increased. A stronger taste or preference for these products would result in such a shift or demand. The cost of producing televisions and number of firms or stores involved in selling televisions are all factors that would affect the supply curve rather than the demand curve.

67. Select the choice that would cause a leftward shift in the demand for good X.

(A) A higher price of good X
(B) Stronger consumer tastes and preferences for good X
(C) Improved technology used to produce good X
(D) A higher price of an input used in the production of good X
(E) Fewer consumers in the market

ANS:- (E) A change in the technology used to produce good X or the price of a production input would cause a shift in the supply of good X rather than a shift in demand. A change in the price of good X would cause a movement only along the fixed demand curve, but fewer consumers would reduce (or shift leftward) demand for the product. The determinants of demand are consumer income, the price of complements and substitutes, tastes and preferences, consumer expectations about price, and the number of consumers.

68. Which of the following statements are correct?
I. If the price of milk falls, the demand of milk will shift to the right. II. If the price of milk rises, the quantity of milk demanded will fall along the demand curve. III.If the price of milk rises, the demand for milk will shift to the left.

(A) I only
(B) II only
(C) III only
(D) I and III only
(E) I, II, and III

ANS:- (B) This statement restates the law of demand using milk as an example. The other two choices, I and III, are incorrectly stating that a change in the price will cause a shift in demand. The demand for a good will never change in response to a change in the price of that good. Rather, the $quantity\ demanded$ for a good will change when its price changes.

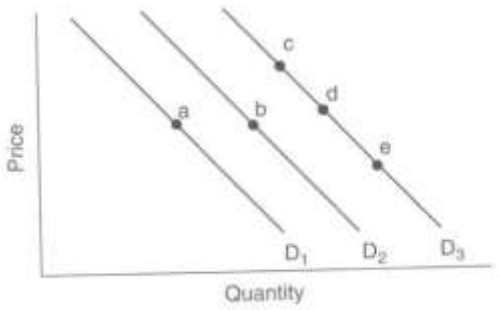


Figure 3.1

69. Refer to Figure 3.1. Which movement between points is consistent with the law of demand?

(A) a to b
(B) b to a
(C) b to c
(D) c to d
(E) d to b

ANS:- (D) The law of demand says that all else equal, when the price of a good increases, the quantity of that good demanded will decrease. The movement from point c to point d tells us that the price increased, quantity demand decreased along the fixed demand curve. All other choices reflect shifts in the demand. If the choice of "d to e" had been available, this would also have described the law of demand, because the law of demand also implies that when the price of a good decreases, the quantity demanded of a good will increase.

70. Three demand curves for hamburgers are shown in Figure 3.1. Of the following choices, what would cause a movement from point b to point a?

(A) The prices of hamburgers increased.
(B) The price of a substitute good decreased.
(C) The price of a complementary good decreased.
(D) Consumer preferences for hamburgers became stronger.
(E) The consumer population increased.

ANS:- (B) The movement from point b to point a is going to be the result of something that decreases the demand for hamburgers. If the price of a substitute good (like pizza) falls, more pizza will be consumed and the demand for hamburger shifts to the left. An increase in the price of hamburgers would cause a movement along a single curve, such as a movement from point d to point c.

71. Which of the following goods is most likely an inferior good?

(A) Used furniture
(B) Gold earrings
(C) Safari tickets
(D) Laptop computers
(E) Digital cameras

ANS:- (A) An inferior good is something that has stronger demand when consumer incomes fall and weaker demand when consumer income increase. When considering all choices, a good such as used furniture best fits

that description. When people see increased income, they usually choose to buy more new furniture and less used furniture.

72. The demand for chocolate cake will increase if

(A) Income increases and chocolate cake is a normal good
(B) Income increases and chocolate cake is an inferior good
(C) The price of chocolate used to make the cake increases
(D) The medical community reveals that chocolate cake is extremely bad for our health
(E) The price of chocolate cake rises

ANS:- (A) If chocolate cake is a normal good, then demand for it will increase with higher incomes and decrease with lower incomes. Demand for all normal goods moves in the same direction as income. A change in the price of chocolate, an input to the production of chocolate cakes, would change the supply of chocolate cakes.

73. Demand for an inferior good

(A) Is vertical
(B) Decreases when income decreases
(C) Depends on the price of related goods
(D) Increases when income increases
(E) Increases when income decreases

ANS:- (E) Demand for an inferior good moves in the opposite direction from a change in income. If incomes decrease, then demand increases. Note that an inferior good also cannot have a vertical demand curve. A vertical curve is perfectly inelastic, which is only possible if a good has no substitutes. Many normal goods and inferior goods are substitutes for each other. A good example of this is new cars (normal) and used cars (inferior).

74. We can determine that apples and bananas are _____ goods because when the price of apples _____, the demand for bananas _____.

(A) Complementary; rises; rises
(B) Substitute; rises; falls
(C) Complementary; falls; falls
(D) Substitute; rises; rises
(E) Substitute; falls; rises

ANS :- (D) The demand for apples depends upon the price of substitute goods. If bananas are substitutes, then a decrease in the price of apples results in more being consumed and a decreased demand for bananas. This also works in reverse: if bananas become more expensive, the demand for apples shifts to the right. Remember that for substitute goods, when the price of one good increases, the demand for the substitute also increases.

75. If winter hats and winter mittens are complementary goods, then we expect

(A) The demand for mittens to increase when the price of hats increases
(B) The demand for hats to increase when the price of mittens increases
(C) The demand for mittens to increase when the price of hats decreases
(D) The demand for mittens to decrease when the price of hats decreases
(E) The demand for hats to decrease when the price of mittens decreases

ANS :- (C) The demand for mittens depends upon the price of complementary goods, like hats. If these goods are used together, a decrease in the price of mittens will cause more mittens to be consumed and an increase in

demand for the hats that go with them. If the price of hats were to increase, fewer hats would be consumed and the demand for mittens would decrease. For complementary goods, it is important to remember that when the price of one good increases, the demand for its complement decreases.

76. The supply of houses is likely to increase if

(A) The number of home builders decreases
(B) The price of houses decreases
(C) Consumer incomes increase
(D) The cost of building materials decrease
(E) The wages paid to carpenters increases

ANS :- (D) Like demand curves, supply curves are also affected by external variables (the determinants of supply) that shift the curve to the right or left. The supply of any good will increase if one of these determinants, the price of factors of production, or inputs, decreases. When it becomes less costly to build a house, the supply of houses will shift to the right. This is because for any given quantity of houses, it will cost the producer less to make that quantity and the producer therefore would be willing to accept a lower price for that quantity.

77. If the supply curve for good Z is known to have shifted to the left, we might conclude that

(A) Consumer tastes for good Z have diminished
(B) The technology used in producing good Z has improved
(C) There are fewer producers of good Z
(D) The price of good Z has fallen
(E) The cost of producing good Z has fallen

ANS :- (C) The number of suppliers is also a determinant of supply. If there are fewer suppliers of good Z, the supply curve will shift to the left. Consider a market with 20 suppliers, each willing to supply 5 units of Z when the price of Z is $10 and 8 units of Z when the price is $12. This would inform us that there is a market supply of 100 units of Z when p = $10 and a market supply of 160 when p = $12. If for some reason one of those suppliers left the market, then all else equal, the market supply would be 95 units when the price is $10 and 155 units when the price is $12. Thus at any given price, the market supply will be lower when a supplier exists this market.

78. Which of the following is considered a determinant of supply curves?

(A) Consumer income
(B) Tastes and preferences
(C) The number of consumers
(D) Consumer income expectations
(E) Production technology

ANS:- (E) Production technology will affect (or shift) the supply curve. If producers acquire better technology, they can produce more output with the same amount of inputs. This translates into a supply curve that lies farther to the right; more output is produced at any price. Consumer income, tastes and preferences, the number of consumers, and consumer income expectations are all demand determinants but do not affect the supply curve.

79. Suppose that many producers of footwear can produce both hiking boots and running shoes. All else equal, if running becomes a more popular activity and the price of running shoes begins to increase, what would we expect to happen in the market for running shoes and the market for hiking boots?

	MARKET FOR RUNNING SHOES:-	MARKET FOR HIKING BOOTS:-
(A)	**An increase in supply**	**An increase in supply**
(B)	**An increase in quantity supplied**	**A decrease in supply**
(C)	**An increase in quantity supplied**	**An increase in quantity supplied**
(D)	**An increase in supply**	**An decrease in supply**
(E)	**A decrease in quantity supplied**	**An increase in supply**

ANS:- (B) If a producer can produce more of a good that fetches a higher price, they will do so. Because running shoes are selling at higher prices, the supplier will increase quantity of running shoes supplied along the supply curve for running shoes. This is the law of supply in action ----- responding to a higher price of a good by increasing the quantity supplied of that good. However, this new production plan would require a decrease in the supply of hiking books. The price of an alternative product, the running shoes, is a determinant in the supply of hiking boots.

80. Which of the following would likely increase the current supply of cars?

(A) The price of gasoline has decreased.
(B) The cost of the robotics used to produced cars has increased.
(C) Car producers expect future car prices to increase.
(D) The technology used to produce cars has improved.
(E) The price of new cars has increased.

ANS :- (D) Better production technology shifts supply curves to the right. This is because better technology would allow the same quantity of production at a cheaper price (or looking at it slightly differently, a higher quantity of production at the same price), which would make a supplier willing to accept a lower price for any given quantity. While it might be tempting to choose choice C, if producers expect future car prices to be higher, they will reduce the current supply of cars while they wait for those higher prices to occur, which would actually decrease supply (or shift the supply curve to the left).

81. The law of supply is most consistent with which of the following statements?

(A) When the price of wool increased, sheep ranchers sheared more sheep for market.
(B) When the cost of steel decreased, car companies were able to produce more cars.
(C) When one coffee shop in town closed, fewer cups of coffee were sold.
(D) When the price of lumber decreased, more lumber was purchased at the hardware store.
(E) When the government subsidized public education, more students received their college degrees at public universities.

ANS :- (A) The law of supply states that all else equal, when the price of a good increases, firms will increase the quantity of that good supplied. If the price of wool is rising, there will be an increase in the quantity of wool supplied. Recall that as more is produced, resource scarcity means that most production is done with increasing costs. Consider a producer who has willing to supply 5 pounds of wool when the price of wool was $7 a pound. The producer was willing to supply this amount because this was the point for him that the marginal cost equaled the marginal benefit. If the marginal benefit (the price per pound) increased, now MB > MC, he should increase his quantity supplied.

82. The law of supply states that, holding all other factors constant, when the price of a good _____, the quantity of that good supplied will _____.

(A) Falls; rise
(B) Remains constant; rise
(C) Rises; fall
(D) Rises; remain constant
(E) Rises; rise

ANS :-(E) This is simply a restatement of the law of supply: all else equal, the quantity supplied of a good will rise when the price of a good rises. It is important to know both this and the law of demand inside and out. Students frequently confuse increases and decreases in supply and demand with changes in quantities supplied or demanded. The law of supply and the law of demand always refer to changes in the quantity supplied and the quantity demanded, respectively. Another way to restate these laws is to remember that for the law of demand, there is a positive relationship between price and quantity supplied.

Use Table 3.1 for questions 83-85

Table 3.1.

Price per pound	Quantity Demanded (pounds)	Quantity Supplied (pounds)
$1	2500	750
$2	2300	900
$3	2100	1050
$4	1900	1200
$5	1700	1350
$6	1500	1500
$7	1300	1650
$8	1100	1800
$9	900	1950

83. Table 3.1 shows the quantity of beef demanded and supplied at a variety of prices. If the market is in equilibrium, the price would be _____ per pound and _____ pounds would be exchanged.

(A) $4; 1900
(B) $5; 350
(C) $6; 1500
(D) $7; 350
(E) $6; 3000

ANS :- (C) Equilibrium occurs at the only price where the quantity demanded equals the quantity supplied. At this price, all units that are produced by sellers are purchase by buyers. Just as in physics, the term $equilibrium$ refers to a state of balance ------ the balance between opposing forces. Note that it is not where "supply equals demand". To say that "supply equals demand" is saying that these two opposing forces are the same. Graphically, that would mean the two curves were the same curve! Rather, equilibrium refers to a price that makes the $quantity\ supplied$ equal to the $quantity\ demanded$.

84. Table 3.1 shows the quantity of beef demanded and supplied at a variety of prices. Suppose the price of beef is $8 per pound. At this price, there exists a _____ equal to _____ pounds of beef.

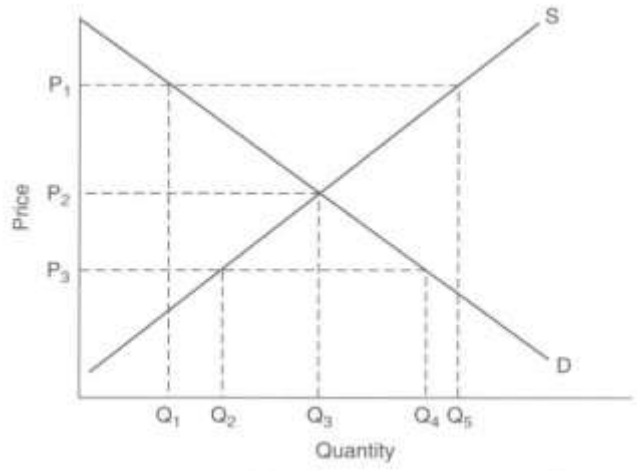
(A) Surplus; 800
(B) Surplus; 2900
(C) Shortage; 700
(D) Shortage; 1100
(E) Surplus; 700

ANS :- (E) At prices that exceed the equilibrium price, quantity supplied will exceed quantity demanded. Sellers enjoy higher prices, so they will increase production when the price rises. Buyers do not enjoy higher prices, so they will reduce consumption when the price rises. This disparity gives us a surplus (or excess supply) equal to the difference between quantity supplied and quantity demanded.

85. Table 3.1 shows the quantity of beef demanded and supplied at a variety of prices. Suppose the price of beef is $4 per pound. At this price, there exists a _____ equal to _____ pounds of beef.

(A) Surplus; 700
(B) Surplus; 1900
(C) Shortage; 700
(D) Shortage; 1900
(E) Shortage; 1200

ANS :- (C) At prices below the equilibrium price, quantity demanded will exceed quantity supplied. For instance, if the market price were $2, then buyers would want to buy 2,300 pounds, but sellers would be willing to sell only 900 pounds at that price. When there are fewer units supplied than consumers wish to buy, a shortage (or excess demand) exists and it is equal to the difference between the quantity demanded and the quantity supplied.



86. Figure 3.2 shows the market for a good. If this market reaches equilibrium, the price and quantity will be

(A) P_1 and Q_1
(B) P_1 and Q_5
(C) P_3 and Q_2
(D) P_2 and Q_3
(E) P_3 and Q_4

ANS:- (D) When supply and demand are combined in a graph, the equilibrium point is found at the intersection of the supply curve and the demand curve. The quantity point on the demand curve that corresponds to a price of P_2 is Q_3. The quantity point on the supply curve that corresponds to a price of P_2 is Q_3. Thus at the price of P_2, the quantity demanded is equal to quantity supplied at quantity Q_3.

87. Figure 3.2 shows the market for a good. If the current price is P_3, there exists a _____ in the market equal to _____ units of the good.

(A) Surplus; $Q_5 - Q_1$
(B) Shortage; $Q_4 - Q_2$
(C) Surplus; $Q_5 - Q_3$
(D) Shortage; $Q_5 - Q_1$
(E) Surplus; $Q_4 - Q_2$

ANS :- (B) The price P_3 is below the equilibrium price of P_2 that brings the quantity supplied and the quantity demanded into balance. This low price creates shortage because the quantity demanded exceeds the quantity supplied: quantity demanded at P_3 is Q_4 and quantity supplied at P_3 is Q_2. The size of the shortage is equal to $Q_4 - Q_2$.

88. Figure 3.2 shows a market currently in equilibrium. What might cause the market to move to a price of P_1 and quantity of Q_5?

(A) An increase in supply with no change in demand
(B) A decrease in demand with no change in supply
(C) A decrease in supply with no change in demand
(D) A decrease in supply with a decrease in demand
(E) An increase in demand with no change in supply

ANS :- (E) The equilibrium price in this market is P_2, and the equilibrium quantity in this market is Q_3. A new price of P_1 would mean a higher price, and a new quantity of Q_5 would be a higher quantity. The point that correspond to P_1 and Q_5 would therefore result from an increase in the demand curve. Starting at the equilibrium point, this rightward shift in demand would increase both price and quantity. To demonstrate this, try re-creating this graph and show what happens if supply increases.

89. Figure 3.2 shows a market currently in equilibrium. What might cause the market to move to a price of P_3 and quantity of Q_4?

(A) An increase in supply with no change in demand
(B) A decrease in demand with no change in supply
(C) A decrease in supply with no change in demand
(D) A decrease in supply with a decrease in demand
(E) An increase in demand with no change in supply

ANS :- (A) The equilibrium in this market is a price of P_2 and a quantity of Q_3, so if price is now P_3 and quantity is Q_4, then the price has fallen but market quantity has risen. Since we know the change in both price and quantity, we can tell for sure that only one curve has shifted. Likewise, since price and quantity have moved in opposite directions, we can tell that it is the supply curve that changed. The point that corresponds to P_3 and Q_4 must be the result of a rightward shift in supply. Starting in equilibrium, when the supply curve increases, it creates a temporary surplus because the new quantity supplied exceeds the original quantity demanded. This surplus is eliminated by a falling price, and the new equilibrium quantity is greater than before. When a supply curve increases, quantity also increases, but the price decreases.

90. Figure 3.2 shows a market currently in equilibrium. What might cause the market to move to a price of P_1 and quantity of Q_1?

(A) An increase in supply with no change in demand
(B) A decrease in demand with no change in supply
(C) A decrease in supply with no change in demand
(D) A decrease in supply with a decrease in demand
(E) An increase in demand with no change in supply

ANS :- (C) The point that correspond to P_1 and Q_1 must be the result of a leftward shift in supply. Starting in equilibrium, when the supply curve decreases, it creates a temporary shortage because the new quantity supplied is less than the original quantity demanded. This shortage is eliminated by a rising price, and the new equilibrium quantity is less than before. When a supply curve decreases, quantity also decreases, but the price increases.

91. The market for cheese is currently in equilibrium. If the demand for cheese increases, what will happen to the market price and quantity of cheese?

	MARKET PRICE	MARKET QUANTITY
(A)	**Decreases**	**decreases**
(B)	**Decreases**	**increases**
(C)	**Increases**	**remains constant**
(D)	**Increases**	**increases**
(E)	**Increases**	**decreases**

ANS :- (D) If we start a point where a market is in equilibrium, an increase in demand will create a temporary shortage of cheese. This is because the new quantity demanded exceeds the original quantity supplied at the original price. As the market adjusts to a new equilibrium, the price rises to eliminate the shortage and more cheese is exchanged in the market. Therefore, when demand curves increase, price and quantity both increase.

92. The market for gasoline is currently in equilibrium. If the demand for gasoline decreases, what will happen to the market price and quantity of gasoline?

	MARKET PRICE	MARKET QUANTITY
(A)	**Decreases**	**decreases**
(B)	**Decreases**	**increases**
(C)	**Increases**	**remains constant**
(D)	**Increases**	**increases**
(E)	**Increases**	**decreases**

ANS :- (A) If we start at a point where the market is in equilibrium, a decrease in demand will create a temporary surplus of gasoline. This is because the new quantity demanded is less than the original quantity supplied at the original price, due to the fact that when demand decreases, people are willing to buy less of a good at any given

price. As the market adjusts to new equilibrium, the price falls to eliminate the surplus and less gasoline is exchanged in the market. Therefore, when demand curves decrease, price and quantity both decrease.

93. You are told that the market price of coffee has increased and more coffee is being purchased in the market. Of the following choices, which is the most likely cause of these changes in the coffee market?

(A) Supply of coffee increased
(B) Demand for coffee increased
(C) Demand for coffee decreased
(D) Supply of coffee decreased
(E) The demand for coffee and the supply of coffee both decreased.

ANS :- (B) If you know that both price and quantity have increased in the coffee market, it is most likely that the demand for coffee has increased. An increase in demand places an upward pressure on both prices and quantity. Recall that a change in supply will yield opposite effects on price and quantity (one will increase and one will decrease). If both supply and demand were changing at the same time, we would be able to tell whether either price or quantity had increased, but the effect on at least either price or quantity would be ambiguous. When in doubt, draw a quick graph in the margin of your test book and you can see the impact of an increase in demand.

94. You are told that the market price of steel has decreased and less steel is being purchased in the market. Of the following choices, which is the most likely cause of these changes in the steel market?

(A) Supply of steel increased.
(B) Demand for steel increased.
(C) Demand for steel decreased.
(D) Supply of steel decreased.
(E) The demand for steel and the supply of steel both decreased.

ANS :- (C) Whenever you see a situation in which you can tell the effect on both price and quantity, you know for certain that only supply has changed or only demand has changed. Recall that whenever you see price and quantity moving in the same direction, whether both price and quantity are rising or both price and quantity are falling, you know that demand has to be changing. Price and quantity move in different directions when supply changes. In this case you know that both price and quantity of steel have decreased in the market for steel. This is a clear sign that the demand for steel has decreased.

95. You are told that the market price of applesauce has decreased and more applesauce is being sold in the market. Of the following choices, which is the most likely cause of these changes in the applesauce market?

(A) Supply of applesauce increased.
(B) Demand for applesauce increased.
(C) Demand for applesauce decreased.
(D) Supply of applesauce decreased.
(E) The demand for applesauce and the supply of applesauce both decreased.

ANS :-(A) The decreased price of applesauce while the quantity has increased is a clear sign that supply has increased. First of all, if we know both a new price and quantity with no ambiguity, then we know for certain that only one curve has shifted. The change in quantity is always in the same direction as the change in supply, while the price moves in the opposite direction.

96. You are told that the market price of milk has increased and less milk is being purchased in the market. Of the following choices, which is the most likely cause of these changes in the milk market?

(A) Supply of milk increased.
(B) Demand for milk increased.
(C) Demand for milk decreased.
(D) Supply of milk decreased.
(E) **The demand for milk and the supply of milk both increased**.

ANS :- (D) We know that the price of milk has increased but the quantity has decreased, so a new price and quantity are both known and the new price and quantity moved in different directions. A decrease in supply would cause these changes. Again, a quick sketch of the milk market would confirm that decreased supply is the correct answer and the other choices are incorrect.

97. The market for wine is currently in equilibrium. If the supply of wine increases, what will happen to the market price and quantity of wine?

	MARKET PRICE	MARKET QUANTITY
(A)	**Decreases**	**decreases**
(B)	**Decreases**	**increases**
(C)	**Increases**	**remains constant**
(D)	**Increases**	**increases**
(E)	**Increases**	**decreases**

ANS :- (B) Because quantity always moves in the same direction as the change in supply, you can quickly focus on the choices that state quantity of wine is going to increases. And because an increase in supply causes a surplus, and because a surplus is eliminated by falling prices, look for the choice that also includes a decreased price of wine.

98. The market for rental housing is currently in equilibrium. If the demand for rental housing increases and the supply of rental housing also increases, what will happen to the market price and quantity of rental housing?

	MARKET PRICE	MARKET QUANTITY
(A)	**Uncertain change**	**decreases**
(B)	**Decreases**	**uncertain change**
(C)	**Increases**	**uncertain change**
(D)	**Uncertain change**	**increases**
(E)	**Increases**	**increases**

ANS :- (D) When both curves are shifting in a market, it is helpful to analyze each shift one at a time. An increase in demand will increase both the price and quantity of rental housing. An increase in supply will increase the quantity but decrease the price. Therefore, we know for sure that quantity is going to increase, but there are competing effects on the price of rental housing. The only thing we can say about the new price is that it is uncertain or it would depend upon which effect (upward from demand versus downward from supply) is strongest.

99. The market for lumber is currently in equilibrium. If the demand for lumber decreases and the supply of lumber increases, what will happen to the market price and quantity of lumber?

	MARKET PRICE	MARKET QUANTITY
(A)	**Uncertain change**	**decreases**
(B)	**Decreases**	**uncertain change**
(C)	**Increases**	**uncertain change**
(D)	**Uncertain change**	**increases**
(E)	**Increases**	**increases**

ANS :- (B) When the demand for lumber decreases, it will decrease both the price and quantity of lumber. When the supply increases, it will cause a greater quantity but a lower price of lumber. Therefore, we know that the price of lumber will be lower, but there is an uncertain change in the new quantity of lumber. Because the two market forces, supply and demand, are exerting opposite and opposing forces on quantity, we cannot determine which side of the market will exert more force.

100. You are informed that the demand for a good has increased and the supply of that good has decreased. You know that the market price must have _____, while the market quantity could have _____ if the change in demand was _____ than the change in supply.

(A) Decreased; increased; greater
(B) Increased; increased; less
(C) Increased; increased; greater
(D) Decreased; increased; less
(E) Increased; decreased; greater

ANS :-(C) When the demand for a good increases, both price and quantity will increase. When the supply of a good decreases, the price will increase and the quantity will decrease. We can say for sure that the price is going to be higher. The new quantity will increase if the demand shift is greater than the supply shift. The new price will decrease if the supply shift is stronger than the demand shift.

101. You are informed that the demand for a good has increased and the supply of that good has also increased. You know that the market quantity must have _____, while the market price could have _____ if the change in demand was _____ than the change in supply.

(A) Decreased; increased; greater
(B) Increased; increased; less
(C) Increased; decreased; greater
(D) Decreased; increased; less
(E) Increased; decreased; less

ANS :-(E) When the demand for a good increases, bot price and quantity will increase. When the supply of a good increases, the price will decrease and the quantity will increase. We can say for sure that the quantity is going to rise. The new price will increase if the demand shift is greater than the supply shift. The new price will decrease if the supply shift is stronger than the demand shift.

102.The market for toys is currently in equilibrium. If the demand for toys decreases and the supply of toys decreases, what will happen to the market price and quantity of toys?

	MARKET PRICE	MARKET QUANTITY
(A)	**Increases**	**uncertain change**
(B)	**Decreases**	**uncertain change**
(C)	**Increases**	**decreases**
(D)	**Uncertain change**	**increases**
(E)	**Uncertain change**	**decreases**

ANS :- (E) A decreased demand for toys will decrease both the price and quantity. The decreased supply of toys will also decrease quantity but will increase price. Therefore, the quantity is certainly going to decrease, but the change in the price is uncertain. When you are figuring out these type of questions, it might be useful to abbreviate using arrows. Here, D: p ↓ and S: p ↑, and D: q ↓ and S: q ↓. If the arrows are pointing in the same direction, you can tell with certainty what the effect will be. Since the arrows for price go in opposite directions, the effect on the price will be ambiguous. Students are often tempted to conclude, especially when using graphs to work through the reasoning on these types of questions, that there is no change in price. $This\ is\ not\ correct$! We simply cannot say for certain what has happened to price. This is a common "trap" that is sometimes put in exam question choices. . . don't fall for it!

CHAPTER 4

ELASTICITY

103.The price elasticity of supply of good X is

- **(A) The percentage change in quantity of X demanded divided by the percentage change in the price of X**
- **(B) The percentage change in quantity of X supplied plus the percentage change in the price of X**
- **(C) The percentage change in the price of X divided by the percentage change in quantity of X**
- **(D) The percentage change in quantity of X supplied divided by the percentage change in the price of X**
- **(E) The percentage change in quantity of X supplied multiplied by the percentage change in the price of X**

ANS :- (D) The price elasticity of supply measures how responsive producers are to a change in the price. We know that a higher price will almost always prompt these firms to increase the quantity of output they supply, but we don't know if that response will be large (relative to the change in price) or small. By dividing the percentage change in quantity supplied by the percentage change in price, we can measure this response. Note: for all elasticity measures, the percentage change in quantity (the response) is always divided by the percentage change in the variable that $caused$ the response.

104.Suppose the price of eggplant decreases by 4% and eggplant producers reduce the quantity of eggplant supplied by 20%. The price elasticity of supply is equal to

- **(A) -4**
- **(B) .25**
- **(C) 4**
- **(D) -5**

(E) 5

ANS :- (E) If you know that the price of eggplant has decreased by 4% and this prompted suppliers to reduce supply by 20%, then the price elasticity of supply is (-20%/-4%) = 5. As a strategy for answering questions on price elasticity of supply, you can quickly eliminate any negative values as incorrect options. Barring the very unlikely possibility of a vertical supply curve, supply curves will slope upward and price elasticity of supply will always be a positive number.

105. If we know that the price elasticity of supply of eggnog is 3 and that the price of eggnog has doubled, we predict that

(A) Quantity of eggnog supplied will increase 300%
(B) Quantity of eggnog supplied will also double
(C) Quantity of eggnog supplied will increase 200%
(D) Quantity of eggnog supplied will increase 33.3%
(E) Quantity of eggnog supplied will increase 3,000%

ANS :- (A) Anytime something doubles, it has experienced a 100% increase in size. Since the price elasticity of supply is equal to 3, the numerator of the formula must be three times the size as the price change in the denominator. Thus, a 100% increase in price causes a 300% increase in quantity supplied. It is always helpful to quickly write the elasticity formula in the margin of your test book, include the information that you know, and solve for what you don't know. In this case, you are trying to find x in the equation 3 = x/100%.

106. In the long run, the price elasticity of supply is _____ the short-run price elasticity of supply because producers have _____ time to adjust to changes in the price.

(A) Greater than; more
(B) Greater than; less
(C) Smaller than; more
(D) Equal to; the same amount
(E) Smaller than; less

ANS :- (A) We believe that all measures of responsiveness are more elastic in the long run rather than the short run. Producers in this case, given more time, can find ways to increase production to take advantage of the higher price. If the price of the output has risen, the firms may be able to acquire more capital equipment, expand the production facility, or hire more labor to produce more output at the higher price.

107. Jason is a seller of Klonks. He has seen the price of a Klonk rise from $10 to $14, and he has responded by increasing his daily production from 100 units to 140 units. Using the midpoint formula, compute Jason's price elasticity of supply between these two prices.

(A) 2
(B) 1
(C) 3
(D) 4
(E) .25

ANS :- (B) Price elasticity measures, whether supply or demand, change depending upon what we assume is the current price and quantity. When the price changes, we use the midpoint formula to compute price elasticity in between the two prices and quantities. The formula takes the percentage change between price and quantity, but uses the average price $\overline{P}$ and the average quantity $\overline{Q_S}$. The formula is as follows.

$E_S = \left(\frac{\Delta Q_S}{\Delta P}\right)\left(\frac{\overline{P}}{\overline{Q_S}}\right) = \left(\frac{40}{4}\right)\left(\frac{12}{120}\right) = 1.$

108. Which of the following choices is an accurate formula for the absolute value of the price elasticity of demand (E_d)?

(A) $E_d = (\%\Delta \boldsymbol{P}) \div (\%\Delta \boldsymbol{Q_d})$

(B) $E_d = (\%\Delta \boldsymbol{P}) \div (\%\Delta \boldsymbol{I})$

(C) $E_d = (\%\Delta \boldsymbol{Q_d}) \div (\%\Delta \boldsymbol{P})$

(D) $E_d = (\%\Delta \boldsymbol{Q_d}) \div (\%\Delta \boldsymbol{I})$

(E) $E_d = (\%\Delta \boldsymbol{P}) \times (\%\Delta \boldsymbol{Q_d})$

ANS :- (C) Much like the formula for price elasticity of supply, the price elasticity of demand measures the responsiveness of quantity demanded to a change in the price. A common mistake made by students is to invert the formula and put the percentage change in price in the numerator. Remember that the numerator always measures the percentage change in behavior, in this case the change in consumption. The denominator always measures the percentage change in the variable that instigated the change in behavior.

109. If demand for a product is said to be inelastic, it must be the case that the absolute value of the price elasticity of demand (E_d) is

(A) Greater than 1

(B) Equal to 1

(C) Greater than 0 but less than 1

(D) Infinitely large

(E) Greater than 1, but less than 5

ANS :- (C) If demand is considered inelastic, it means that for a given percentage change in price, the quantity demanded responds (in the opposite direction) with a lesser percentage change. Recall the following formula.

$E_d = \left(\frac{\%\Delta Q_d}{\%\Delta P}\right)$

An inelastic response would indicate that the numerator is less than the denominator and E_d is some value greater than zero, but less than one. If demand is elastic, the price elasticity is greater is greater than one.

110. Suppose the price elasticity of demand for apples is equal to .75. If the price of apples rises by 10%, we expect a _____ in apple consumption.

(A) .75% decrease

(B) 7.5% increase

(C) 75% increase

(D) 3.33% decrease

(E) 7.5% decrease

ANS :- (E) To solve this, take a moment and write out the formula for price elasticity of demand. Insert the information that is given, and use a little bit of algebra to solve for what is being asked.

$E_d = \left(\frac{\%\Delta Q_d}{\%\Delta P}\right) = .75 = \frac{\%\Delta Q_d}{+10\%}$

Multiplying (.75)(10%) yields a solution of $\%\Delta Q_d$ = 7.5%, but remember that quantity demanded will always move in the opposite direction as the change in price. So make sure you eliminate any choices that include a price $increase$ in this problem.

111. The price of a gizmo has increased. Which of the following would be a reason to expect that there would be an elastic response to this price increase?

(A) There are very few available substitutes for a gizmo.
(B) Consumers consider gizmos to be a luxury item.
(C) Consumers have almost no time to respond to the price increase.
(D) Gizmos represent a very small share of consumer spending.
(E) The demand curve for gizmos is approximately vertical in shape.

ANS :- (B) A few factors typically affect whether demand for a product tends to be elastic or inelastic. Products have a more elastic demand if there are many substitutes for them, they account for a large share of a consumer's budget, and the consumer has lots of time to adjust behavior to a price change. Additionally, if a consumer considers the product a necessity, like food, then demand tends to be inelastic. The price can go up by a certain degree, but food consumption goes down by a lesser degree. But if a product is considered a luxury, like trips to a theme park, then if the price goes up, consumers can do without and quantity of luxury items goes down by a large degree.

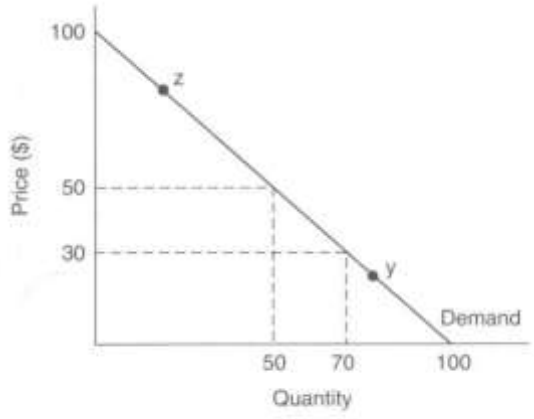


Figure 4.1

112. Referring to the demand curve in Figure 4.1, use the midpoint formula to compute the price elasticity of demand between the prices of $50 and $30.

(A) 1
(B) 1.5
(C) 2
(D) .67
(E) 0

ANS :- (D) When computing price elasticity using some formulas, the end results depend on whether we are starting at the lower price of $30 (and higher quantity of 70) or the higher price of $50 (and the lower quantity of 50). The midpoint formula eliminates this disparity by using the average price and the average quantity between any two prices and quantities. The calculation isn't as difficult as it may seem.

$E_d = \left(\frac{\Delta Q_d}{\Delta P}\right)\left(\frac{\overline{P}}{\overline{Q_d}}\right) = \left(\frac{20}{20}\right)\left(\frac{40}{60}\right) = .67$

113. Refer to Figure 4.1. Consider point z on the demand curve. For a small change in the price at point z, we can say that the price elasticity of

(A) Elastic
(B) Perfectly inelastic
(C) Inelastic
(D) Infinitely elastic
(E) Equal to zero

ANS :- (A) Price elasticity of demand changes along a linear (straight line) demand curve. At prices below the midpoint of the curve, consumers are less responsive to small price changes and thus the price elasticity of demand is inelastic. At prices above the midpoint, consumers are more responsive to a small price change and thus the price elasticity of demand is elastic. The midpoint of this demand curve is at a price of $50 and quantity of 50 units. Because point z is clearly above the midpoint, we can assume an elastic response. Intuitively, at prices above the midpoint even small prices increases represent fairly large absolute changes in dollar value, and this causes a larger impact on a consumer's budget. If the price was currently $10, a 10% increase would represent only a $1 increase in price. But if the price is currently $80, the same 10% increase in price would represent an $8 increase in price, and this would have a larger impact on the consumer's ability to purchase this item. Therefore, the consumer would be more sensitive at points like point z to an increase or decrease in the price.

114. Refer to Figure 4.1. Beginning at point y on the demand curve, suppose the price is lowered by a small percentage change. We know that total consumer dollars spent on this good will _____ because demand is _____ at this point.

(A) Remain constant; unit elastic
(B) Decrease; elastic
(C) Decrease; inelastic
(D) Increase; elastic
(E) Increase; inelastic

ANS :- (C) Total dollars consumers spent on a good is equal to the quantity of the good demanded multiplied by the price of the good ($P \times Q_d$). When the price changes, quantity demanded changes in the opposite direction; therefore, the change in total consumer spending depends upon price elasticity of demand. Point y is below the midpoint of this demand curve, so a small decrease in the price would result in an inelastic response in quantity demanded. Thus if the price were to fall by say 1%, quantity demanded would rise by less than 1%; total spending on this good would decline because the downward effect of price is larger than the upward effect of quantity.

115. Ruby knows that demand for her clothing is quite price elastic. If she increases her price by even a small percentage, her total revenue dollars will _____ because _____

(A) Decrease; the percentage change in quantity demanded will exceed the percentage change in price
(B) Remain unchanged; the percentage change in quantity demanded will equal the percentage change in price
(C) Decrease; the percentage change in price will exceed the percentage change in quantity demanded
(D) Increase; the percentage change in quantity demanded will exceed the percentage change in price
(E) Increase; the percentage change in price will exceed the percentage change in quantity demanded.

ANS :- (A) Total revenue received by a seller is equal to the price of the good multiplied by the units sold at that price. In other words, much like consumer spending on a good, total revenue TR = (P × Q_d). If Ruby knows there will be an elastic response to an increase in the price, she knows that the percentage increase in price will be offset by a larger decrease in quantity of her clothing demanded. This will cause total revenue dollars to decrease.

116. After some research, you discover that the income elasticity of demand for a zerk is equal to +2. This tells you that a zerk is a(n) _____ good.

(A) Inferior
(B) Foreign
(C) Complementary
(D) Giffen
(E) Normal

ANS :- (E) A good is considered normal if consumption rises with income. The income elasticity of demand is the ratio of the percentage change in quantity demanded divided by the percentage change in income. If this ratio is positive, we know the good is a normal good. If it is negative, we know that it is an inferior good. A Giffen good is a particular type of inferior good that actually exhibits an upward-sloping curve.

117. Among the following choices, identify the inferior good based on the income elasticity (E_I) given

(A) $E_I = 0$
(B) $E_I = 2$
(C) $E_I = 1$
(D) $E_I = -1$
(E) $E_I = {}^{1}/_{2}$

ANS :- (D) A good is considered inferior if consumption falls when income rises or rises when income falls. The income elasticity is calculated as follows.

$E_I = \left(\frac{\%\Delta Q_d}{\%\Delta I}\right)$

When income is rising in the numerator of this equation, and this results in a decrease in quantity of the good demanded in the denominator of the equation, E_I is going to be a negative number. This negative income elasticity identifies the inferior good. An income elasticity that is equal to zero does not identify a normal or an inferior good; it just tells us that consumption of that good is independent of income.

118. Suppose purchases of notebooks increase by 3% when income increases by 5%. Given this, the income elasticity (E_I) for notebooks is equal to

(A) 15
(B) 2
(C) .60
(D) 1.67
(E) -.33

ANS :- (C) Recall that the consumer behavior is always in the numerator of any elasticity formula. Very often students will invert the formula and incorrectly choose the inverse of the correct answer. Using the formula with the information that you know allows you to solve for what you don't know. Recall the income elasticity of demand equation.

$E_I = \left(\frac{\%\Delta Q_d}{\%\Delta I}\right) = \frac{3\%}{5\%} = .60$

119. Suppose that when income decreases by 4%, the quantity of margarine demanded rises by 1%. Knowing this, the income elasticity (E_I) for margarine is

(A) $E_I = .25$
(B) $E_I = -1/4$
(C) $E_I = -4$
(D) $E_I = -3$
(E) $E^I = 3$

ANS :- (B) This question is very similar to the preceding one, but the small twist in this question is that it is describing margarine as an inferior good. Again we would recommend quickly jotting down the formula for the income elasticity of demand and solving for the correct answer.

$E_I = \left(\frac{\%\Delta Q_d}{\%\Delta I}\right) = \frac{1\%}{-4\%} = -\frac{1}{4}$

120. If the income elasticity of demand for coffee is .40, then a 6% increase in consumer income would cause consumption of coffee to _____ by _____.

(A) Decrease; 4.2%
(B) Increase; .067%
(C) Increase; 2.4%
(D) Increase; 4%
(E) Increase; 3%

ANS :- (C) This question gives you the income elasticity and an increase in income and requires you to rearrange the income elasticity formula to solve for the percentage change in quantity demanded. Because you are told that the income elasticity is a positive number, you can eliminate the one choice that describes a $decrease$ in quantity demanded. This requires just a small amount of algebra and a little multiplication to reach the solution.

$E_I = \left(\frac{\%\Delta Q_d}{\%\Delta I}\right) = \frac{\%\Delta Q_d}{6\%} = .40$

To solve for $\%\Delta Q_d$, you must multiply (.40) × (6%) = 2.4%

121. Of the following choices, select the one most likely to have a negative income elasticity of demand.

(A) 2% milk
(B) Granola
(C) Airplane tickets
(D) Televisions
(E) City bus tickets

ANS :- (E) We must first know that an inferior good is a good for which a decrease in income actually causes consumers to consume $more$, rather than less, of that good. One way to think about problems such as this is to ask : "If income were to rise, would demand for this item decrease?" Food items like milk and granola may not be luxuries, but they are still likely to be normal goods. High-priced items like airplane tickets and televisions are certainly normal goods, but city bus tickets are most likely the inferior good. When people earn higher incomes, they tend to ride the bus less frequently and travel around town in their own cars.

122.Luxury goods are often identified as those for which any percentage increase in income is followed by an even larger percentage increase in consumption. Given this, which of the following income elasticity (E_I) measures would identify a luxury good?

(A) $E_I = {}^{1}/_{2}$

(B) $E_I = -2$

(C) $E_I = 0$

(D) $E_I = 3.5$

(E) $E_I = 1$

ANS :- (D) Luxury goods are described as having a very large consumption response to a given change in income. If the percentage change in quantity demanded exceeds the percentage change in income, the numerator of the income elasticity formula will be larger than the denominator; therefore, E_I will be greater than 1. Even if you have never heard of this distinction for luxury goods, having a good understanding of the income elasticity will allow you to deduce the correct choice from the description that is given in the question.

123.We know that two goods X and Y are considered substitutes if

(A) The income elasticity is positive for both good X and good Y

(B) The cross-price elasticity is negative between goods X and Y

(C) The price elasticity of demand for good X is greater than 1, and the price elasticity of demand for good Y is less than 1

(D) The cross-price elasticity is positive between goods X and Y

(E) The income elasticity is positive for good X and negative for good Y

ANS :- (D) Consumers alter their consumption of good X when the price of another good, good Y, changes. If the price of good Y rises, and we observe consumers buying more good X, those goods must be substitutes. If consumers buy less of good X, they must be complementary goods. The cross-price elasticity measures how responsive these substitute and complement relationships are. The formula is as follows.

$$E_{X,Y} = \left(\frac{\%\Delta Q_{dX}}{\%\Delta P_Y}\right)$$

Given the preceding intuition, substitute goods will exhibit a positive cross-price elasticity and complementary goods will exhibit a negative cross-price elasticity.

124. The **following choices show the cross-price elasticity of demand between goods A and B ($E_{A,B}$). Which of the following identifies goods A and B as complementary goods?**

(A) $E_{A,B} = 0$

(B) $E_{A,B} = {}^{1}/_{4}$

(C) $E_{A,B} = -1$

(D) $E_{A,B} = 1.5$

(E) $E_{A,B} = 1$

ANS :- (C) Because we are looking for complementary goods, we are looking for a negative cross-price elasticity for goods A and B. If it helps with your intuition think of goods A and B as some other complementary pair, like video games or game systems. If game systems became more expensive, fewer game systems would be purchased and fewer games would also be purchased. Therefore, the price of good B and the consumption of good A move in opposite directions; hence, the negative cross-price elasticity.

125. When the price of Diet Coke increases by 2%, the quantity of Diet Pepsi demanded increases by 4%. The cross-price elasticity demand for Diet Pepsi with respect to the price of Diet Coke is

(A) 2
(B) $^{1}/_{2}$
(C) -2
(D) $-^{1}/_{2}$
(E) 8

ANS :- (A) Two brands of soft drinks are good examples of substitute goods, because when the price of one increases, the quantity of the other demanded increases. Use the following formula.

$$E_{\text{Diet Pepsi, Diet Coke}} = \left(\frac{\%\Delta Q_{d\ Diet\ Pepsi}}{\%\Delta P_{Diet\ Pepsi}}\right) = \frac{4\%}{2\%} = 2$$

A common mistake is to invert the percentage changes. Remember that elasticity measures always have the behavioral change (a change in consumption) in the numerator.

126. The cross-price elasticity of demand for Frosted Flakes with respect to the price of Cocoa Puffs is 1.5. This measure tells us that these two breakfast cereal brands are

(A) Complementary goods
(B) Substitute goods
(C) Inferior goods
(D) Normal goods
(E) Inelastic goods

ANS :- (B) This question again tests your understanding of how cross-price elasticities distinguish between complementary goods and substitute goods. In this situation, the cross-price is positive 1.5, telling us that if the price of Cocoa Puffs increased 1%, the quantity of Frosted Flakes demanded would increase by 1.5%; they are substitutes. They may be normal or inferior goods ----we don't know that from the information given. We would need to know income elasticities to make that distinction, so be sure not to jump to any conclusions---- just use the provided information.

127. The cross-price elasticity of demand for bacon with respect to the price of eggs is -.5. If the price of eggs were to rise by 3%, we predict that the quantity of bacon demanded will _____ by _____.

(A) Increase; 3%
(B) Decrease; 1.5%
(C) Decrease; 3.5%
(D) Decrease; 2.5%
(E) Decrease; .5%

ANS :- (B) Because you are given a negative cross-price elasticity, the goods must be complementary. Use the formula with the information given to fill in the blanks.

$$E_{\text{bacon,eggs}} = \left(\frac{\%\Delta Q_{d\ bacon}}{\%\Delta P_{eggs}}\right) = \frac{\%\Delta Q_{d\ bacon}}{3\%} = -.5$$

Solving for the percentage change in bacon consumption, we multiply (3%) × (-.5), and we know that bacon consumption will fall by 1.5%.

128.The following choices show the cross-price elasticity of demand between goods A and B ($E_{A,B}$). Which of the following identifies goods A and B as substitute goods?

(A) $E_{A,B} = 0$

(B) $E_{A,B} = {}^{1}/_{4}$

(C) $E_{A,B} = -1$

(D) $E_{A,B} = -1.5$

(E) $E_{A,B} = -{}^{1}/_{2}$

ANS :- (B) We are told that goods A and B are substitutes. If it helps, think of them as apples and bananas. If the price of bananas increases, people will switch to apples and the quantity of apples demanded increases. The cross-price elasticity will therefore be a positive number. Be careful to avoid choices like A because the value of zero stands out. A cross-price of zero simply means that the consumption of good A doesn't respond at all to a change in the price of good B; they're independent of each other.

129.You are told that the cross-price elasticity of demand for salmon with respect to the price of catfish is .45. Which of the following is an accurate interpretation of this measure?

(A) A 10% increase in the price of catfish will cause a 4.5% decrease in the quantity of salmon demanded.

(B) A 10% increase in the price of catfish will cause a 45% increase in the quantity of salmon demanded.

(C) A 10% decrease in the price of catfish will cause a 4.5% increase in the quantity of salmon demanded.

(D) A 10% increase in the price of salmon will cause a 4.5% increase in the quantity of catfish demanded.

(E) A 10% increase in the price of catfish will cause a 4.5% increase in the quantity of salmon demanded.

ANS :- (E) This question requires you to know not only the formula for cross-price elasticity but also how it tells us something. Because you are informed that the elasticity is "with respect to the price of catfish", the elasticity will be telling us about how salmon consumption responds to a change in the price of catfish. Ignore any choices that begin with the price of salmon changing. Again use the formula and the fact that we should be looking for a choice that begins with a change in the price of catfish.

$E_{salmon,catfish} = \left(\frac{\%\Delta Q_{d\ salmon}}{\%\Delta P_{catfish}}\right) = \frac{\%\Delta Q_{d\ salmon}}{10\%} = .45$

If the price of catfish were to increase by 10%, the formula would predict that salmon consumption increases by (10%) × (.45), or 4.5%.

CHAPTER 5

CONSUMER AND PRODUCER SURPLUS

130. When we subtract the price of a good from the price that Jack is willing to pay for that good, we have calculated

(A) Jack's consumer surplus
(B) Jack's producer surplus
(C) Jack's deadweight loss
(D) Jack's total welfare
(E) Jack's total utility

ANS :- (A) A consumer's willingness to pay (WTP) is the maximum price he or she would pay for each unit of an item. If the consumer can pay a price that is below WTP, the consumer earns consumer surplus. Think about it this way: if you really wanted to see a newly released movie and you were willing to pay $20 to see it, you would see it as a monetary gain if you only had to pay $10 for a movie ticket ---- that is consumer surplus.

131. Ellen enjoys eating muffins. She is willing to pay $10 for her first muffin, $8 for her second, $6 for her third, $4 for her fourth, and $2 for her fifth. If the price of a muffin is $3, how many muffins will Ellen purchase and how much consumer surplus will she receive?

#MUFFINS PURCHASED	CONSUMER SURPLUS
(A) 1	$7
(B) 2	$8
(C) 3	$9
(D) 4	$16
(E) 5	$15

ANS :- (D) A consumer will continue to buy a product until the price of the next muffin is below her willingness to pay. This means that Ellen will buy four muffins, but not the fifth. Consumer surplus is earned as each muffin is purchased and enjoyed and is calculated as the difference between what Ellen is willing to pay for that muffin and what she actually pays for that muffin. To determine total consumer surplus, we sum the consumer surplus at each muffin: (10 – 3) + (6 – 3) + (4 – 3) equals $16. If you are trying to solve this graphically, remember that you should not solve this using a downward-sloping curve. Since Ellen cannot consume fractions of a muffin, this is a "stair step" demand that you may see in your textbook, rather than a continuous demand curve.

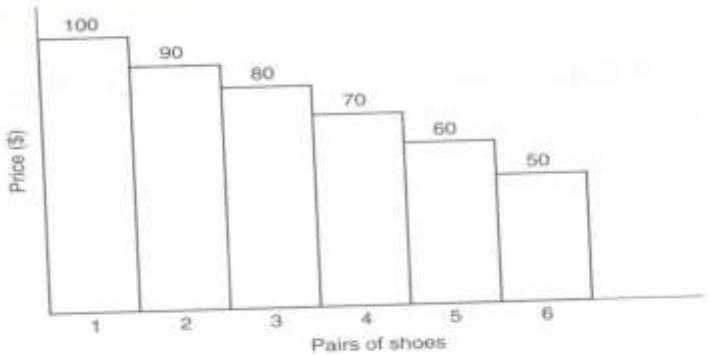


Figure 5.1

132. Refer to Figure 5.1. The graph shows Melanie's willingness to pay for her pair of shoes. If the price of a pair of shoes is $60, Melanie will purchase _____ pairs of shoes and receive _____ of consumer surplus.

(A) 4; $100
(B) 5; $100
(C) 5; $400
(D) 6; $360
(E) 4; $90

ANS :- (B) This stair-step graph shows that Melanie's willingness to pay diminishes as more shoes are purchased. This occurs because her enjoyment of the next pair (her marginal benefit) diminishes. When willingness to pay equals $60, she stops buying shoes for a total of five pairs of shoes. Consumer surplus is accumulated along the way up to the fifth pair: (100 – 60) + (90 – 60) + (80 – 60) + (70 – 60) + (60 – 60) = $100. Note that in the graph, the consumer surplus for each pair of shoes is the area of a rectangle between the willingness to pay and the price of shoes. Even though she earns no consumer surplus on the fifth pair, she will buy it. After all, if you're willing to pay $60 and the price is actually $60, you will buy that pair of shoes.

133. Suppose a consumer purchased a new DVD player. His consumer surplus from this purchase would be found by

(A) Determining how much utility he gained from the purchase of the DVD player
(B) Adding the price he paid for the DVD player to the marginal utility he received from purchasing it
(C) Subtracting the marginal cost of producing the DVD player from the price he paid for it
(D) Subtracting the price he paid for the DVD player from the maximum price he would have paid for it
(E) Dividing the price he paid for the DVD player by the number of years he expects to own it

ANS :- (D) The maximum price a consumer is willing to pay for the DVD player is another way of simply describing his willingness to pay. When the price is subtracted from this maximum price, we get the consumer surplus. Sometimes it helps to think of consumer surplus as a monetary "win" for the consumer. If this person was willing to pay $100 for the DVD player and only had to pay $80, he "wins" $20 because this is $20 he does not have to spend on the DVD player to bring it home. He can find an additional item that will bring him happiness and use the $20 to acquire it.

Use Table 5.1 for question 134.

Table 5.1

Quantities of cookies	Eli's willingness to Pay	Max's willingness to Pay
1	$2.00	$2.50
2	$1.75	$2.00
3	$1.50	$1.50
4	$1.25	$1.00
5	$1.00	$0.50

134. Table 5.1 describes the willingness to pay of two consumers, Eli and Max, for an increasing number of cookies. If the price of a cookie is $1, how many cookies will Eli buy, how many cookies will Max buy, and how much total consumer surplus will be earned?

#Cookies for Eli	#cookies for Max	Total Consumer Surplus
(A) 4	**5**	**$5**
(B) 5	**4**	**$15**
(C) 5	**5**	**$10**
(D) 4	**3**	**$5.50**
(E) 5	**4**	**$5.50**

ANS :- (E) The purchasing rule is the same for each consumer: buy cookies up to the point where the price (marginal cost) is equal to willingness to pay (marginal benefit). For Eli this occurs at five cookies; Max stops at four cookies. Another way to compute consumer surplus is to add up the willingness to pay values and then subtract how much money was spent on cookies. Consumer surplus for Eli is (2 + 1.75 + 1.50 + 1.25 + 1) – ($1 × 5) = $2.50. Consumer surplus for Max is (2.50 + 2 + 1.50 + 1) – ($1 × 4) = $3. Total consumer surplus is therefore $5.50.

135. Terrell is a barber who can perform a shave and a haircut to a customer at a constant marginal cost of $4. If Terrell charges each customer $10 and serves seven customers, how much producer surplus has he earned?

(A) $60
(B) $84
(C) $24
(D) $48
(E) $42

ANS :- (E) Producers earn producer surplus when they sell a unit of their good or service for a price that exceeds the marginal cost of producing that unit. If Terrell incurs $4 of marginal cost when he gives a customer a shave and a haircut, he would accept a minimum of $4 for this service. But if he can receive a price of $10, the difference ($10 - $4) of $6 is his producer surplus for each customer. When he has seven customers, he earns a total of $6 × 7 = $42 in producer surplus.

136. When computing producer surplus for a product that has been sold, we must subtract the _____ from the _____.

(A) Total revenue earned; total cost incurred
(B) Price paid; utility received
(C) Price paid; willingness to pay
(D) Marginal cost incurred; price received
(E) Deadweight loss; consumer surplus

ANS:- (D) The marginal cost incurred for each unit is the minimum price the seller would accept to sell it. If the seller receives a higher price, the difference between that price and marginal cost is producer surplus. While choice A might have been tempting (subtract total cost from total revenue), this choice actually defines total profit earned from selling the product, which is not the same as producer surplus.

137. The Taco Bus sells tacos at a price of $4 each. The marginal cost of the first taco is $1, the marginal cost of the second is $2, the marginal cost of the third is $3, and the marginal cost of the fourth is $4. If the Taco Bus sells four tacos, how much producer surplus will the firm earn?

(A) $6
(B) $16
(C) $10
(D) $5
(E) $4

ANS :- (A) Producer surplus is earned for each of the four tacos sold. We calculate the total producer surplus as (4 – 1) + (4 – 2) + (4 – 3) + (4 – 4) = $6. The marginal cost of producing tacos rises, and because the price remains constant, producer surplus on each successive unit diminishes.

138. If we subtract the marginal cost of producing a good from the price received when it is sold, we have calculated

(A) Total surplus
(B) Producer surplus
(C) Marginal revenue
(D) Profit
(E) Consumer surplus

ANS :- (B) This question is really just testing whether you know how to compute producer surplus. The marginal cost of producing a unit of output is the minimum price a seller would accept to sell that unit. If the seller can receive a price higher than that marginal cost, the seller earns producer surplus.

Use Table 5.2 for question 139

Quantity of Kebabs sold	Ali's Marginal Cost of a Kebab Sold	Rahul's Marginal Cost of a Kebab sold
1	$0.50	$0.50
2	$1.00	$0.75
3	$1.50	$1.00
4	$2.00	$1.25
5	$2.50	$1.50
6	$3.00	$1.75
7	$3.50	$2.00

Table 5.2

139. Table 5.2 shows the marginal costs for two vendors of kebabs at a local food festival. If kebabs are sold at the price of $1.50, Ali will sell _____ kebabs, Rahul will sell _____ kebabs, and combined total producer surplus equals _____.

(A) 2; 4; $4
(B) 3; 5; $4
(C) 3; 5; $12
(D) 5; 5; $2.50
(E) 3; 6; $3.75

ANS :- (B) Each producer will continue to sell kebabs so long as the price is greater than or equal to the marginal cost of producing a kebab. For Ali this is true up to three kebabs, and for Rahul it is true up to kebabs. Producer surplus for Ali is (1.50 - .50) + (1.50 – 1) + (1.50 – 1.50) = $1.50. Producer surplus for Ali is (1.50 - .50) + (1.50 - .75) + (1.50 – 1) + (1.50 – 1.25) = $2.50. Therefore, total producer surplus is $4.

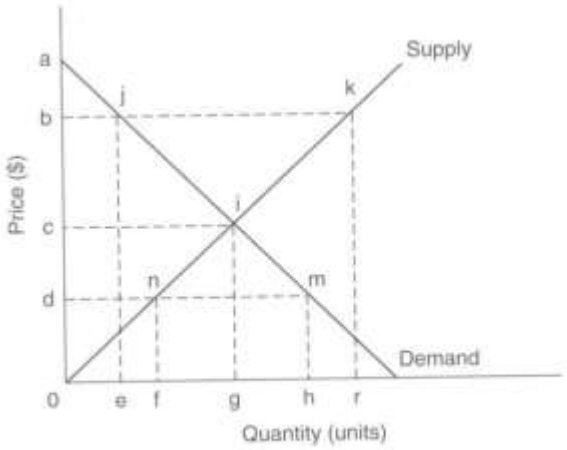


Figure 5.2

140.In figure 5.2, when the market is in equilibrium, the area of consumer surplus is given by

(A) a0i
(B) c0i
(C) aci
(D) c0gi
(E) abj

ANS :- (C) The idea of consumer surplus is the difference between maximum willingness to pay (WTP) and the price og the unit purchased. The demand curve provides a maximum WTP at every quantity. When a market is in equilibrium, price is at the intersection of supply and demand (here that would be point I, which is a quantity of g and a price of c). In a graph that shows a market, consumer surplus is the area under the demand curve (line ai) and above the price consumers pay © for all units consumed (g). When supply and demand are straight lines (linear), this amounts to the area of a triangle; in this case, the triangle is represented by aci.

141.In Figure 5.2, when the market is in equilibrium, the area of producer surplus is given by

(A) a0i
(B) c0i
(C) aci
(D) c0gi
(E) abj

ANS :- (B) Producer surplus is the difference between the price and the marginal cost (MC) of the unit produced. The supply curve gives the MC at every quantity, and the price when a market is at equilibrium is at the intersection of supply and demand (point i). In a graph of a market, producer surplus is the area above the supply curve (line 0i) and under the price for all units sold (c). This is also the area of a triangle when supply and demand curves are linear.

142.Which of the following choices would represent the height of an effective price floor in the market shown in Figure 5.2?

(A) 0b
(B) 0e
(C) 0c

(D) 0d
(E) 0i

ANS :- (A) Price floors are legal minimum prices that are set above the equilibrium price because the government has concluded that the equilibrium price is "too low". Sellers cannot sell the good at a price below the controlled price. For a price floor to be effective, it must therefore be set above equilibrium. Such a price is sometimes called a "binding price floor". If it is set below the equilibrium, it would be ineffective because market forces would drive the price upward to equilibrium, which is sometimes called a "nonbinding price floor".

143. Which of the following choices would be an effective price ceiling in the market shown in Figure 5.2?

(A) 0b
(B) 0e
(C) 0c
(D) 0d
(E) 0i

ANS :- (D) Price ceilings are legal maximum prices that are set below the equilibrium price because the government has concluded that the equilibrium price is "too high". Sellers cannot sell the good at a price above the controlled price. For a price ceiling to be effective, it must therefore be set below equilibrium. If it is set above equilibrium, it would be ineffective because market forces would drive the price downward to equilibrium. After all, a price ceiling does not forbid prices below the ceiling, only above.

144. Suppose an effective price floor has been imposed on the market portrayed in Figure 5.2. This price floor will create a _____ equal to _____.

(A) Surplus; (i – e) units
(B) Shortage; (i – g) units
(C) Shortage; (h – f) units
(D) Surplus; (h – f) units
(E) Deadweight loss; area nmi

ANS :- (C) This question requires several steps to find the correct answer. First, you must know that a price ceiling lies below equilibrium, so an effective price ceiling in this market would be d. Second, you must know that quantity demanded at this price (which would be h) exceeds quantity supplied at the controlled price (f), and this defines a shortage of (h – f).

145. Suppose an effective price floor has been imposed on the market portrayed in Figure 5.2. This price floor will create a _____ equal to _____.

(A) Surplus; (i – e) units
(B) Shortage; (i – g) units
(C) Shortage; (h – f) units
(D) Surplus; (h – f) units
(E) Deadweight loss; area jki

ANS :- (A) This question requires you to understand several things about a price floor. First, you must know that a price floor lies above equilibrium, so in this market an effective price floor would be b. Second, you must know that quantity demanded at this price floor (in this case, e) is less than quantity supplied at the controlled price (in this case, r) and this defines a surplus. Finally, the size of the surplus is measured in units of output, and the difference between these defines a shortage (r – e).

146. Market equilibrium is considered efficient because the sum of _____ and _____ is maximized.

(A) Consumer utility; producer profit
(B) Consumer willingness to pay; supplier marginal cost
(C) Market price; market output
(D) Consumer surplus; government tax revenue
(E) Consumer surplus; producer surplus

ANS :- (E) The sum of consumer gains (consumer surplus) and producer gains (producer surplus) is total surplus, or total welfare. At market equilibrium quantity, willingness to pay is equal to marginal cost. This maximizes total surplus and is considered efficient. Consider two cases. First, suppose the market produces 1 unit less than equilibrium. Here, willingness to pay (from demand) is still greater than marginal cost (from supply). In this case, there is a buyer and a seller who could make a profitable trade. If a buyer is willing to pay $6 and a seller has $4 marginal cost, they could each gain if they exchanged that unit at $5. If the market stopped here, it would not maximize total surplus. Second, suppose the market produced 1 unit more than equilibrium. Here, willingness to pay is below marginal cost. Imagine a producer has produced a unit of $8 marginal cost and his only potential customer has $4 willingness to pay. If they negotiated a $6 price, both lose surplus; total surplus isn't maximized. Thus any level of output besides the equilibrium level will not maximize total surplus; equilibrium output is the only efficient output.

147. If a government policy or other external force moves a competitive market away from the equilibrium level of output, it will create inefficiency known as

(A) Economic growth
(B) Monopoly profit
(C) Price discrimination
(D) Deadweight loss
(E) Tax revenue

ANS :- (D) Deadweight loss refers to total surplus that could have been earned by producers, consumers, or both, but is not earned because of some external force. In some cases, it is the result of a government policy like a price control or an excise tax. In other areas of microeconomics, we see deadweight loss as the result of monopoly or externalities. We can also see such deadweight loss occur in trade where there are quotas or tariffs. In all of these instances, something is moving the market output away from the level that maximizes total surplus ----- deadweight loss exists.

148. Which of the following statements are correct?

I. When the competitive market is in equilibrium, there is no deadweight loss.
II. When the competitive market is in equilibrium, the sum of consumer and producer surplus is maximized.
III. When the competitive market is in equilibrium, resources in this market are allocated efficiently.

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II, and III

ANS :- (E) All of these statements accurately describe efficiency in competitive market equilibrium. When total surplus is maximized, there is no deadweight loss. And economists define this as an efficient outcome because all potential gains are realized; the market is producing neither too many units nor too few units of output. Any interference in such a market will necessarily cause total surplus to decrease.

Use Table 5.3 for questions 149-151

Table 5.3

Servings of Oatmeal	Wilford's Willingness to Pay	Rosemary's Marginal Cost
1	$8.00	$2.00
2	$7.00	$2.50
3	$6.00	$3.00
4	$5.00	$3.50
5	$4.00	$4.00
6	$3.00	$4.50
7	$2.00	$5.00

149. Refer to Table 5.3. Assume that there is only one consumer of oatmeal (Wilford) and only one producer of oatmeal (Rosemary). Table 5.3 shows Wilford's willingness to pay and Rosemary's marginal cost at various servings of oatmeal. What is the efficient quantity of oatmeal that would be exchanged in the market?

(A) 3
(B) 4
(C) 5
(D) 6
(E) 7

ANS :- (C) So long as Wilford's willingness to pay is greater than or equal to Rosemary's marginal costs, they should exchange services of oatmeal. This is true for each of the first five servings. However, at the sixth serving, it costs Rosemary $4.50 to produce it, but Wilford is only willing to pay $3 to buy it. There is no way they will make this exchange, so they will stop at five servings as the efficient outcome.

150. Refer to Table 5.3. Assume that there is only one consumer of oatmeal (Wilford) and only one producer of oatmeal (Rosemary). Table 5.3 shows Wilford's willingness to pay and Rosemary's marginal cost at various servings of oatmeal. Suppose a minimum price of $6 is imposed in the oatmeal market. How many servings will be exchanged and how much deadweight loss will be created?

SERVINGS OF OATMEAL	DEADWEIGHT LOSS CREATED
(A) 6	**$5**
(B) 3	**$2**
(C) 3	**$1.50**
(D) 5	**$0**
(E) 3	**$1**

ANS :- (C) A minimum price of $6 is a price floor. Rosemary would love to sell all of her servings of oatmeal at this high price, but Wilford will buy only three servings, so only three will be exchanged. To find the deadweight loss, it might be easier to first see how many servings would be exchanged without the price floor. Without the price floor, five servings would be exchanged at price of $4. This means that consumer and producer surplus are lost on the fourth and fifth servings. For the fourth serving: Wilford loses $1 ($5 - $4) and Rosemary loses $.50 ($4 - $3.50), so the deadweight loss from this serving is $1.50. For the fifth serving: Wilford loses $0 ($4 - $4) and Rosemary loses $0 ($4 - $4). Because the price floor prevents the fourth and fifth servings from happening, the deadweight loss is $1.50.

151. Refer to Table 5.3. Assume that there is only one consumer of oatmeal (Wilford) and only one producer of oatmeal (Rosemary). Table 5.3 shows Wilford's willingness to pay and Rosemary's marginal cost at various servings of oatmeal. Suppose a maximum price of $3 is imposed in the oatmeal market. How many servings will be exchanged, and how much deadweight loss will be created?

SERVINGS OF OATMEAL	DEADWEIGHT LOSS CREATED
(A) 1	**$1.50**
(B) 6	**$2**
(C) 7	**$1.50**
(D) 4	**$2.50**
(E) 3	**$1.50**

ANS :- (E) The maximum price of $3 is a price ceiling. At this lower price Rosemary will be able to supply only three servings, despite the fact that Wilford would like to buy six servings. To find the deadweight loss, it might be easier to first see how many servings would be exchanged without the price ceiling. Without the price ceiling, five servings would be exchanged at the price $4. This means that consumer and producer surplus are lost on the fourth and fifth servings. For the fourth serving: Wilford loses $1 ($5 - $4) and Rosemary loses $.50 ($4 - $3.50), so the deadweight loss from this serving is $1.50. For the fifth serving: Wilford loses $0 ($4 - $4) and Rosemary loses $0 ($4 - $4). Because the price ceiling prevents the fourth and fifth servings from happening, the deadweight loss is $1.50.

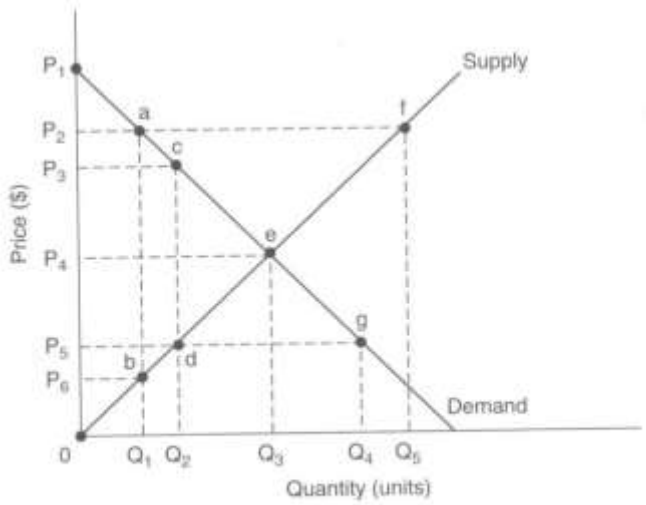


Figure 5.3

152. If the market in Figure 5.3 is in equilibrium, the sum of consumer and producer surplus is equal to the area bounded by points

(A) P_1eP_4
(B) P_4e0
(C) aef
(D) P_1e0
(E) cde

ANS :- (D) Total surplus is the sum of consumer surplus and producer surplus. When the market is in equilibrium, this area of total surplus is the greatest (i.e., it is maximized). Consumer surplus is a triangle that lies under the demand curve and above the price, or area P_1eP_4. Producer surplus is a triangle that lies under the price and above the supply curve, or area P_4e0. The combined area is thus P_1e0.

153. Suppose that a price floor is set at P_2 in the market shown in Figure 5.3. The area of deadweight loss that results is equal to the area bounded by points

(A) P_2aQ_10
(B) aef
(C) deg
(D) abe
(E) P_1aP

ANS :- (D) To find deadweight loss from a price floor, it is usually helpful to find total surplus before the price floor. Before the price floor, the market is in equilibrium, total surplus is the sum of the consumer surplus triangle (P_4eP_4) and the producer surplus triangle (P_4e0), and Q_3 units are exchanged. When the price floor is instituted at P_2, only Q_1 units are exchanged, and a large area of the original total surplus triangle is not earned. The area of deadweight loss abe goes to neither the consumers nor the producers, so it is considered an inefficient result of the price floor.

154. Suppose that a price floor is set at P_2 in the market shown in Figure 5.3. As a result of the price floor, consumer surplus falls by the area bounded by points _____. Remaining consumer surplus is the area bounded by points _____.

(A) P_2aeP_4; P_1aP_2
(B) P_1eP_4; P_1aP_2
(C) P_4ebP_6; P_6b0
(D) abe; P_1aP_2
(E) P_3cdP_5; P_1aP_2

ANS :- (A) First locate consumer surplus before the price floor ---- when the price is P_4 and the quantity sold in the market is Q_3. The area under the demand and above the price is P_1eP_4. Once the price floor is enacted, the price increased to P_2, and only Q_1 units are bought and sold. So the new area of consumer surplus is much smaller because fewer units were bought and those were at a higher price. New consumer surplus is P_1aP_2, and when we subtract the new consumer surplus from the original consumer surplus area, we are left with P_2aeP_4.

155. Suppose that a price ceiling is set at P_5 in the market shown in Figure 5.3. The area of deadweight loss that results is equal to the area bounded by points

(A) cde
(B) aef
(C) deg

(D) abe

(E) P_1aP_2

ANS :- (A) To find deadweight loss from a price ceiling, it will be helpful to find total surplus before the price ceiling. Before the price ceiling, the market is in equilibrium, total surplus is the sum of the consumer surplus triangle (P_1eP_4) and the producer surplus triangle (P_4e0), and Q_3 units are exchanged. When the price ceiling is instituted at P_5, only Q_2 units are exchanged, and a large area of the original total surplus triangle is lost. The area of deadweight loss cde goes to neither the consumers nor the producers.

156. Suppose that a price ceiling is set at P_5 in the market shown in Figure 5.3. As a result of the price floor, producer surplus falls by the area bounded by points _____. Remaining producer surplus is the area bounded by points _____.

(A) cde; P_5d0

(B) cde; P_4e0

(C) P_4edP_5; P_5d0

(D) P_2aeP_4; P_1aP_2

(E) P_4e0; P_5d0

ANS :- (C) First locate producer surplus before the price ceiling. The area under the equilibrium price and above the supply curve at the quantity sold in the market Q_3 is P_4e0. Once the price ceiling is enacted, only Q_2 units are bought and sold, and the price decreased to P_5. So the new area of producer surplus is much smaller because fewer units were bought and those were at lower price. Now producer surplus is P_5d0, when we subtract the new amount of producer surplus from the original producer surplus area, we are left with P_4edP_5.

157. When an effective price floor is imposed in a competitive market, what typically happens to consumer surplus, producer surplus, and deadweight loss?

	Consumer Surplus	Producer Surplus	Deadweight Loss
(A)	**Falls**	**falls**	**no change**
(B)	**Falls**	**rises**	**rises**
(C)	**Rises**	**falls**	**rises**
(D)	**Falls**	**rises**	**falls**
(E)	**Falls**	**falls**	**falls**

ANS :- (B) Because the price floor artificially raises the price above equilibrium, it is going to hurt consumers. Consumers respond to the higher price by reducing the quantity of product demanded, and consumer surplus falls. Some of the lost consumer surplus goes to the producers because producers benefit from higher prices. But because the new level of output is below the competitive quantity, deadweight loss now exists.

158. When an effective price ceiling is imposed in a competitive market, what typically happens to consumer surplus, producer surplus, and deadweight loss?

	CONSUMER SURPLUS	PRODUCER SURPLUS	DEADWEIGHT LOSS
(A)	**Rises**	**rises**	**rises**
(B)	**Falls**	**rises**	**falls**
(C)	**Rises**	**falls**	**falls**
(D)	**Falls**	**falls**	**no change**
(E)	**Rises**	**falls**	**rises**

ANS :- (E) Because the price ceiling artificially lowers the price below equilibrium, it is going to hurt producers. Producers respond to the lower price by reducing the quantity of product supplied, and producer surplus falls. Some of the lost producer surplus goes to the consumers because consumers benefit from lower prices. But because the new level of output is below the competitive quantity, deadweight loss now exists.

159. All else equal, the _____ a price ceiling is set _____ the equilibrium price, the _____ deadweight loss is created by the policy.

(A) Further; below; less
(B) Further; below; more
(C) Further; above; more
(D) Closer; above; less
(E) Closer; below; more

ANS :- (B) A price ceiling is set below the equilibrium price. Because the price falls, sellers reduce output below the equilibrium quantity, and deadweight loss begins to emerge in the market. If this reduction in output is large, the deadweight loss will be large. If we follow the local reasoning, the lower the price ceiling, the larger the reduction in output below equilibrium and the larger the resulting deadweight loss.

160. A competitive market produces the equilibrium quantity that maximizes total surplus because for the last unit exchanged, the _____ is equal to the _____.

(A) Total utility consumers receive; total profit producers earn
(B) Total revenue producers earn; total cost producers incur
(C) Marginal utility consumers receive; price consumers pay
(D) Price consumers are willing to pay; marginal cost producers incur
(E) Consumer surplus; producer surplus

ANS :- (D) This is exactly what is happening in market equilibrium. The demand curve represents the consumer's maximum willingness to pay. The supply curve represents the producer's marginal cost, or the minimum price they would accept. Units are bought and sold so long as the price is somewhere in between willingness to pay and marginal cost. When this happens, total surplus continues to rise. When the diminishing willingness to pay intersects in the increasing marginal cost, no more beneficial transactions can be made, total surplus is maximized, and allocative efficiency is achieved.

161. When competitive markets are freely allowed to come to equilibrium, _____ is achieved.

(A) Allocative efficiency
(B) Deadweight loss
(C) Price maximization
(D) Productive efficiency
(E) Price-control efficiency

ANS :- (A) Economists like to think about how efficiently resources are allocated. If too much of a good is being produced, we think of the market having an "overallocation" of resources to that market. If too little of a good is being produced, there is an "underallocation" of resources to that market. But if the market is producing the perfect quantity, the quantity that maximizes total surplus, that market is experiencing allocative efficiency. This perfect quantity occurs when the competitive market comes to equilibrium and the demand curve intersects the supply curve.

162.Which of the following statements are correct?

I. **Price controls create deadweight loss because for the last unit exchanged, willingness to pay exceeds marginal cost.**

II. **A competitive market produces an equilibrium price that efficiently allocates resources to the market.**

III. **Price controls are the only source of deadweight loss in markets.**

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) II and III only

ANS :- (D) Price controls, whether floors or ceilings, reduce the market of transactions away from the equilibrium quantity. In both cases, not enough of the product is produced is produced and the willingness to pay exceeds the marginal cost. If the market had been allowed to be in equilibrium, the price would have attracted the perfect amount of resources (labor, capital, land, and entrepreneurial ability) to produce the efficient quantity of output. The third statement is incorrect because other factors can create the same outcome. These other factors can include monopoly, externalities, excise taxes, and quotas.

CHAPTER 6

THE EFFECTS OF TAXATION

163.An excise tax is a tax that

(A) Is regressive
(B) Is progressive
(C) Taxes each unit of production
(D) Is a tax placed on buyers
(E) Is a tax placed on sellers

ANS :- (C) An excise tax is a tax placed on each unit of production, for instance, $10 on each unit of a good that is sold. Another common type of tax is a proportional tax (sometimes called an ad valorem tax), such as sales tax, which taxes the cost of each unit. For instance, for every $1 worth of goods sold, there is a tax of $0.08.

164.The term _____ refers to the distribution of a tax burden on buyers and sellers.

(A) Administrative cost
(B) Tax incidence
(C) Tax rate
(D) Proportional tax
(E) Excise tax

ANS :- (B) The tax incidence is the distribution of a tax between the buyer and the seller of a good. Even though either the buyer or seller is taxed, both will share part of the burden of a tax (for this reason, your instructor also may have referred to this as the “tax burden”).

165.Lump sum taxes are _____, but also more _____ than other taxes such as excise or sales taxes.

(A) Efficient; inequitable
(B) Progressive; regressive
(C) Proportional; efficient
(D) Inefficient; equitable
(E) Regressive; inefficient

ANS :- (A) Lump sum taxes, such as poll tax, are more efficient than per unit or ad valorem taxes. The reason that ad valorem or excise taxes are inefficient is that they alter the behavior of individuals. Lump sum taxes are taxes that are paid regardless of the units consumed or the value of the good. Because there is no incentive to alter behavior, there is no source of deadweight loss in a market. Unfortunately, this is a classic example of an efficiency-equity trade-off. Lump sum taxes are highly equitable.

166.Which of the following statements would be a positive economic definition of a regressive income tax?

(A) A regressive tax is a tax that is unfair to lower income workers.
(B) A regressive tax is a tax that is unfair to higher income workers.
(C) A regressive tax is a tax that will increase by a greater amount than income increases.
(D) A regressive tax is a tax that will increase by a smaller amount than income increases.
(E) A regressive tax is a tax that is the same for all income earners.

ANS :- (D) A regressive tax is a tax that decrease as income increase, or a tax that places a greater burden on those with lower income. For instance, sales tax are often regressive, because at lower incomes, people spend more of their income than save it and so would have to pay a higher proportion of their income on sales tax than someone who saves more. A positive statement is a statement such as “taxes rise”. Statements about the fairness of the tax are normative.

167.In the nation of Xela, income tax is 10% on the first $10,000 in income earned, 15% on the next $20,000 earned, and 30% on all income earned above that amount. Which of the following could be used to describe the taxes in Xela?

I. Xela has a marginal tax system
II. Xela has a progressive income tax
III. Xela has a regressive income tax

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I and III only

ANS :- (D) A marginal tax system is a tax system that pays higher and higher rates with additional units of income. This means that as income increases, one pays a higher and higher proportion of a tax, making it a progressive tax. Note that it is possible to have a regressive marginal tax system as well ---- Xela could have the tax rates decrease with each additional unit of income, rather than increase.

168.As the amount of an excise tax rises, the total amount of tax revenue will

(A) Increase
(B) Decrease
(C) Increase, then decrease
(D) Decrease, then increase

(E) Be constant

ANS :- (C) As the amount of a tax increases, initially the amount of tax revenue will increase as well. However, this will eventually level out. Then as the amount of the tax increases, the total amount of tax revenue will actually decrease. Your instructor may have even graphed this relationship as an upside-down U-shaped curve called the Laffer curve. The price elasticity of demand explains this. Tax revenue is equal to the per-unit tax multiplied by how many units are bought and sold. If the price rises (due to a tax) by 1% and quantity demanded falls by more than 1%, total tax revenue will rise.

169. An excise tax is levied on sellers of televisions. Who will bear the incidence of tax in the market for televisions?

(A) The entire tax incidence will be paid by sellers regardless of the elasticities of the supply or demand curve.

(B) The sellers will bear a higher burden of the tax than the buyers if the demand curve is less elastic than the supply curve.

(C) The sellers will bear a higher burden of the tax than the buyers if the demand curve is more elastic than the supply curve.

(D) The entire tax incidence will be paid by buyers regardless of the elasticities of the supply or demand curve.

(E) The tax incidence will be split equally between the buyers and sellers regardless of the elasticities of the supply or demand curves.

ANS :- (C) The incidence, or burden, of a tax will be greater on the side of the market that is more inelastic than the other. Note that elasticity is the ability to respond to a price change. To a buyer or seller, a tax is an increase in the price. If an agent, the buyers or the sellers, cannot respond to an increase, they will end up bearing a higher burden than if they are able to respond by cutting back their quantity.

170. At a particular quantity, the price elasticity of supply is 3 and the price elasticity of demand is 2. Which if the following is true about the incidence of an excise tax at that quantity?

(A) The tax incidence will depend on whom the tax is levied.

(B) The buyers will pay a higher incidence of the tax.

(C) The sellers will pay a higher incidence of the tax.

(D) The buyers and sellers will have an equal tax burden.

(E) The tax is a regressive tax.

ANS :- (B) The greater the price elasticity, the more elastic the curve. So a supply curve with a price elasticity of 3 is more elastic than a demand curve with an elasticity of 2. This allows us to conclude that suppliers are more able to respond to a tax than are the demanders, thus putting more of the tax burden on the buyers of this product.

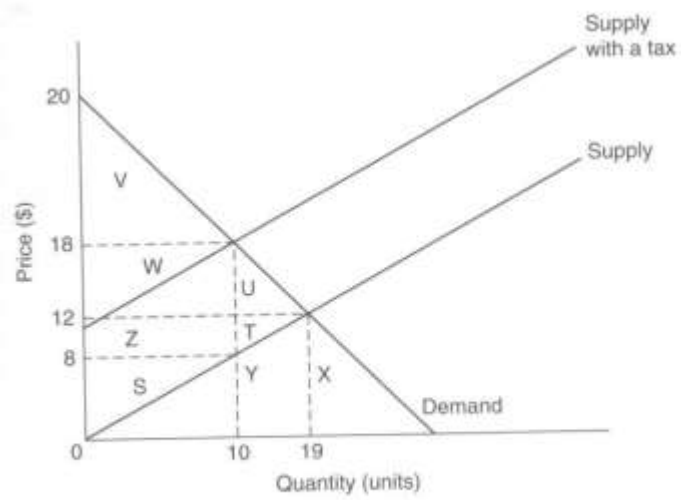


Figure 6.1

171. Refer to Figure 6.1. Which of the following letters corresponds to the total dollar tax incidence paid by demanders?

(A) V
(B) W
(C) X
(D) Y
(E) Z

ANS :- (B) The tax incidence of the consumers is the dollar amount of the tax revenue that becomes the burden of the consumer. It is the equivalent of the area below the price that the consumer pays with the tax an above the price that the consumer pays without a tax, at the quantity that will actually be sold in the market with the tax. Without a tax the consumer would pay $12, and with a tax a consumer would pay $18. At $18, the consumer is willing to buy 10 units. So ($18 - $12) × 10 = $60. Note that this corresponds to the area of the rectangle represented by the letter W.

172. Refer to Figure 6.1. Which of the following refers to the deadweight loss that occurs as a result of demanders changing their behavior in response to the tax?

(A) U
(B) V
(C) W
(D) X
(E) Y

ANS :- (A) Consumer surplus is the difference between the amount that consumers are willing to pay and the amount that they actually pay, at the quantity that they actually buy. Before the tax is imposed on this market, consumers pay a price of $12 and buy 19 units, and their consumer surplus is represented by the areas V + W + U. However, after the tax consumers pay $18 and buy 10 units, so consumer surplus is now only the area V. So what happened to W and U? W is part of the tax revenue that goes to the government. However, when the consumers reduced their consumption from 19 to 10 units, there are 9 units that never get bought (or sold), and part of the consumer surplus that used to exist, U, simply disappears.

173.Refer to Figure 6.1. We can tell that the _____ is more _____ because _____.

(A) Demand curve; elastic; buyers pay a higher tax burden
(B) Supply curve; elastic; sellers pay a higher tax burden
(C) Demand curve; inelastic; buyers pay a higher tax burden
(D) Supply curve; inelastic; sellers pay a higher tax burden
(E) Demand curve; inelastic; buyers and sellers have the same tax burden

ANS :- (C) In Figure 6.1, the consumer's tax incidence is $60. The producer's tax incidence is the area represented by Z, the difference between the price that the producer would get with no tax and the price that they get with the tax, at the quantity that they actually sell. In this case, this is ($12 - $8) × 10 = $40. Since the tax burden of the consumer is higher than the tax burden of the producer, we know that the demand curve is more inelastic than the supply curve.

174.Refer to Figure 6.1. After the excise tax, what is the price that sellers receive (P_S), the price that buyers pay (P_d), and the amount of the tax per unit?

	P_S	P_d	TAX
(A)	**20**	**12**	**8**
(B)	**18**	**12**	**6**
(C)	**20**	**18**	**2**
(D)	**8**	**18**	**10**
(E)	**12**	**8**	**19**

ANS :- (D) We can tell that the supplier is being taxed in this situation because the supply curve has shifted up by the amount of the tax. After the tax, consumers pay $18 and the producers receive a price of $8 after they pay the tax. Therefore, a $10 wedge has been driven between the price that producers get and the price that consumers pay, which is the amount of the tax.

175.Refer to Figure 6.1. What is the total surplus in this market when a tax is imposed?

(A) S + T + U + V + W + X + Y + Z
(B) S + T + U + V + Y + Z
(C) S + T + U + X + Y + Z
(D) S + V + W + X + Y + Z
(E) S + V + W + Z

ANS :- (E) Total surplus = consumer surplus + producer surplus + tax revenue. Here, consumer surplus after the tax is represented by the area S. Tax revenue is represented by the area V + W. Producer surplus is represented by the area Z. Students are sometimes confused as to why tax revenue is counted as surplus, since we tend to think of surplus as some benefit that is gained by the existence of a market. Tax revenue is counted as surplus because it is assumed that the benefit of tax goes somewhere, whether to build roads or even to be enjoyed by a less-than-benevolent dictator.

176.Refer to Figure 6.1. What is the tax revenue from this tax?

I. 100
II. 180
III. W + Z
(A) I only
(B) II only

(C) III only
(D) I and II only
(E) I and III only

ANS :- (E) Tax revenue is the total value of the taxes collected. Each of the 10 units that are sold in this market are taxed by $10, so tax revenue = 10 × 10 = 100. This is equivalent to the areas represented by the rectangles W (the consumer's tax incidence) and Z (the producer's tax incidence). Students are sometimes tempted to calculate the tax revenue using the quantity that would be sold in the market without a tax (19 units in this case). This is not correct. Once the tax is imposed, the amount that is sold will decrease.

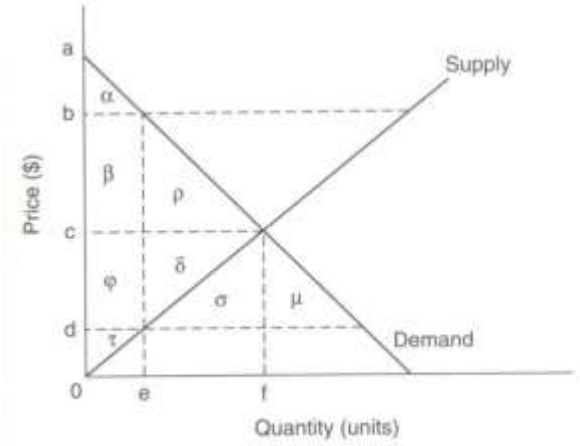


Figure 6.2

177. Refer to Figure 6.2. What is the amount of producer surplus that no longer exists as a result of a tax (b – d) being imposed?

(A) β
(B) μ
(C) φ
(D) ρ
(E) δ

ANS :- (E) Before a tax is imposed in this market, f units are sold at a price of c. At this equilibrium, producer surplus is represented by the areas $\varphi + \delta + \tau$. After the tax is imposed, only e units are sold, and the seller only gets a price of d, so the producer surplus with the tax is represented by the area of triangle τ, and the area represented by the rectangle by φ becomes the producer's tax incidence. The area of the triangle represented by δ is deadweight loss that used to be part of producer surplus.

178. Refer to Figure 6.2. Suppose the tax on this market is removed. By what amount will producer surplus increase?

(A) Producer surplus will increase from $\varphi + \delta + \tau$ to $\alpha + \beta + \rho + \varphi + \delta + \tau$.
(B) Producer surplus will increase from τ to $\varphi + \delta + \tau$.
(C) Producer surplus will increase from $\tau + \delta$ to $\rho + \alpha + \varphi + \delta + \tau$.
(D) Producer surplus will increase from φ to $\varphi + \delta + \tau$.
(E) Producer surplus will increase from $\varphi + \delta + \tau$ to $\alpha + \varphi + \delta + \tau$.

ANS :- (B) With a tax on the market, producer surplus is represented by the area τ. If the tax on this market is lifted, the price that sellers receive will increase to c and the quantity that they sell will increase to f. As a result, the producer surplus will increase to $\varphi + \delta + \tau$ if the tax is lifted.

179. Refer to Figure 6.2. Suppose the elasticity of supply and demand shown here are equal. We could then say for certain which two areas were equal?

(A) β and φ
(B) α and τ
(C) α and β
(D) β and ρ
(E) φ and δ

ANS :- (A) Elasticity relates to the incidence of a tax. Whichever side of the market is more inelastic will bear a higher tax burden. If the elasticities are equal, then each side of the market will bear the same incidence of the tax. Here the tax incidence of suppliers is represented by the area of the rectangle φ, and the tax incidence of demanders is represented by the area of the rectangle β. So the area of the rectangle φ will be equal to the area of the rectangle β only if the elasticities of the two curves are equal.

180. Refer to Figure 6.2. What is the amount of inefficiency that exists as a consequence of the tax?

(A) $\alpha + \beta + \delta + \tau$
(B) $\sigma + \mu$
(C) $\rho + \delta$
(D) $\rho + \delta + \sigma + \mu$
(E) $\delta + \sigma$

ANS :- (C) Total surplus without a tax in this market would be represented by the area $\alpha + \beta + \rho + \varphi + \delta + \tau$. After a tax is imposed in this market, the total surplus would be $\alpha + \beta + \delta + \tau$, where α is the consumer surplus, $\beta + \varphi$ is the tax revenue, and τ is the producer surplus. The areas represented by ρ and δ are the deadweight loss, or inefficiency, meaning that this is surplus that used to exist but now basically disappears. Note that there is not really any interpretation of the areas σ or μ; they are merely distractors.

181. Which of the following is the best explanation of why a lump sum tax is the most efficient form of tax?

(A) It does not alter the incentives of the buyers or the sellers.
(B) It affects only buyers.
(C) It affects only sellers.
(D) It is the most equitable.
(E) It causes the most deadweight loss.

ANS :- (A) The efficiency loss that occurs when an efficiently operating market is taxed due to the change in incentives to consume. When consumers have to pay a higher price as the result of tax, they cut back on their consumption. A lump sum is a tax that is imposed regardless of the quantity or value of a market ----you are taxed the same whether you consume zero units or a million units of a good. So even though a tax is imposed, there is no incentive to change consumption and therefore no efficiency loss. Note that this is also a very inequitable form of taxation, because even if you consume nothing from this market, you would still be taxed.

182.Which of the following is caused when you impose a tax on a perfectly functioning market?

(A) Shortage
(B) Surplus
(C) Deadweight loss
(D) Efficiency
(E) Elasticity

ANS :- (C) *Deadweight loss* is the term that economists give to the efficiency loss that occurs in a perfectly functioning market when you impose a tax or any other kind of interference with market prices, such as price ceilings or price floors. There is a notable difference between the price controls and taxes, however, in that no shortage or surplus exists.

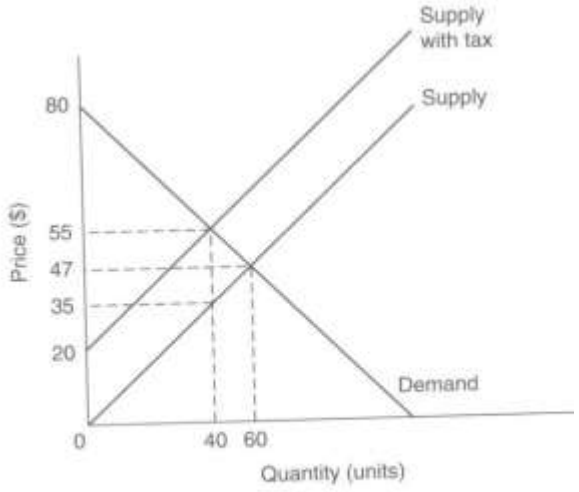


Figure 6.3

183.Refer to Figure 6.3. What is the per unit tax on this good?

(A) $20
(B) $8
(C) $15
(D) $25
(E) $47

ANS :- (A) The supply curve in this market has shifted up by the amount of the tax. We can tell the amount of the tax in one of two ways. First, the new intersection of the supply curve with the price axis will be the amount of the tax. Second, we can figure out the amount of the tax by looking at the wedge that is placed between what the buyer must pay with the tax ------in this case $55-----and the price that the seller receives----in this case $35. So $55 - $35 = $20.

184.Refer to Figure 6.3. Who bears the greater burden of the tax in this market, and how much of the tax revenue do they pay?

(A) Sellers, $320 of the tax revenue
(B) Sellers, $800
(C) Buyers, $320 of the tax revenue
(D) Buyers, $480 of the tax revenue

(E) Sellers, $480 of the tax revenue

ANS :- (E) In this market 40 units are sold after the $20 tax is imposed. The consumer tax incidence is ($55 - $47) × 20 = $160. The producer tax incidence is ($47 - $35) × 40 = $480. The producer pays the higher tax incidence in this market, so we can infer that the supply curve is more inelastic than the demand curve.

185. Suppose the government wanted to impose a tax and wanted the entire burden of the tax to fall on the sellers. What would have to be true of a market for this to be possible?

(A) The sellers would have to have a perfectly inelastic supply curve, and the buyers would have to have a perfectly inelastic demand curve.

(B) The buyers would have to have a perfectly elastic demand curve, and the sellers must not have a perfectly elastic supply curve.

(C) The sellers would have to have a perfectly inelastic supply curve, and buyers must not have a perfectly inelastic demand curve.

(D) The buyers would have to have a perfectly inelastic demand curve, and the sellers would need not to have perfectly elastic supply curve.

(E) Neither buyer nor seller should have perfectly elastic or perfectly inelastic curves.

ANS :- (B) Anytime a market is taxed, the burden of that tax is shared, with the higher burden of that tax falling on the side of the market with the most inelastic curve. The side of the market with the most elastic curve bears the least burden. In case of a market with a perfectly elastic curve, the side of a market with a perfectly elastic curve would pay no burden at all. So if buyers had a perfectly elastic demand curve, the entire burden of any tax would fall solely on the producer of the market as long as the producer did not also have a perfectly elastic supply curve.

CHAPTER 7

CONSUMER CHOICE

186. Consumers receive happiness from consumption of goods and services. This overall level of happiness is referred to as

(A) Marginal utility

(B) A budget constraint

(C) Opportunity cost

(D) Total utility

(E) A positive externality

ANS :- (D) Economists describe the happiness (or satisfaction) we receive from consumption as “utility”. If consuming (or doing) something makes you happier than you were prior to consuming it, your total utility has increased. For example, a person who is very thirsty will experience higher total utility once the person has had a cold glass of water. When we experience things that make us less happy, they are said to have brought us “disutility”, and consumers seek to avoid such experiences.

187. Jacob enjoys cups of green herbal tea while he works. However, he knows from experience that if he has a fifth cup of tea, he will get a headache and won't be able to concentrate. What does this tells us about Jacob and his utility from cups of green tea?

(A) Jacob cannot afford the fifth cup within his budget constraint.
(B) The marginal utility of the fifth cup is greater than zero, and total utility is rising.
(C) The marginal utility of the fifth cup of tea is less than zero, and total utility is falling.
(D) The total utility of the fourth cup of tea is less than zero.
(E) The marginal utility of the fifth cup of tea is greater than zero, and total utility is equal to zero.

ANS :- (C) Marginal utility is the change in total utility when another unit of good or service is consumed. Economists sometimes describe a unit of utility as a "util". For example, if Jacob sees his total utility rises from 0 utils to 20 utils after the first cup of tea, we know that his marginal utility has been positive 20. Similarly, if Jacob sees his total utility from consuming two cups of tea rise from 20 utils to 30 utils, we know his marginal utility of the second cup was 10 utils. Anytime marginal utility is positive, it tells us that a person is seeing his total utility rise with successive units of good. However, if Jacob's fifth cup of tea gives him a headache and makes him unproductive, that fifth cup is lowering his total utility. Thus the marginal utility of the fifth cup is negative. For instance, he had a total utility of 40 utils from 4 cups of tea and 37 utils from from 5 cups of tea. If Jacob knows this happens with the fifth cup, he will never choose to consume it and he will stop at four cups.

Use Table 7.1 for questions 188-189.

Table 7.1

HOT DOGS	Total Utility from Hot Dogs(utils)
0	0
1	20
2	28
3	34
4	38
5	40
6	41
7	40
8	38

188. A utility-maximizing consumer enjoys eating free hot dogs. Use the data from Table 7.1 to determine how many hot dogs this consumer should eat.

(A) 1
(B) 7
(C) 4
(D) 5
(E) 6

ANS :- (E) A utility-maximizing consumer would continue to eat hot dogs so long as total utility continues to climb. Total utility rises for the first six hot dogs, but the seventh causes total utility to fall. If the consumer knows that this will happen with the seventh hot dog, he or she will never consume it, even if it is free.

189. A utility-maximizing consumer enjoys eating free hot dogs. Use the data from Table 7.1 to determine the consumer's marginal utility from eating the fifth hot dog.

(A) 2 utils
(B) 1 utils
(C) -1 utils
(D) 40 utils
(E) 8 utils

ANS :- (A) Marginal utility is the change in total utility caused by a change in consumption. The formula for marginal utility is $MU_X = \Delta TU/\Delta X$. When consumption rises by 1 unit at a time, as it does in the table, we simply subtract the total utility from having four hot dogs (38 utils) from the total utility from having five hot dogs (40 utils). The difference of 2 utils is the marginal utility of the fifth hot dog.

190. Lucy uses her $48 of weekly income on two items: lipstick and magazines. The price of lipstick is $12 per unit, and the price of magazines is $4 per unit. Which of the following combinations might be a utility-maximizing combination of lipstick and magazines?

(A) 1 lipstick and 9 magazines
(B) 2 lipsticks and 8 magazines
(C) 2 lipsticks and 4 magazines
(D) 4 lipsticks and 1 magazine
(E) 3 lipsticks and 2 magazines

ANS :- (A) Lucy is a consumer with a budget constraint and would seek to maximize her utility within the limits of this budget. A combination of lipstick and magazines that amounts to more than $48 of spending would provide more utility, but she cannot afford such combinations (choices B and D). A combination that amounts to less than $48 of spending would be affordable, but would not provide as much total utility as she could potentially enjoy (choices C and E). We must find a combination of lipstick and magazines that uses exactly all of her $48 of income. One lipstick and nine magazines do add up to $48 = $1 \times \$12 + 9 \times \$4 = \$12 + \$36$.

191. Lucy uses her $48 of income on two items: lipstick and magazines. The price of lipstick is $12 per unit, and the price of magazines is $4 per unit. If Lucy is using all of her income, what is the opportunity cost of a lipstick?

(A) $48
(B) 1 magazine
(C) 3 lipsticks
(D) 3 magazines
(E) 4 magazines

ANS :- (D) When a consumer like Lucy is spending all of her income to buy more of one good (lipstick), she must reallocate her spending and decrease consumption of the other good (magazines). Buying a lipstick requires $12, and since magazines are $4 each, she must reduce her magazine consumption by three magazines.

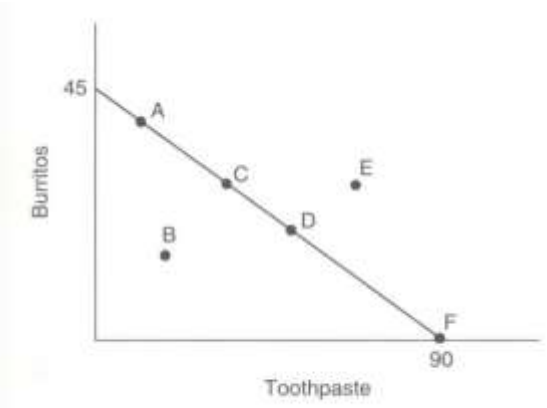


Figure 7.1

192. Mr. Chang uses his income to purchase burritos and toothpaste. The price of a burrito is $6. Based on Figure 7.1, Mr. Chang's income is _____, and the price of toothpaste is _____.

(A) $45; $90
(B) $270; $3
(C) $45; $.50
(D) $270; $90
(E) $7.50; $15

ANS :- (B) Given that Mr. Chang is buying only two goods, we can use the information provided to answer this question. The y-intercept on the graph tells us that if he spends all of his income on burritos, he can buy 45 burritos. Since a burrito costs $6 each, his income must be $\$6 \times 45 = \$270$. The x-intercept on the graph tells us that if he spends all of his income on toothpaste, he can buy 90 of them. Now that we know how much income he has, we can determine the price of toothpaste as $270/90 = $3 each.

193. Mr. Chang uses his income to purchase burritos and toothpaste. Of the points shown in Figure 7.1, point _____ is unaffordable and point _____ is affordable but cannot maximize Mr. Chang's utility.

(A) E; F
(B) E; A
(C) E; B
(D) C; B
(E) B; F

ANS :- (C) A budget constraint is similar to a production possibility frontier. Combinations that lie beyond the budget constraint are unaffordable, though they would certainly provide Mr. Chang with more utility. A combination that lies inside the budget constraint is affordable but inferior to combinations that lie along the constraint, because not all income is being used (much like a point that lies inside of a production possibilities frontier is inferior because not all resources are being used). Note that one affordable choice, point F, could maximize Mr. Chang's utility, but because it represents the x-intercept, it could only be a utility-maximizing point if he received absolutely no happiness from burritos.

194. Mr. Chang uses his income to purchase burritos and toothpaste and is currently maximizing his utility at point A in Figure 7.1. If the price of toothpaste falls, which of the following points may represent his new utility-maximizing point?

(A) B
(B) C
(C) D
(D) E
(E) F

ANS :- (D) If the price of toothpaste falls, the budget constraint will rotate outward along the toothpaste axis. A previously unaffordable point like point E could now become affordable along the new budget constraint and could become the new utility-maximizing combination of toothpaste and burritos. Note that this also reinforces our utility-maximizing rule that the optimal consumption bundle will be a combination of goods where $MU_X/P_X = MU_Y/P_Y$. If the price of good X falls, then this equation is no longer equal, and the consumption of X should increase.

195. Mr. Chang uses his income to purchase burritos and toothpaste and is currently maximizing his utility at point C in Figure 7.1. If the price of burritos rises, which of the following points may represent his new utility-maximizing point?

(A) B
(B) A
(C) D
(D) E
(E) F

ANS :- (A) If the price of burritos rises, the budget constraint will rotate inward along the burrito axis. A point that previously fell inside the budget constraint, like point B, could now become a point along the new budget constraint and become the new utility-maximizing combination of toothpaste and burritos.

196. Maddy is currently using all of his income on milk at a price of $4 per unit and on fish at a price of $15 per unit. The marginal utility of the next unit of milk is 40 utils and the marginal utility of the next unit of fish is 100 utils. How can Maddy rearrange his consumption to increase his utility?

(A) He could increase his milk consumption and decrease his fish consumption.
(B) He should decrease his milk consumption and decrease his fish consumption.
(C) He should increase his milk consumption and increase his fish consumption.
(D) He should decrease his milk consumption and increase his fish consumption.
(E) He should do nothing----his utility is already maximized.

ANS :- (A) Consumers maximize their utility between two goods when they find the point where the marginal utility per dollar is equal for both goods (mathematically, for two goods X and Y, this would be expressed as $MU_X/P_X = MU_Y/P_Y$). Maddy's marginal utility of milk is 40 utils, but when divided by the price of $4, he gets 10 utils per dollar. His marginal utility of fish is much higher at 100 utils, but the price is also higher at $15 each. Fish provides him with only 6.67 utils per dollar (100/$15). Since milk gives Maddy more happiness per dollar, he can increase his total utility by spending more of his income on milk and spending less of his income on fish. This also makes sense on an intuitive level: if you are getting more "bang for your buck" by consuming milk, it makes sense to consume more milk.

197.If a consumer is spending all of her income on two goods, X and Y, she maximizes her utility when

(A) $MU_X \times MU_Y = P_X \times P_Y$

(B) $MU_X + P_X = MU_Y + P_Y$

(C) $MU_X / MU_Y = P_Y / P_X$

(D) $MU_X \times P_X = MU_Y \times P_Y$

(E) $MU_X/P_X = MU_Y/P_Y$

ANS :- (E) This condition is also called the utility-maximizing rule. When the marginal utility per dollar is equal for both goods, there is no way to reallocate your spending to increase your total utility. To see this, suppose that each good has a price of $1, and the marginal utility of good X is 10 utils and the marginal utility of good Y is 4 utils ($MU_X > MU_Y$). You can spend $1 more on good X, spend $1 less on good Y, and increase your overall happiness by 6 utils. So long as you're getting more bang for your buck from good X, you will continue to make this substitution until $MU_X = MU_Y$. Of course, the same process would in reverse if you were at a point where $MU_X < MU_Y$; you would buy more good Y and less good X.

198.Demand curves slope downward because _____ slope downward.

(A) Total utility curves

(B) Marginal utility curves

(C) Supply curves

(D) Marginal cost curves

(E) Production possibility curves

ANS :- (B) The principle of diminishing marginal utility helps explain why demand curves are downward sloping. Suppose a consumer can eat free tacos. As she eats more and more tacos, the marginal utility of the next taco is smaller and smaller. This means that she enjoys the third taco less than she enjoyed the second taco. If she must now pay for the third taco, her willingness to pay for that taco will be lower than her willingness to pay for the second taco. She will only pay for the third taco if the price falls to meet her lower willingness to pay. Thus her diminishing marginal utility for tacos implies an inverse relationship between price and quantity of tacos demanded ----a downward-sloping demand.

199.Which of the following statements are correct?

I. **The demand curve for good X slopes downward because marginal utility diminishes as more of good X is consumed.**

II. **As the price of good X falls, the marginal utility of good X per dollar rises, prompting more consumption of good X.**

III. **As the price of good X falls, the substitution effect prompts the consumer to consume more of good X.**

(A) I only

(B) II only

(C) I and II only

(D) I and III only

(E) I, II, and III

ANS :- (E) All of these statements accurately describe the relationship between utility and demand. A diminishing marginal utility curve means the additional happiness for the next unit of good X is lower than it was for the previous unit. Because of this, the consumer's willingness to pay for the next unit also falls. A consumer responds to a lower price of good X by consuming more of good X because a lower price gives that consumer higher

marginal utility per dollar. Utility for this good now comes at a bargain, so more of that good is purchased. The substitution effect from a lower price means that good X is now a bargain relative to other goods, and the consumer can increase utility by purchasing more of X and less of the alternative.

200. Julie is currently maximizing her utility by consuming a certain number of units of goods A and B. If the price of good B rises, she will _____ her consumption of good A and _____ her consumption of good B, until _____.

(A) Increase; decrease; the marginal utility per dollar is equal for both goods
(B) Increase; decrease; the marginal utility per dollar is equal for both goods
(C) Increase; decrease; the marginal utility per dollar per dollar is zero for both goods
(D) Decrease; increase; the marginal utility per dollar is equal for both goods
(E) Decrease; increase; the marginal utility per dollar is zero for both goods

ANS :- (A) Since Julie is already maximizing utility, she is already at the point where $MU_A/P_A = MU_B/P_B$. When the price of good B rises, it creates a situation where the marginal utility of good B divided by the higher price is less than the marginal utility of good A divided by its price. This prompts Julie to make a substitution: more of good A and less of good B. She will continue to substitute until she is back in equilibrium and the ratios of marginal utility per dollar are again equal.

201. Manny considers pizza to be a normal good. When the price of pizza falls, how will the substitution effect and income effect cause his consumption of pizza to change?

	SUBSTITUTION EFFECT	INCOME EFFECT
(A)	**More pizza**	**same quantity of pizza**
(B)	**Less pizza**	**less pizza**
(C)	**More pizza**	**more pizza**
(D)	**Less pizza**	**same quantity of pizza**
(E)	**Less pizza**	**more pizza**

ANS :- (C) If Manny considers pizza to be a normal good, both the substitution effect and income effect will prompt him to buy more pizza when the price falls. Because pizza is now a less pricey food option, the substitution effect will cause him to decrease consumption of a pizza substitute and increase pizza consumption. Manny's income hasn't increased, but the lower price of pizza gives him more purchasing power in his budget. This feeling of more income prompts him to buy more of all normal goods, thus reinforcing the substitution effect.

202. If the price of good Z rises, the quantity of good Z demanded could rise if

(A) Good Z is inferior and the income effect is smaller than the substitution effect
(B) Good Z is inferior and the income effect is larger than the substitution effect
(C) Good Z is inferior and the income effect is equal to the substitution effect
(D) Good Z is normal and the income effect is larger than the substitution effect
(E) Good Z is normal and the income effect is equal to the substitution effect

ANS :- (B) When a good is inferior, the substitution effect and the income effect work against each other. The higher price of good Z creates a substitution effect wherein fewer units of good Z are demanded. However, a higher price of good Z causes a consumer to lose purchasing power. This feeling of lost income would cause an increase in consumption of inferior goods. If the income effect of an inferior good (more units of Z) is stronger than the substitution effect (fewer units of Z), it is possible for a demand curve to be upward sloping.

203. Suppose that tacos are normal goods. A higher price of tacos will _____ the quantity of tacos demanded due to the substitution effect and _____ the quantity demanded due to the income effect.

(A) Increase; decrease
(B) Have no impact on; have no impact on
(C) Decrease; increase
(D) Increase; increase
(E) Decrease; decrease

ANS :- (E) Because tacos are normal goods, the substitution and income effects work in the same direction. A higher price of tacos will cause a consumer to look for substitutes that are now a relative bargain; quantity of tacos demanded falls. A higher price causes a loss of purchasing power and a feeling of lost income. Because tacos are a normal good, this also prompts a decrease in quantity demanded.

204. Gilligan and Ginger both like to buy coconuts, and both have the same substitution effect for any change in price. However, if the price falls, we observe that Ginger increases her consumption of coconuts by 10, while Gilligan increases his consumption by only 6 coconuts. Which of the following might explain this difference?

(A) Coconuts are inferior goods for Ginger but normal goods for Gilligan.
(B) Coconuts are normal goods for both, but the income effect is stronger for Gilligan.
(C) Coconuts are inferior goods for both, but the income effect is stronger for Ginger.
(D) Coconuts are normal goods for Ginger but inferior goods for Gilligan.
(E) **Coconuts are normal goods for both, and the income effect is the same for both**.

ANS :- (D) We know that both Gilligan and Ginger have experienced a lower price of coconuts, and both have the same substitution effect. Only two possibilities explain why Ginger has increased her coconut consumption more than Gilligan did. It is possible that both consider coconuts to be normal goods, but Ginger's income effect is larger Gilligan's. This is not one of the choices given in the question. If Ginger considers coconuts to be normal, a lower price will reinforce the substitution effect and increase consumption. If Gilligan considers them to be inferior, this would partially counter his substitution effect and explain the disparity.

205. Max has a vertical demand curve for crackers. How would income and substitution effects explain this demand curve?

(A) Crackers are a normal good, and the income effect is equal to the substitution effect.
(B) Crackers a normal good, and the income effect is greater than the substitution effect.
(C) Crackers are an inferior good, and the income effect is equal to the substitution effect.
(D) Crackers are a normal good, and the income effect is less than the substitution effect.
(E) Crackers are an inferior good, and the income effect is greater than the substitution effect.

ANS :- (C) A vertical demand curve means that if the price of crackers changes up or down, Max will not alter his consumption of crackers. If it is possible that he has absolutely no substitution or income effects, but this is not one of the choices given in the question. The other possibility is that he does have a substitution effect, but it is exactly offset by an income effect for an inferior good.

CHAPTER 8

PRODUCTION AND COSTS

206.A _____ input cannot be changed in the _____ run.

- **(A) Fixed; long**
- **(B) Fixed; short**
- **(C) Total; long**
- **(D) Variable; short**
- **(E) Variable; long**

ANS :- (B) The short run is a period of time too brief to adjust the hiring of all of the production inputs. If an input can be quickly increased or decreased to produce more or less output, it is described as a variable input. Thus variable inputs can be adjusted in the short run. Anything that can be changed in the short run is by definition also able to be changed in the long run. So variable inputs can be changed in the short run or the long run. However, if an input cannot be quickly increased or decreased, it is a fixed point. These inputs are therefore fixed in the short run, but variable in the long run. In the long run, all inputs can be adjusted to produce more or less output.

207.Which of the following costs would be considered a short-run fixed cost for an ice-cream shop?

- **(A) Wages paid to hourly part-time (or noncontract) employees**
- **(B) Electricity used to operate the shop and the appliances**
- **(C) Monthly rent paid to the owners of the building under a lease**
- **(D) Chocolate sauce for sundaes**
- **(E) Plastic spoons, cones, and other supplies**

ANS :- (C) If the ice-cream shop wanted to operate longer hours to serve more customers, the shop would need to increase the hiring of variable inputs like hourly part-time (or noncontract) labor, supplies, electricity, and key ingredients. However, the monthly rent will remain constant no matter if the shop is busy, quiet, or even closed. Buildings, whether owned or rented, are considered part of the firm's capital input, and the cost of employing capital is almost always considered a fixed short-run cost.

208.In the short run, when the firm produces zero units of output, which of the following is always equal to zero?

- **(A) Total cost**
- **(B) Total variable cost**
- **(C) Economic profit**
- **(D) Total fixed cost**
- **(E) Economic loss**

ANS :- (B) Because there are fixed inputs in the short run, there are fixed costs in the short run, which are constant at all levels of output. However, the firm must employ more variable inputs to produce more units of output, and if the output is zero, total variable costs are also zero. In other words, total fixed cost is not a function of output (it's the same), and total variable cost is a function of output.Total cost is the sum of total variable cost and total fixed cost. So when output is zero, total cost is equal to total fixed cost. In the short run, economic profit could be positive, negative, or zero.

209. Suppose a firm hires a variable amount of labor to a fixed amount of capital in the short run. The marginal product of labor is

(A) The change in total cost divided by the change in output
(B) The change in total output divided by the change in labor employed
(C) The total output divided by the total cost
(D) The total output divided by the quantity of labor employed
(E) The change in total variable cost divided by the change in output

ANS :- (B) When one more unit of a variable input (like labor) is employed, the additional unit of labor causes a change in total output (or total product of labor). This change in total output is the marginal impact, or marginal product, of the additional unit of labor. Marginal product is equal to MPL = $(\Delta TPL)/(\Delta L)$. If the output increased with more labor, the marginal product is positive; if output decreased, the marginal product is negative.

210. The principle of diminishing returns to production is seen graphically as a

(A) Total product curve that increases at a decreasing rate as more of a variable input is employed
(B) An average fixed cost curve that declines as more output is produced
(C) A total cost curve that increases at a decreasing rate as more output is produced
(D) A total fixed cost curve that is unchanged as more output is produced
(E) Total product curve that increases at a constant rate as more of a variable input is employed

ANS :- (A) When more labor is added to a fixed amount of capital, eventually the labor either runs out of equipment or space to work with, so marginal product of labor begins to fall. A closer look at the formula MPL = $(\Delta TPL)/(\Delta L)$ tells us something interesting about marginal product. The total product curve is plotted in a graph with TPL on the y-axis and L on the x-axis; so our marginal product equation could be written as MPL = $(\Delta y)/(\Delta x)$, or the slope of the total product curve. So long as the marginal product is positive, it tells us that the total product is rising. But if the total product is rising and getting flatter, the slope is getting smaller. This shows that marginal product must be falling. If the marginal product ever becomes negative, the total product must be falling.

211. Aleks owns a small factory and he has determined that when he employs eight workers that total production is 80 units of output, and when he employs nine workers, production increases to 81 units of output. Based on this information, we can tell that when nine workers are employed, the marginal product of the ninth worker is _____ and the average product of labor is _____.

(A) 10 units; 9 units
(B) 1 unit; 81 units
(C) 1 unit; 9 units
(D) 80 units; 9 units
(E) 1 unit; 8 units

ANS :- (C) When the ninth worker is hired, total output rises from 80 to 81 units; thus the marginal product of that worker is 1 nit of output. Average product of labor, or output per worker, is simply the total output divided by the quantity of labor that was employed to produce that output. So when total output at 9 workers is 81 total units, on average each worker is producing 9 units per worker (81 units/ 9 units). We calculate the average product of labor as APL = TPL/L.

212. Which of the following statements are correct about short-run production functions?

I. When the total product of labor is increasing, the marginal product of labor is negative.
II. When the marginal product of labor is greater than the average product of labor, average product of labor is rising.

III. When the marginal product of labor is falling, the total product of labor is also falling.

(A) I only
(B) II only
(C) III only
(D) II and III only
(E) I, II, and III

ANS :- (B) The marginal product is the additional contribution of the next worker. The average product is the current average output per worker hired. The relationship between the two can be seen with exam scores in a class. Suppose your current average exam score is 80%, but your next exam (the marginal exam) is a 90%. Your average just went up! Had your marginal exam been a 70%, the average would have been pulled down. This allows us to generalize back to production: if the marginal product exceeds the current average, the average will come up. If the marginal product is below the current average, the average will come down. Of course, if the marginal product is equal to the average product, average product will neither rise nor fall.

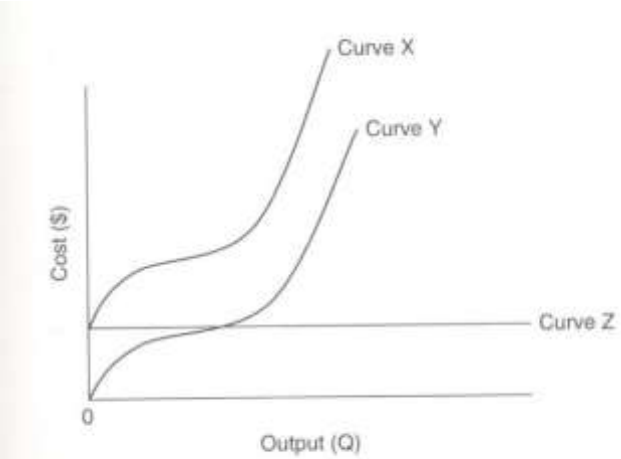


Figure 8.1

213.Short-run cost curves are drawn in Figure 8.1. What function does Curve Y represent in the graph?

(A) Total fixed cost
(B) Total cost
(C) Average total cost
(D) Total variable cost
(E) Marginal cost

ANS:- (D) The key to knowing that Curve Y is total variable cost is that the curve begins at $0 when output is zero. Because variable inputs are not hired when nothing is being produced, no variable costs are associated with hiring them. Curve Z is horizontal, telling us that this cost curve doesn't rise or fall with output; this curve represents total fixed cost. Another way to tell that Y, rather than X, is the short-run cost curve is that Curve Y is always less than Curve X: variable costs are always less than total costs, which are represented by Curve X.

214.Short-run cost curves are drawn in Figure 8.1. What function does Curve X represent in the graph?

(A) Total cost is the sum of total variable cost and marginal cost.
(B) Total cost is the difference between total variable cost and total fixed cost.
(C) Total cost is the sum of average variable cost and average fixed cost.

(D) Total cost is the sum of average variable cost and marginal cost.

(E) Total cost is the sum of total variable cost and total fixed cost.

ANS :- (B) In the short-run, there are both fixed and variable costs. The total cost (TC) of producing any level of short-run output is the sum of total variable cost (TVC) and total fixed cost (TFC). In the graph, Curve X represents the sum of the TFC (a constant cost represented by the horizontal Curve X) and the rising TVC (Curve Y). Notice that the total cost curve, at output of zero, begins on the vertical cost axis. This happens because at zero units of output, there still exists total fixed cost.

215.In this short run, which of the following is an accurate description of how to calculate total cost?

(A) Total cost is the sum of total variable cost and marginal cost.

(B) Total cost is the difference between total variable cost and total fixed cost.

(C) Total cost is the sum of average variable cost and average fixed cost.

(D) Total cost is the sum of average variable cost and marginal cost.

(E) Total cost is the sum of total variable cost and total fixed cost.

ANS :- (E) The short run is too short a time span to change the fixed inputs (usually capital such as factories, equipment, or buildings), so there are total fixed costs in the short run. When the cost of employing variable inputs (total variable cost) is added to the cost of the fixed capital inputs, the firm has accounted for all of the production costs. In equation form, the total cost of producing Q units is the sum of fixed costs that don't vary based on the Q units produced, and variable costs, which do not depend on the Q units produced, or TC(Q) = TFC + TVC(Q). Choice C might appear to be correct, but the sum of average variable and average fixed cost is the average total cost, or the total production cost per unit of output produced.

Use Table 8.1 for questions 216-219.

Table 8.1

output	Total Variable Cost (TVC)	Total Cost (TC)
0	$0	$10
1	$5	$15
2	$8	$18
3	$12	$22
4	$17	$27
5	$23	$33
6	$30	$40
7	$38	$48

216.Refer to Table 8.1. What is the marginal cost of producing the fifth unit of output for this producer?

(A) $23

(B) $33

(C) $10

(D) $7

(E) $6

ANS :- Marginal cost is the additional cost of producing the next unit of output or the change in the total cost that is required to produce one more unit. Equivalently it is calculated as MC = $\Delta TC/\Delta Q$. If the quantity of output is changing 1 unit at a time, we can simply see what happens to total cost when the firm moves from 4 units to 5 units of output. The change in total cost going from 4 units to 5 units, or ΔTC, is \$33 - \$27 = \$6. Therefore, \$6/1 = \$6.

217. Refer to Table 8.1. What is the average fixed cost of producing 2 units of output for this producer?

(A) \$5
(B) \$3
(C) \$8
(D) \$10
(E) \$18

ANS :- (A) Average fixed costs are equal to AFC(Q) = TFC/Q. It might appear that we cannot figure out average fixed cost from Table 8.1 because fixed costs are not given. However, Table 8.1 indicates that total cost is always \$10 higher than total variable cost. This \$10 difference is the level of total fixed cost (TFC = TC(Q) – TVC(Q)). Another way to find the fixed cost is to note that when Q = 0, variable costs are equal to zero; so from the total cost curve TC(0) = TFC + TVC(0) = TFC. To find the fixed cost of production, look at what production costs are when there is no output. Average fixed cost, or fixed cost per unit, is total fixed cost divided by units of output, or AFC(Q) = \$10/2 = \$5 PER UNIT. Although TFC does not change with output, AFC declines with output, because as output increases, the same number (10) is divided by a larger and larger number. Note that while total fixed costs are not a function of Q (the value of total fixed costs does not change depending on Q), average fixed costs (AFC (Q)) are a function of Q.

218. Refer to Table 8.1. Which of the following choices best describes the shape of this firm's marginal cost curve?

(A) From units 1 to 2, marginal cost rises, but from units 2 to 7, marginal cost falls.
(B) For all units, marginal cost is constant.
(C) From units 1 to 2, marginal cost falls, but from units 2 to 7, marginal cost rises.
(D) From units 1 to 2, marginal cost is constant, but from units 2 to 7, marginal cost rises.
(E) From units 1 to 2, marginal cost falls, but from units 2 to 7, marginal cost is constant.

ANS :- (C) To get a mental picture of what the marginal cost curve looks like, subtract total cost (or total variable cost) from one level of output to the next. The marginal cost of producing the first unit is \$5 because total cost rises from \$10 to \$15. The marginal cost of producing the second unit is lower and equal to \$3, because total cost rises from \$15 to \$18. But beyond the second unit of output, marginal cost begins to rise. The marginal cost of the third unit is \$4, the marginal cost of the fourth unit is \$5, and so on. This is a pretty typical pattern where the marginal cost curve initially falls but quickly becomes an increasing function as more output is produced (similar to a "check mark").

219. Refer to Table 8.1. What is the average variable cost of producing 6 units of output for this producer?

(A) \$5
(B) \$30
(C) \$6.67
(D) \$10
(E) \$40

ANS :- (A) Because average variable cost, or variable cost per unit, is total variable cost divided by units of output, we calculate AVC(Q) = $30/6 = $5 per unit. Average variable cost typically falls with more output, eventually reaches a minimum level, and then rises as output continues to increase. Graphically it is drawn as U-shaped curve.

220.Which of the following statements accurately describes how to compute marginal cost?

(A) Marginal cost is the change in total cost divided by the change in total variable cost.
(B) Marginal cost is the difference between total cost and total variable cost.
(C) Marginal cost is the difference between average total cost and average fixed cost.
(D) Marginal cost is the change in total cost divided by the change in output.
(E) Marginal cost is the change in total fixed cost divided by the change in output.

ANS :- (D) When economists use the word $marginal$, it helps to think "additional" or "incremental change". So when we compute marginal cost, we are calculating the additional cost of producing an additional unit of output. If output is rising by 1 unit at a time, we get the marginal cost by subtracting the total cost before the unit was produced from the total cost after it was produced. Sometimes output rises by more than 1 unit. Suppose that output rises by 5 units and total cost rises by $100. The marginal cost of 1 additional unit is found by calculating MC = ($\Delta TC/\Delta Q$) = ($100/5) = $20.

221.Which of the following is an accurate representation of the relationships between short-run costs?

(A) TC = TVC – TFC
(B) ATC = AVC – AFC
(C) AFC = ATC + AVC
(D) ATC = AVC + AFC
(E) AVC = ATC + AFC

ANS :- (D) In the short run, sum of total variable cost and total fixed cost is total cost (TC(Q) = TVC(Q) + TFC). If we divide both sides of this equation by output (Q), we can see a similar relationship in the per-unit costs: TC(Q)/Q = TVC(Q)/Q + TFC/Q. Thus the average total cost is equal to the sum of the average variable cost and the average fixed cost: ATC(Q) = AVC(Q) + AFC(Q).

222.Of all short-run cost curves, which one has a downward slope for all units of output?

(A) Marginal cost
(B) Average fixed cost
(C) Total variable cost
(D) Average variable cost
(E) Average total cost

ANS :- (B) The key to understanding the shape of the average fixed cost curve is to know how average fixed cost is computed and how to visualize that computation. We divide the total fixed cost, which does not change in the short run, by output. As output rises, we are dividing the same number by more and more units of output; AFC(Q) gets smaller and smaller. For example, suppose TFC = $300. For the first unit, AFC(1) = $300/1 = $100, and so on.

223.In the short run, the marginal product of labor is inversely related to

(A) Economic profit
(B) Marginal utility
(C) Average fixed cost
(D) Average product of labor
(E) Marginal cost

ANS :- (E) The best way to see the inverse relationship between marginal cost (MC) and marginal product of labor (MPL) is to make a couple of quick simplifications and use a little algebra. Suppose the firm's only variable input is labor (L), and labor is paid a constant market wage of $W. This implies that total variable cost TVC = W × L. The formula for marginal cost recall is as follows.

$$MC = \frac{\Delta TC}{\Delta Q} = \frac{\Delta TVC}{\Delta Q} = \frac{\Delta(W \times L)}{\Delta Q}$$

Since the wage doesn't change, we can show the following.

$$MC = \frac{\Delta TVC}{\Delta Q} = \frac{W \Delta L}{\Delta Q}$$

The marginal product of labor is the change in output caused by a change in the quantity of labor hired. Finally, we recognize that our marginal cost equation is really just the market wage multiplied by the inverse of this marginal product of labor equation. We know that MPL declines as more labor is hired to a fixed quantity of capital. So as MPL declines, MC must rise. This tells us that each unit of labor is marginally less productive, so the cost of producing more output must rise because it now takes more labor to produce the additional output.

224. Suppose that a firm experiences a technological improvement such that the total product of labor curve increases at every quantity of labor employed. How will this affect the marginal product of labor and marginal cost of production in the short run?

MARGINAL PRODUCT OF LABOR	MARGINAL COST
(A) Shifts downward	**shifts upward**
(B) No change	**no change**
(C) Shifts upward	**shifts downward**
(D) Shifts upward	**no change**
(E) No change	**shifts upward**

ANS :- (C) If we assume that hiring zero units of labor corresponds to zero units of output, then an upward shift of the total product of labor will create a steeper total product of labor curve (it still begins at the graphical origin). Marginal product of labor (MPL) is the slope of total product of labor, which implies that the marginal product curve shifts upward. Better production technology implies workers are using better capital tools; this allows each additional worker to produce more additional output. Because MPL is the inverse of marginal cost (MC) of production, an upward shift in MPL must correspond to a downward shift in MC.

225. Suppose that a firm experiences a technological catastrophe such that the total product of labor curve shifts downward at every quantity of labor employed. How will this affect the average product of labor and average variable cost of production in the short run?

AVERAGE PRODUCT OF LABOR	AVERAGE VARIABLE COST
(A) Shifts downward	**shifts upward**
(B) No change	**no change**
(C) Shifts upward	**shifts downward**
(D) Shifts upward	**no change**
(E) No change	**shifts upward**

ANS :- (A) Just as the marginal product of labor is inversely related to marginal cost, average product of labor (APL) is inversely related to average variable cost (AVC(Q)). A technological catastrophe that causes total product of

labor to shift downward will cause average product of all workers to decline, because average product is calculated by dividing TPL/L. If the APL is shifting downward, the AVC(Q) must be shifting upward.

226. All else equal, in the short run as more labor is employed, average product of labor _____, and average variable production cost _____.

(A) Rises then falls; always falls
(B) Falls then rises; always rises
(C) Always falls; always rises
(D) Rises then falls; falls then rises
(E) Falls then rises; rises then falls

ANS :- (D) Suppose the firm's only variable input is labor (L), and labor is paid a constant market wage of $W. This implies that total variable cost TVC(Q) = W × L (where a specific unit of labor will produce a given amount of Q). The formula for average variable cost is as follows.

$$AVC = \frac{TVC}{Q} = \frac{(W \times L)}{Q}$$

The average product of labor (APL) is the total output per unit of labor hired. Finally, we recognize that our average variable cost equation is really just the market wage multiplied by the inverse of this average product of labor equation. So long as there are diminishing marginal returns to hiring labor, the average product of labor first rises and then falls. Because APL is a hill-shaped curve and is inversely related to AVC, then AVC must be a U-shaped curve that first falls and then rises.

227. Total revenue is calculated by

(A) Multiplying the number of units sold by the average total cost of producing those units.
(B) Dividing the total cost of production by the number of units produced
(C) Subtracting average total cost from the price at which the units were sold
(D) Multiplying the number of units sold by the average variable cost of producing those units
(E) Multiplying the number of units sold by the price at which they were sold

ANS :- (E) While cost functions and cost curves can be confusing and complicated to calculate, total revenue is very straightforward. The total revenue (TR) collected from selling a product is equal to how many units are sold (Q) multiplied by the price (P) at which they were sold: thus TR = P × Q.

228. Fred sells hot dogs at a constant price of $3 and incurs a constant marginal cost of $1. On a typical day he sells 100 hot dogs. What is Fred's daily total revenue from selling hot dogs?

(A) $300
(B) $200
(C) $100
(D) $600
(E) $400

ANS :- (A) Think of total revenue as the money collected by Fred when he sells the hot dogs to his customers. He sells 100 hot dogs, and he receives $3 for each of the hot dogs sold, so he collects $300 from his customers. While the marginal cost information will be necessary to compute other important things, like perhaps profit, it is irrelevant to determining total revenue.

229.A firm produces Zurgs and no matter how many Zurgs are sold, the market price is unaffected. The marginal revenue of the next Zurg sold is equal to

(A) Marginal profit
(B) Average total cost
(C) Price
(D) Average variable cost
(E) Marginal product

ANS :- (C) Marginal revenue is the change in total revenue from the next unit sold. Suppose the firm can sell a Zurg for $10 and that price stays the same no matter how many they sell. If one Zurg is sold, total revenue rises from zero to $10. If a second Zurg is sold, total revenue rises from $10 to $20. We can see that total revenue rises by $10, the price, every time another unit is sold. In this case, price and marginal revenue are the same.

Use Table 8.2 for questions 230-231

Table 8.2

Price	Quantity Demanded
$1	20
$2	18
$3	16
$4	14
$5	12
$6	10
$7	8

230.Refer to Table 8.2. How much total revenue will the firm receive when the price is set at $5?

(A) $5
(B) $60
(C) $56
(D) $1
(E) $12

ANS :- (B) We see in the table a demand schedule: the quantity of a product demanded at different prices. If the firm can sell 12 units at a price of $5, total revenue received from those sales will amount to $60 ($5 $\times$ 12 units). It is important to go slowly through these types of questions and read them carefully.

231.Refer to Table 8.2. What is the marginal revenue associated with a price increase from $3 to $4?

(A) $8
(B) $1
(C) $4
(D) $56
(E) $48

ANS :- (C) This is a difficult question because it asks for the marginal revenue when the price changes, rather than explicitly asking about a change in quantity. Of course, we see from the table that when the price rises from $3 to $4, quantity declines from 16 to 14 units, a quantity sold, calculated as follows.

MR = $\frac{\Delta TR}{\Delta Q} = \frac{(\$6 - \$480}{2}$ = $4

233. Linda is an artist who would like to open her own gallery. Currently she works at the art museum and earns $19,000 in that position. If Linda wants to earn break-even economic profit with her own gallery, she must earn enough total revenue to cover

(A) Her explicit production costs only
(B) Her implicit production costs and her forgone salary
(C) Her variable and fixed production costs
(D) Her explicit production costs and her foregone salary
(E) Her sunk costs only

ANS :- (D) One of the most important implicit costs that an entrepreneur should consider is a foregone salary. An accurate reckoning of economic profit should begin with subtracting explicit production costs from total revenue (TR), but any implicit costs such as Linda's current salary should also be subtracted. To break even, economic profit, economic profit must be at least equal zero: πE = TR – explicit costs - $19,000 = 0. If we solve for total revenue: TR = explicit costs + $19000.

232. The difference between economic profit and accounting profit is that economists recognize the _____ costs, while accountants recognize only the _____ costs of operating a business.

(A) Implicit; explicit
(B) Implicit and explicit; implicit
(C) Variable and fixed; sunk
(D) Implicit and explicit; explicit
(E) Variable and fixed; fixed

ANS :- (D) Profit is often hastily described as the difference between total revenue (TR) and total cost (TC). However, an economist and an accountant see total cost differently; an accountant will usually recognize only the direct out-of-pocket expenses of hiring inputs. If we subtract only the explicit costs from total revenue, we get accounting profit (πA). Explicit costs would include wages paid to employees, the cost of machinery, and any form of utilities. An economist readily acknowledges these explicit costs in the computation of accounting profit, but also includes any opportunities foregone by the owner of the firm. When these implicit costs are also subtracted from accounting profit, we are left with economic profit (πE).

234. To maximize profit, a firm must produce the output where the difference between _____ and _____ is the greatest.

(A) Total revenue; total cost
(B) Total revenue; total variable cost
(C) Total product; marginal product
(D) Price; marginal cost
(E) Total revenue; average total cost

ANS :- (A) Whether we are describing accounting or economic profit, profit maximization is the same: find the output where the difference between total revenue and total cost is the greatest. Total revenue is a function of output, and total cost (at least the variable component) is also a function of output, so profit fluctuates depending upon the level of output chosen.

235. Economists typically assume that the goal of a firm is to

(A) Maximize utility
(B) Maximize output
(C) Maximize sales
(D) Maximize profit
(E) Maximize revenue

ANS :- (D) The cornerstone of production theory, or theory of the firm, is that owners of firms act o maximize profit. While revenue maximization might be a tempting choice, revenue is only one part of the profit computation. When output is produced and sold, monetary revenues flow into the firm. But to hire inputs to do that production, monetary costs flow out of the firm. While it is true that not every firm is profitable and some firms go out of business due to overwhelming losses, the goal of each firm is to be as profitable as possible.

236. A firm is producing the profit-maximizing level of output when

(A) Total revenue equals total cost
(B) Marginal product equals marginal cost
(C) Marginal revenue equals price
(D) Price equals average total cost
(E) Marginal revenue equals marginal cost

ANS :- (E) When a unit of output is sold, two things happen: marginal revenue dollars are earned and marginal cost dollars are incurred. If the marginal revenue dollars are greater than the marginal cost dollars, profit rises. In fact, the difference between marginal revenue and marginal cost on the next unit is called marginal profit. But marginal cost rises as output is produced, so the gap between marginal cost and marginal revenue begins to narrow and marginal profit falls. At some point the marginal revenue is equal to the marginal cost; the next unit will create a situation where marginal cost exceeds marginal revenue, marginal profit on that unit would be negative. So to maximize total profit, the firm would stop at the output where the dollars of marginal revenue earned are exactly offset by the dollars of marginal cost incurred.

Use Table 8.3 for questions 237-240.

Table 8.3

output	Total Variable Cost	Total Cost
0	$0	$100
1	$100	$200
2	$140	$240
3	$190	$290
4	$250	$350
5	$320	$420
6	$400	$500

7	$490	$590
8	$590	$690

237. Refer to Table 8.3. If the firm can sell all units of output at a constant price of $70, how many units will be sold to maximize profit?

(A) 0
(B) 5
(C) 6
(D) 7
(E) 2

ANS :- (B) Since we are told that the price will be a constant $70, this informs us that marginal revenue of any unit sold is also $70. To find profit maximization, we look for the point where marginal cost is equal to $70. The difference between total cost at 5 units ($420) and 4 units ($350) is exactly $70, so the fifth unit will be sold, but not the sixth (marginal cost of $80).

238. Refer to Table 8.3. Every time the firm sells a unit of output, total revenue rises by $90. If the firm sets output to maximize profit, how many units will be sold?

(A) 0
(B) 5
(C) 7
(D) 6
(E) 8

ANS :- (C) This question tells us that total revenue rises by $90 each time a unit is sold. In other words, marginal revenue is $90. We use the table to find where total cost (or total variable cost) rises by $90, and this is the output where profit will be maximized. Total cost at the seventh unit is exactly $90 higher than it is for the sixth unit ($590 - $500), so the firm should produce 7 units.

239. Refer to Table 8.3. Every time the firm sells a unit of output, total revenue rises by $80. If the firm sets output to maximize profit, how much economic profit will the firm earn?

(A) -$20
(B) $480
(C) $400
(D) $80
(E) -$100

ANS :- (A) We must first find the output where marginal revenue equals marginal cost and $80. This occurs at the sixth unit of output, because total cost rises from $420 to $500. Profit is now found by computing total revenue (P × Q) and subtracting from that total cost found in the table at 6 units of output. Profit is therefore equal to $80 × 6 -$500 = -$20.

240. Refer to Table 8.3. The firm has maximized profit at the output of 8 units. What is the marginal revenue earned from the eighth unit?

(A) $100
(B) $90
(C) $590

(D) $110
(E) $690

ANS :- (A) Since we are told that the firm has maximized profit at 8 units, it must be the case that marginal revenue equals marginal cost at this level of output. The table informs us that marginal cost is $100 because total cost rises from $590 to $690 at the eighth unit.

241. In the long run, all production costs are
(A) Fixed
(B) Sunk
(C) Variable
(D) Marginal
(E) Constant

ANS :- (C) A key distinction between the long run and the short run has to do with the ability of the firm to be more flexible in their long-run hiring of inputs than they can be in the short run. In the long run, there is enough time to change all inputs, including capital, so all costs become variable in the long run. In the short run, at least one cost is fixed.

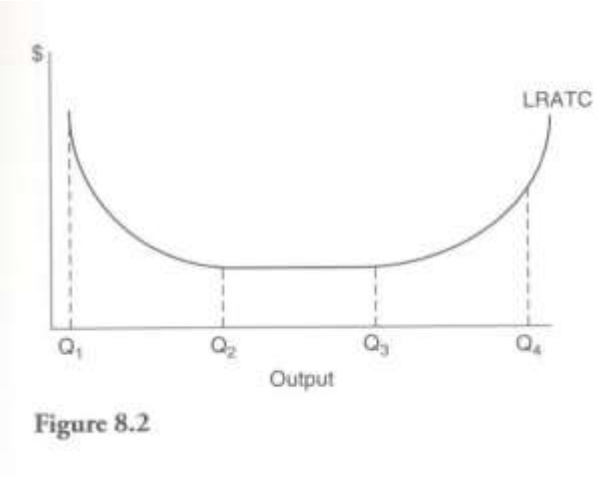


Figure 8.2

242. Refer to Figure 8.2, which shows a firm's long-run average total cost curve. Which range of output corresponds to economies of scale?
(A) Q_2 to Q_3
(B) Q_3 to Q_4
(C) Q_2 to Q_4
(D) Q_1 to Q_4
(E) Q_1 to Q_2

ANS :- (E) In the long run, the firm can adjust all inputs to either grow the overall size of the firm (often referred to as "scale") or reduce it. If the firm sees that long-run expansion causes per-unit costs to fall, a downward-sloping LRATC curve, it is said to be experiencing economies of scale. Economies of scale can result from a larger firm being able to spread the high costs of large machinery or buildings over many units of output. A factory might be expensive to build, but if it can produce millions and millions of units of output, the per-unit costs decline.

243. Refer To Figure 8.2, which shows a firm's long-run average total cost curve. Which range of output corresponds to diseconomies of scale?

(A) Q_2 to Q_3
(B) Q_3 to Q_4
(C) Q_2 to Q_4
(D) Q_1 to Q_4
(E) Q_1 to Q_2

ANS :- (B) Sometimes a firm can expand so much that it becomes less efficient, not more efficient, to grow the scale. If the firm sees that long-run expansion causes per-unit costs to rise, an upward-sloping LRACTC curve, it is said to be experiencing diseconomies of scale. Diseconomies of scale can result from a larger firm that finds it more difficult to monitor quality control or finds it more difficult to quickly adapt to market changes or new rivals. If the firm is becoming less efficient or less able to adapt, inefficiencies result and per-unit costs rise.

CHAPTER 9

PERFECT COMPETITION

244. One of the characteristics of the model of perfect competition is

(A) Asymmetric information
(B) Barriers to entry and exit
(C) Product differentiation
(D) Many buyers and sellers
(E) High levels of advertising

ANS :- (D) One of the key assumptions of perfect competition is that there are many producers in the market, each of which has a relatively small share of the market. At the heart of the most competitive of the four main market structures is the assumption that no large firm dominates, or heavily influences, the marketplace. In other words, each of these small firms produces an insignificant fraction of the overall market output.

245. One characteristic of a perfectly competitive market is that

(A) Firms produce a standardized product
(B) Some firms have better market information than others
(C) There are barriers preventing new firms from entering the market
(D) The market fails to come to equilibrium without government intervention
(E) A very small number of firms sell the majority of the products in the market

ANS :- (A) Every firm in perfect competition produces a product that is identical to the products of the other firms. This standardized (sometimes called $homogeneous$) product reinforces that no firm has the ability to set the price. Because each product is identical, if one firm tries to raise the price of its product, they will not sell any of it, since a buyer could get an identical product at a lower price.

246. Which of the following describes the behavior of firms in the model of perfect competition?

(A) Firms engage in heavy spending on advertising.
(B) Firms have no ability to affect the market price of the product.
(C) Firms can earn positive economic profit in the long run.

(D) Firms can create barriers to entry for new firms.
(E) Firms can differentiate their products from other firms.

ANS :- (B) Firms in perfect competition must take the market price as given. They are each so small and sell a homogeneous product, so no firm can affect the market price through their actions. They each sell such a tiny fraction of the overall market that if one firm wanted to create a shortage by withholding their output from the market or a surplus by flooding the market with their product, it would have no impact on the market price. Additionally, because the firms are all selling identical products and cannot get a price higher than the market price, they have no incentive to advertise. If they were to advertise, they wouldn't garner any additional production (or a higher price) and would just be lowering their profit by incurring an additional expense.

247. Firms in perfectly competitive markets are often described as

(A) Price setters
(B) Creative advertisers
(C) Price takers
(D) Utility maximizers
(E) Product differentiators

ANS :- (C) Because no firm can actually set the price, firms must accept the market price as a given. This behavior is known as "price-taking" and sets perfectly competitive firms apart from the firms in other market structures. Firms will get this price regardless of the quantity that they produce. Since each firm makes up a small share of the market production, changing the quantity that they produce will have a negligible impact on the market.

248. In a perfectly competitive market, we expect to see

(A) Many firms producing a differentiated product with no ability to affect the market price
(B) Many firms producing a differentiated product with some ability to affect the market price
(C) Very few firms producing a homogeneous product with some ability to affect the market price
(D) Many firms producing a homogeneous product with some ability to affect the market price
(E) Many firms producing a homogeneous product with no ability to affect the market price

ANS :- (E) Two characteristics of the model of perfect competition create outcomes unique to this market structure. When firms are so small that they cannot affect the market price, and when those firms are assumed to produce a homogeneous product, we have the most competitive of all market structures. In other market structures, firms have the ability to affect the market price.

249. Suppose the market for wheat is perfectly competitive. The demand for any one producer's wheat is

(A) Downward sloping
(B) Horizontal
(C) Perfectly inelastic
(D) Upward sloping
(E) Vertical

ANS :- (B) Remember that demand curves are the relationship between the price of a firm's product and the quantity of that product demanded. A downward-sloping demand curve implies that firms have a choice of many different prices. While the market for wheat still has a downward-sloping demand curve, when a firm is perfectly competitive, they have no ability to affect the price. So the demand for that firm's product is not downward sloping----it is horizontal or perfectly elastic.

250. If the market for geezums is perfectly competitive, the market demand curve for geezums is _____, while the demand curve for any one firm's output of geezums is _____.

(A) Downward sloping; horizontal
(B) Downward sloping; downward sloping
(C) Horizontal; vertical
(D) Horizontal; horizontal
(E) Horizontal; downward sloping

ANS :- (A) The market demand for a product is downward sloping. Like the demand for any product, if the price were to fall in the market, all else equal, the quantity of geezums demanded will fall. However, for any given price, the demand for the product of each of the many small price-taking firms is horizontal, as they have no control over the price of their own products.

251. Assume that the market for beans is perfectly competitive. If the market demand for beans increase, the _____ demand for each perfectly competitive grower of beans will _____.

(A) Horizontal; shift downward
(B) Horizontal; remain unchanged
(C) Horizontal; shift upward
(D) Downward sloping; shift upward
(E) Downward sloping; shift downward

ANS :- (C) Each bean grower produces a bean that is identical to the beans of every other grower. For price-taking bean growers, the demand for each firm's product is horizontal and equal to the price. If the price of beans in the market were to rise, this would cause a vertical shift upward of this horizontal demand curve.

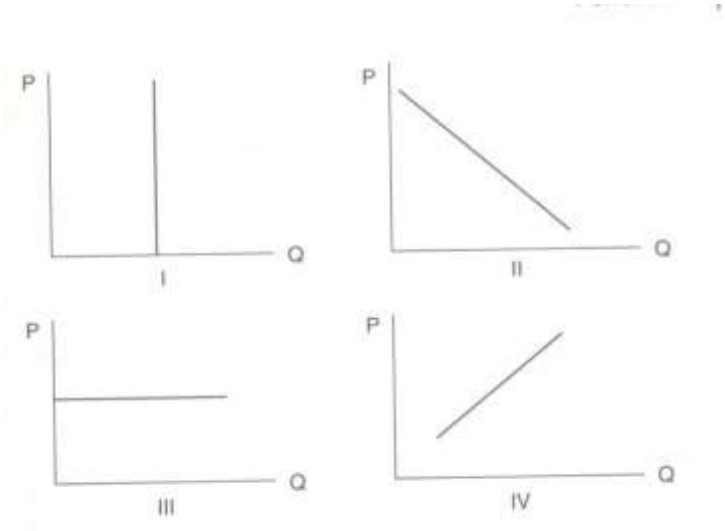


Figure 9.1

252. Refer to Figure 9.1. The graph(s) that best describes the market demand curve in a perfectly competitive market is

(A) I only
(B) II only
(C) III only
(D) II and III only

(E) III and IV only

ANS :- (B) When studying the model of perfect competition, we must remember that the law of demand for the product still holds in the market. Consumers in the market for a perfectly competitive product (e.g. wheat) will still reduce their quantity demanded when the price rises. When looking for the market demand for a product, look for a downward-sloping curve.

253. Refer to Figure 9.1. the graph(s) that best describes a firm's demand curve in a perfectly competitive market is

(A) I only
(B) II only
(C) I and III only
(D) III only
(E) IV only

ANS :- (D) The law of demand in the market for a perfectly competitive product is downward-sloping. However, when we focus our attention to the demand for a particular firm's product, the demand for this firm's product is horizontal. It isn't horizontal because consumers don't respond to lower prices; it's horizontal because these firms have no choice over the price that can be offered. The price comes from the market, it is fixed, and the firm produces as much as possible at that price.

254. In perfect competition, which of the following string of equalitites is always true in the short run?

(A) P = MR = ATC
(B) P = MR = MC
(C) P = ATC
(D) P = MC = ATC
(E) P = MR = MC = AVC

ANS :- (B) Because the perfectly competitive firms are price takers, the price is equal to marginal revenue. Every additional unit sold increases total revenue by exactly the market price. Firms maximize profit by finding the output where marginal revenue of a quantity equals marginal cost of that quantity. Thus it is always true that P = MR = MC.

255. The short-run supply curve for a perfectly competitive firm is the

(A) Average total cost curve
(B) Marginal revenue curve
(C) Marginal cost curve above average variable cost
(D) Average variable cost curve to the right of the marginal cost curve
(E) Market price curve

ANS :- (C) As the price (and marginal revenue) rises and falls with changes in the market, the firm is adjusting output such that the price equals marginal cost. When the price rises, the firm increases output along the marginal cost curve. If the price were to fall, the firm would decrease output along the marginal cost curve. If the price were to fall, the firm would decrease output along the marginal cost curve. Hence the marginal cost curve serves as the supply curve. However, if the price were to fall below average variable cost, the firm would produce zero units of output.

256. Suppose that, in the short run, the price of a key variable input decreases. How will this affect the marginal cost, average total cost, average fixed cost, and average variable cost curves?

	Marginal Cost	Average Total Cost	Average Fixed Cost	Average Variable Cost
(A)	**Shifts downward**	**no change**	**no change**	**shifts downward**
(B)	**No change**	**shifts downward**	**shifts downward**	**shifts downward**
(C)	**No change**	**no change**	**no change**	**shifts downward**
(D)	**Shifts downward**	**shifts downward**	**shifts downward**	**shifts downward**
(E)	**Shifts downward**	**shifts downward**	**no change**	**shifts downward**

ANS :- (E) If the price of a variable input decreases, it will obviously not cause the average fixed cost curve to change at all. The average variable cost (TVC/Q) will clearly decrease because total variable cost has decreased. Average total cost is the sum of average variable cost and average fixed cost, so it will also decrease. Marginal cost is the change in total cost divided by a change in output. Now each unit of output can be produced at a lower cost, so the additional cost of another unit of output has also fallen.

257. Suppose that, in the short run, the price of a key fixed input increases. How will this affect the marginal cost, average total cost, average fixed cost, and average variable cost curves?

	Marginal Cost	Average Total Cost	Average Fixed Cost	Average Variable Cost
(A)	**Shifts upward**	**shifts upward**	**shifts upward**	**no change**
(B)	**No change**	**shifts downward**	**shifts upward**	**no change**
(C)	**No change**	**shifts upward**	**shifts upward**	**no change**
(D)	**No change**	**no change**	**shifts upward**	**no change**
(E)	**No change**	**no change**	**no change**	**no change**

ANS :- (C) When the price of a fixed input rises, the total fixed costs (TFC) increase. Clearly the average fixed cost curve (TFC/Q) must also increase when total fixed cost increases. Since the variable costs are unaffected, the average variable cost curve will not change. Average total cost will increase because it is the sum of average variable and average fixed costs. Because this change has not affected the variable cost of production, marginal cost is also unaffected.

258. If a perfectly competitive firm observes the market price rising, the firm will _____ output along the _____ curve.

(A) Increase; marginal cost
(B) Increase; average total cost
(C) Decrease; marginal cost
(D) Increase; average variable cost
(E) Decrease; average variable cost

ANS :- (A) To maximize profit, the firm sets output at the point where price (and since it is perfectly competitive, price = marginal revenue) equals marginal cost. If the price increases, the initial level of output is no longer where P = MR = MC. In fact, it is now the case that P = MR > MC. Since the sale of the next unit of output brings in more dollars of revenue than it costs to produce, output increases.

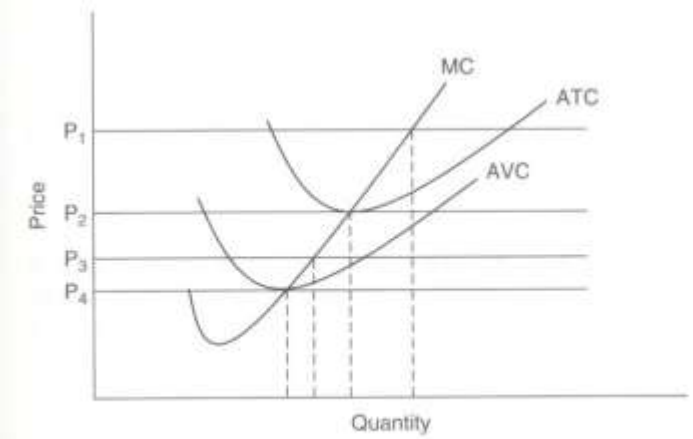


Figure 9.2

259. Refer to Figure 9.2. If the short-run price is _____ the perfectly competitive firm will _____.

(A) P_1; break even
(B) P_2; earn negative economic profit
(C) P_3; earn positive economic profit
(D) P_1; earn positive economic profit
(E) P_4; break even

ANS :- (D) Economic profit, the difference between total revenue and total cost, can be seen in graphs such as this one by comparing the current price to average total cost, at the profit-maximizing level of output. To see this, let's look at how profit is calculated. Profit (we use the symbol $\prod$) is a function of output (Q) and is equal to $\prod(Q) = TR(Q) - TC(Q)$. Dividing both total revenue and total cost by the output where price equals marginal cost gives us $\prod(Q) = Q \times (P - ATC(Q))$. If the price is greater than average total cost, as it is at P_1, profits are positive.

260. Refer to Figure 9.2. If the short-run price is _____, the perfectly competitive firm will _____.

(A) P_1; break even
(B) P_2; break even
(C) P_3; earn positive economic profit
(D) P_4; earn positive economic profit
(E) P_2; earn negative economic profit

ANS :- (B) Recall that the economic profits earned by the firm are equal to the difference between total revenue and total cost. This relationships can be rephrased as $\prod(Q) = Q \times (P - ATC(Q))$. The difference between price and average total cost gives us profit per unit. When we multiply this by Q, the number of units produced, we are back to total profit. The only way for profit to be zero, or the break-even level, as if price equals average total cost. Looking at the graph, we see that at the price of P_2, the firm is breaking even.

261. Refer to Figure 9.2. If the short-run price is _____, the perfectly competitive firm will _____.

(A) P_4; break even
(B) P_2; earn positive economic profit
(C) P_3; earn positive economic profit
(D) P_1; break even
(E) P_4; earn negative economic profit

ANS :- (E) When total cost is subtracted from total revenue, the result is equal to profit. If total revenue is greater than total cost, economic profit is positive, and if total revenue is less than total cost, profit is negative (losses). Both total revenue and total cost are functions of output, and since the perfectly competitive firm is a price taker, we can see positive and negative profits by looking at the relationship between per-unit revenue and per-unit cost. Revenue per unit is price, and cost per unit is average total cost. Since P_4 lies below average total cost, we know that per-unit profit is negative and thus total profit is negative.

262. A firm will shut down in the short run if

- **(A) TR = TC**
- **(B) P < AVC**
- **(C) P = MC**
- **(D) TR < TC**
- **(E) P < ATC**

ANS :- (B) When a firm produces any level of output in the short run, total revenues are earned and total variable costs are incurred. If the total revenue falls below the total variable cost, the firm should not produce anything in the short run. This decision to shut down is the same if revenue per unit, or price, is compared to average variable cost. If the price is below average variable cost, the best decision is to shut down.

263. Suppose a firm finds itself in a case where the profit-maximizing decision is to shut down. In this situation, the firm will produce _____ units of output and earn economic profit equal to _____.

- **(A) Zero; -TFC**
- **(B) Zero; zero**
- **(C) The most possible; zero**
- **(D) More than zero; -TC**
- **(E) Zero; -TVC**

ANS :- (A) If a firm decides to shut down in the short run, it has determined that price is below average variable cost. In this situation, any output at all will only cause greater and greater losses because the price is not even covering the variable cost of production. But in the short run, producing zero units of output does not eliminate the total fixed costs that still exists: $\prod = TR - TVC - TFC = 0 - 0 - TFC = -TFC$.

264. The shut-down point is located at

- **(A) A price of zero**
- **(B) The maximum of total revenue**
- **(C) The minimum of average variable cost**
- **(D) The minimum of average total cost**
- **(E) The point where marginal revenue equals marginal cost**

ANS :- (C) Profit per unit is equal to revenue per unit (price) minus cost per unit (average total cost). Because only the variable costs are affected when output is produced, a firm must really determine whether the price is going to be high enough to pay for the average variable costs that are incurred. After all, the average fixed costs are paid whether the firm produces zero units or a million units. If the price falls below the minimum of the average variable cost curve, the profit-maximizing decision is to shut down and produce zero units.

265. The short-run profit-maximizing decision in perfect competition is to produce where

(A) P = MC > MR
(B) P = MR = MC = AVC
(C) P = MR = ATC > MC
(D) P = MR = MC > AVC
(E) P > MR = MC

ANS :- (D) The profit-maximizing decision is really just marginal analysis. The additional benefit of producing the next unit of output is marginal revenue, and because perfectly competitive firms are price takers, marginal revenue is also equal to the price. The additional cost of producing the next unit of output is marginal cost. Every last of penny of profit is earned when the price, marginal revenue, and marginal cost are all equal. However, if the price is not above the average variable cost, any level of production will lower profit.

266. You are told that a perfectly competitive firm is maximizing profit in the short run and that economic profits are positive. It must be the case that price is equal to _____ and price must also be _____.

(A) Marginal cost; equal to average variable cost
(B) Average total cost; greater than marginal cost
(C) Marginal cost; less than average total cost
(D) Average total cost; greater than average variable cost
(E) Marginal cost; greater than average total cost

ANS :- (E) Once we are told that the firm is maximizing profit, we know that one thing is true: price is equal to marginal cost. But just because a firm is maximizing profit, we don't know if those profits are negative, zero, or positive until we know where price lies in relation to average cost. Because we are also told that economic profits are positive, it must be the case that price is above average total cost.

Table 9.1

Output	Total Variable Cost (TVC)	Total Cost (TC)
0	$0	$10
1	$5	$15
2	$8	$18
3	$12	$22
4	$17	$27
5	$23	$33
6	$30	$40
7	$38	$48

267. Refer to Table 9.1. If the market price of this price-taking firm's output is $7, economic profit will be

(A) $300
(B) $2
(C) $40
(D) $70

(E) $42

ANS :- (B) We need to use the information in the table to find the marginal cost of each unit of output to figure out the quantity that the firm will choose. The firm will maximize profit at the unit of output where marginal cost is $7, the same as the market price. At the fifth unit total cost is $33, and at the sixth unit total cost is $40, so the marginal cost of the sixth unit is $7. Profit is $42 of total revenue from this quantity ($7 × 6) minus $40 of total cost of this quantity, which yields an economic profit of $2.

268. Suppose that perfectly competitive firms in the short run are experiencing positive economic profit. In the long run, what will happen to the number of firms in the industry, the market price, and the output of individual firms?

NUMBER OF FIRMS	MARKET PRICE	INDIVIDUAL FIRM OUTPUT
(A) Decrease	**decrease**	**decrease**
(B) Increase	**decrease**	**increase**
(C) Increase	**decrease**	**decrease**
(D) Increase	**increase**	**decrease**
(E) Increase	**increase**	**increase**

ANS :- (C) The long-run adjustment to short-run economic profits begins with the entry of new firms into the market. As more firms enter the market, the market supply curve shifts outward and the market price begins to fall. As the price begins to fall, each firm reduces output because now MR < MC, and this lowers firm profits. This adjustment continues until entry stops because economic profits have been eliminated.

269. Suppose that perfectly competitive firms in the short run are experiencing positive economic profit. In the long run, what will happen to the number of firms in the industry, the market level of output, and each firm's economic profit?

NUMBER OF FIRMS	MARKET OUTPUT	INDIVIDUAL FIRM PROFIT
(A) Increase	**decrease**	**decrease**
(B) Decrease	**increase**	**increase**
(C) Decrease	**decrease**	**decrease**
(D) Increase	**increase**	**decrease**
(E) Increase	**increase**	**increase**

ANS :- (D) Positive profits in the short run attract entry of firms into the perfectly competitive market. With more firms producing, market supply shifts to the right, and equilibrium output in the market increases. However, the rightward shift of market supply causes price to fall, and positive economic profits decline to the break-even level.

270. Suppose that perfectly competitive firms in the short run are experiencing negative economic profit. In the long run, what will happen to the number of firms in the industry, the market price, and the output of individual firms?

NUMBER OF FIRMS	MARKET PRICE	INDIVIDUAL FIRM OUTPUT
(A) Decrease	**decrease**	**decrease**
(B) Decrease	**decrease**	**increase**
(C) Decrease	**increase**	**decrease**
(D) Increase	**increase**	**decrease**
(E) Decrease	**increase**	**increase**

ANS :- (E) If there are short-run negative profits (or losses), some firms will exit the market. With fewer firms in the market, the market supply curve shifts to the left, which will increase the market price. As the market price rises, each remaining firm increases output because MR > MC and will do so until the price reaches average total cost and profits are zero.

271. When a perfectly competitive firm is in the long-run equilibrium, which of the following is true?

(A) P = MR = MC = ATC
(B) P = MR = MC = AVC
(C) P = MR = MC > ATC
(D) P > MR = MC = ATC
(E) P = ATC > MR = MC

ANS :- (A) The firm in perfect competition maximizes profit when marginal revenue equals marginal cost. Because this firm is a price taker, price is also equal to marginal revenue and marginal cost. Economic profit can be positive or negative in the short run, but will always end up being zero in the long run. For profits to be equal to zero, it must be the case that price is equal to average total cost. Thus we can say in the long run that P = MR = MC = ATC.

272. In perfect competition, short-run economic profits are met by long-run _____ of firms, short-run economic losses are met by long-run _____ of firms, but in either case, economic profits in the long run are _____.

(A) Entry; exit; greater than zero
(B) Entry; exit; equal to zero
(C) Exit; entry; equal to zero
(D) Enter; entry; equal to zero
(E) Entry; exit; less than zero

ANS :- (B) one of the key assumptions of the model of perfect competition is that there are no barriers to entry or exit. This means that in the long run, firms will enter the market if profits are positive and firms will leave the market if profits are negative. This process of entry and exit forces short-run profits to be zero in the long run. When profits are zero, there is no incentive for firms to enter or exit. This is known as long-run equilibrium.

273. The model of perfect competition is said to achieve allocative efficiency in the long run because

(A) Firms break even
(B) Price is equal to minimum average total cost
(C) Price is equal to marginal cost
(D) Price is equal to marginal revenue
(E) Firms shut down

ANS :- (C) Allocative efficiency is an outcome of perfect competition that shows each firm in the market producing just the right amount: not too few and not too many. If the firm produces at a point where price is greater than marginal cost, the firm is not producing enough to maximize profit. If the firm produces at a point where marginal cost is greater than price, the firm is producing too much.

274. In the model of perfectly competitive markets, the market outcome is allocatively efficient because

(A) Average total cost is minimized for each firm
(B) All firms break even in the long run
(C) All firms are price takers
(D) Economic profits are maximized

(E) The sum of consumer and producer surplus is maximized

ANS :- (E) Another way of describing allocative efficiency is to describe it as the outcome where the sum of consumer surplus and producer surplus is maximized. Firms achieve allocative efficiency by producing the profit-maximizing output where price is equal to marginal cost. When each firm produces at the point where price equals marginal cost, the entire market is allocatively efficient.

275. Which of the following statements correctly describe efficiency in the model of perfect competition?

I. Allocative efficiency is achieved because price is equal to marginal cost.

II. Productive efficiency is achieved because average total cost is minimized.

III. Allocative efficiency is achieved in the short run, but not in the long run.

(A) I only
(B) II only
(C) I and II only
(D) III only
(E) I, II, and III

ANS :- (C) When firms are producing the output where marginal revenue is equal to marginal cost, they are maximizing profit. Because perfectly competitive firms accept the market price and cannot change it, price is also equal to marginal cost and this creates allocative efficiency. In the long run, perfectly competitive firms end up producing at the minimum of the average total cost curve and this defines productive efficiency.

276. Which of the following choices is an accurate description of efficiency in the model of perfect competition?

(A) Allocative efficiency is achieved in both the short and long run, but productive efficiency is achieved only in the short run.
(B) Allocative efficiency is achieved only in the short run, but productive efficiency is achieved in both the short and the long run.
(C) Allocative efficiency is achieved only in the long run, but productive efficiency is achieved in both the short and the long run.
(D) Allocative efficiency is achieved in both the short and the long run, but productive efficiency is achieved only in the long run.
(E) Allocative efficiency is achieved only in the short run, but productive efficiency is achieved only in the long run.

Ans :- (D) Regardless of whether short-run profits are positive, zero, or negative, the perfectly competitive firm will have maximized them at the point where price and marginal revenue equal marginal cost. Because price equals marginal cost, allocative efficiency is always achieved in the short run and in the long run. In the long run, we know that short-run profits will be eliminated through entry and exit of firms. When long-run profits are equal to zero, the firm is producing at the minimum of average total cost; thus productive efficiency exists only in the long run.

277. Firms in perfect competition are allocatively efficient and productively efficient in the long run because of what conditons?

	Allocatively Efficient	Productively Efficient
(A)	P = MC	P = ATC
(B)	P = MR	P = MC
(C)	P = MR	P = AVC
(D)	P = MC	P = AVC
(E)	P = AVC	P = ATC

ANS :- (A) When price is equal to marginal cost, the firm is allocatively efficient. The word allocative refers to the resources that are allocated to the production of the good. Because the firm is producing neither too many nor too few units, it must be hiring the perfect quantities of labor and capital to produce those units. When those units are also being produced at the lowest per-unit costs, the firm is also productively efficient. Price is equal to the minimum of average total cost in the long run, and therefore, the firm achieves allocative and productive efficiency in the long run because P = MC = minimum ATC.

278. Of the characteristics of perfect competition, the one most directly responsible for long-run break-even profits is

(A) A homogeneous product
(B) No barriers to entry or exit
(C) Price-taking behavior
(D) A differentiated product
(E) Many small producers

ANS :- (B) Perfectly competitive firms can earn positive or negative economic profits in the short run. If there were barriers to entry or exit, those profits or losses may last in to the long run because it is the entry and exit of firms that drives down the price of a good. In the case of positive profits, the entry of new firms drives a high price down to break-even levels. When there are negative profits, the exit of some existing firms brings the price up to break-even levels.

279. If it weren't for the _____ assumption of perfect competition, each firm would be able to advertise the differentiating characteristics of its product to entice consumers.

(A) Free entry and exit
(B) Many small producers
(C) Homogeneous product
(D) Allocative efficiency
(E) Asymmetric information

ANS :- (C) In perfect competition each firm produces a product that is identical to the other firm's products. All products are perfect substitutes for each other, and there are no differentiating characteristics. Because there is complete absence of product differentiation, perfectly competitive firms would not have an incentive to engage in any advertising.

280. The _____ assumption of the perfectly competitive model ensures that a firm's long-run level of output will be at the minimum of average total cost.

(A) Free entry and exit
(B) Symmetric information
(C) Many small producers
(D) Price-taking
(E) Differentiated product

ANS :- (A) The assumption that firms can freely enter and exit the perfectly competitive market ensures that long-run economic profits will be zero. Whenever firms are able to enter and exit a market, price will adjust until the price is on the average total cost curve. For perfectly competitive firms, this occurs at the bottom of the average total cost curve (when average total costs are as low as possible). The fact that firms are price takers means that the price is equal to marginal revenue. In the long run, firms will earn zero economic profit because P = MR = MC = ATC.

281. The fact that perfectly competitive firms have _____ creates a level of output that is allocatively efficient.

(A) Asymmetric information
(B) A differentiated product
(C) Perfect information
(D) No ability to set the price
(E) Free entry and exit

ANS :- (D) Because perfectly competitive firms are price takers, each unit that they sell increases total revenue by exactly the price; thus marginal revenue equals price. As profit maximizers, firms set price and marginal revenue equal to marginal cost. Allocative efficiency occurs when price is equal to marginal cost, so allocative efficiency is really the result of price-taking behavior.

282. If perfectly competitive firms had _____, we would likely see firms incurring advertising expenses.

(A) Perfect information
(B) Standardized products
(C) No ability to set the price
(D) Free entry and exit
(E) **Differentiated products**

ANS :- (E) A firm that spends money on advertising does so to persuade consumers to either purchase more of their product (instead of another firm's product) or pay a higher price for their product than other firms' products. The firm does this by asserting that its products are different and better than the products of its rivals. In perfect competition, all products are perfect substitutes for all the other products and there are no differentiating characteristics. Without product differentiation, advertising would be a very ineffective, additional expense for the firm to incur.

CHAPTER 10

MONOPOLY

283. A source of market power that exists due to failing long-run average total cost is

(A) Patents and copyrights
(B) Economies of scale
(C) Product differentiation
(D) Advertising
(E) Trade barriers

ANS :- (B) As long-run average total cost falls with more output, the firm is said to have economies of scale. This is a common barrier to entry for firms with monopoly power. The lower per-unit costs provide a big advantage for the monopolist. If a smaller firm without the same economies of scale were to attempt entry into the market, they would be forced to charge a higher for the same product. This higher price would give the monopolist the means by which the firm could price out the new entrant and maintain the monopoly.

284. When a firm creates a new product or a new production technique, it can profit from this by acquiring from the government a (n)

(A) Patent
(B) Marketing campaign
(C) Exclusive control of a raw material
(D) Range of declining average total costs
(E) Differentiated product

ANS :- (A) A patent is issued by the government to an inventor to protect, sell, and hopefully, profit from his or her ideas. In the realm of barriers to entry, it gives he inventor (the firm) the sole right to produce a patent-protected product or to use a patent-protected production technology. For a period of several years, no other firm can replicate these new goods or technologies, and gives the holder of the patent a barrier to entry.

285. Suppose that a lunar mining company discovers a new kryptonite deposit on the moon. This discovery allows it to have monopoly power in the market for kryptonite back on Earth. This source of monopoly power is due to

(A) Product differentiation
(B) Copyrights
(C) Exclusive control of a raw material
(D) Diseconomies of scale
(E) Trade barriers

ANS :- (C) When affirm can control the critical raw material necessary to produce a product, The firm likely has an effective barrier preventing entry into that market. Imagine if one firm owned most of the world's copper or magnesium deposits. In that case, any firm that needed to use copper or magnesium for a final product would be blocked from producing that product.

286. If a large company can prevent smaller companies from competing on the basis of cost, the large company is using _____ to create market power.

(A) Patents and licenses
(B) Exclusive control of a raw material
(C) Product differentiation
(D) Economies of scale
(E) Advertising

ANS :- (D) Economies of scale, or declining long-run average total costs (LRATC), can give monopolies a barrier to entry because they allow the monopolist to charge a lower price than any potential entrant. A firm's profit is positive if the firm can sell the product at a price that exceeds LRATC. Because the monopolist has lower LRATC than new entrants, it is much more difficult for the new firms to be profitable; thus a barrier is created.

287. In the city of Montrose, electric regulations allow for only a single public utility to provide electricity to the citizens of Montrose. Which of the following statements is true?

I. The market for electricity in Montrose is a monopoly.
II. The barriers to entry in the electricity market are due to regulation.
III. The electricity company can charge whatever price it desires since it has no competition.

(A) I only
(B) II only
(C) III only

(D) I and II only
(E) I, II, and III

ANS :- (D) Barriers to entry can be created through regulation. In this case, the city of Montrose has created a monopoly by restricting otrher competitors from entering the market. This gives the public utility monopoly pricing power. It is not true, however, that the utility company can charge whatever price they want. Like any other monopolist, the price a monopoly can charge is still limited by consumers' willingness and ability to pay.

288. Which of the following is a key assumption of the monopoly model?

(A) Barriers to entry
(B) A product with several substitutes
(C) Price-taking behavior
(D) Many identical producers
(E) Interdependence between close rivals

ANS :- (A) Monopoly, by its strictest definition, is an industry with only one seller. The reason that there exists only one seller is because there is at least one barrier to entry. These barriers prevent other firms from entering the market and competing against the monopolist. The other choices describe other market characteristics like those seen in perfect competition and oligopoly.

289. Which of the following is a key assumption of the monopoly model?

(A) A product with a few close substitutes
(B) Strategic game playing with close rivals
(C) Price-setting behavior
(D) A few direct competitors
(E) Extensive product differentiation

ANS :- (C) Because a monopolist is the only firm selling the good or service in the market, the firm is the market. Quantity demanded will still fall if the price rises. The fact is that the monopolist has the ability to set the price at any point on the demand curve. So long as there is the ability to set the price (rather than accept the market price), the monopolist operates in a very different way than a perfectly competitive firm.

290. To be considered a pure monopoly, a market must have

(A) Mobile resources that freely flow into the market
(B) At least one direct competitor
(C) Only one firm with no close competitors
(D) Break-even profits in the long run
(E) A perfectly elastic demand curve for the product

ANS :- (C) A monopolist is, strictly speaking, the only firm in the market producing a good with no close substitutes. If there is a very large firm with 99% of the market and one small competitor with 1% of the market, the market is technically not a pure monopoly. The demand for the monopoly product is not perfectly elastic, as this would imply no control of the price.

291. If a monopolist cannot price discriminate and wants to increase the number of units that it sells, it must

(A) Set the market quantity higher and charge the same price
(B) Lower the price that it charges for its good
(C) Differentiate its good from that of competitors

(D) Obtain a patent for the good it produces

(E) Agree to set the price of the good with its competitors

ANS :- (B) A monopolist can set the price of its good, and the amount that the monopolist will be able to sell at that price will depend on consumers' demand for that good. This means that every time the monopolist wants to increase the number of units that it sells, it must lower the price of the good.

292. Which of the following are assumptions of the monopoly model?

I. Barriers to entry exist.

II. One firm produces a product with no close substitutes.

III. The firm sets the market price of the product.

(A) I only

(B) I and II only

(C) II only

(D) I and III only

(E) I, II, and III

ANS :- (E) The monopolist is the only seller in the market because there exists at least one barrier to entry. As a result of the barriers, the firm ends up being the only producer of this good that has no close substitutes. Because there are no close substitutes, the firm is able to set the price of the product at the level that maximizes the firm's profits.

293. A monopolist's demand curve slopes downward, while the monopolist's marginal revenue curve

(A) Slopes upward and intersects demand

(B) Slopes downward and lies below demand

(C) Is horizontal and equal to the price

(D) Does not exist

(E) Slopes downward and lies above demand

ANS :- (B) Unlike a perfectly competitive firm's marginal revenue curve (which is equal to the price and is the same as the demand curve for the firm's product), the monopolist's marginal revenue curve lies below the demand for the product. In perfect competition, the price-taking firms sell the next unit of output and receive as marginal revenue exactly the market price for that unit. Under the monopoly conditions, if the monopolist wants to sell 1 more unit of output, the firm must lower the price of all units. Thus the marginal revenue of the next unit of output is not the price, but something less than the price.

294. When a single-price monopolist lowers the price to sell more output, it must lower the price on all units sold. This explains why

(A) The firm's marginal revenue curve is downward sloping and the same as the firm's demand curve

(B) The firm's marginal revenue curve is downward sloping and lies above the firm's demand curve

(C) The firm's marginal revenue curve is downward sloping and lies below the firm's demand curve

(D) The firm's marginal revenue curve is upward sloping and lies below the firm's demand curve

(E) The firm's marginal revenue curve is horizontal and lies below the firm's demand curve

ANS :- (C) A monopolist may be able to set the price, but the firm cannot avoid the law of demand: to sell additional units of output, the firm must lower the price of product. However, the firm cannot lower just the price of the additional units of output, the firm must lower the price on all units of output. This means that

revenue from the additional units (marginal revenue) is not equal to the price; it must be a dollar value less than the price.

295. A monopolist is currently selling 3 units at a price of $5. If the firm lowers the price to $4, a total of 4 units will be sold. The firm calculates that the marginal revenue of the fourth unit is _____, which is _____ the price of the fourth unit.

(A) $1; less than
(B) $16; greater than
(C) $4; equal to
(D) -$1; less than
(E) $3; less than

ANS :- (A) When the firm is selling 3 units at $5 each, the firm is earning total revenue of $15 (3 × $5 = $15). To sell 1 more unit, the firm lowers the price of all units to $4 each and sells 4 units of output. Total revenue is now $16 (4 × $4 = $16). Therefore, the marginal revenue of the fourth unit is $1 ($16 - $15 = $1), which is less than the price at which the fourth unit was sold.

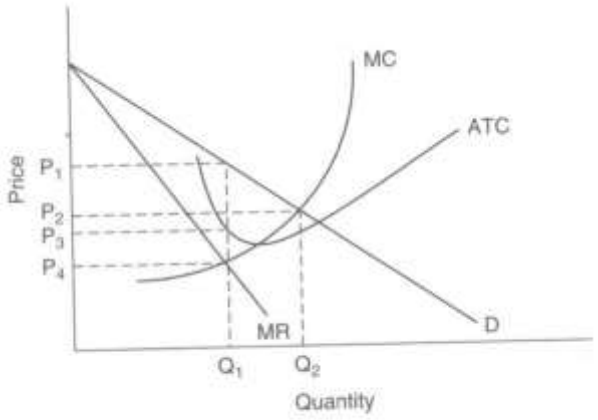


Figure 10.1

296. Refer to Figure 10.1. If the monopolist maximizes profit, how many units of output will be sold and at what price?

Units of output	Price
(A) Q_2	**P_1**
(B) Q_2	**P_2**
(C) Q_1	**P_4**
(D) Q_1	**P_3**
(E) Q_1	**P_1**

ANS :- (E) Profit is maximized at the level of output where marginal revenue is equal to the marginal cost, which occurs at Q_1 in Figure 10.1. The price required to sell the output of Q_1 is read from the demand curve, or P_1. A common mistake is to choose P_4 at the intersection of MR = MC. It is important to remember that price always comes from a demand curve. The intuition behind this is clear: if the firm produces Q_1 units, then the MR of the fourth unit is P_4. The firm could charge P_4, but doing so would not maximize profit ----in fact, they would only be covering their marginal cost. The demand curve, however, tells us that the most that people are willing to pay for Q_1 units is P_1. So the firm would make the most profit by charging the highest price that they could sell Q_1 units for.

297. Refer to Figure 10.1. If the monopolist maximizes profit, total profit is equal to:

(A) $Q_2 \times P_2$
(B) $Q_1 \times (P_1 - P_4)$
(C) $Q_1 \times (P_1 - P_2)$
(D) $Q_1 \times (P_1 - P_3)$
(E) $Q_1 \times P_1$

ANS :- (D) Profit is the difference between total revenue and total cost. The profit-maximizing choice of quantity is Q_1. Profit is calculated by multiplying per-unit profit, or the difference between price and average total cost, by the number of units produced. In the graph, this is also the area of rectangle that is Q_1 units wide and ($P_1 - P_3$) dollars high. Note that you can see this if you rearrange the profit function : Profit = TR(Q) – TC(Q) = P × Q – TC(Q). If we multiply TC(Q) by Q/Q (in other words, multiply it by 1), we get Profit = P × Q – TC(Q) Q/Q. Note that TC(Q)/Q is the same as ATC(Q), so this becomes Profit = P × Q – ATC(Q) × Q = Q × (P – ATC(Q)).

Use Table 10.1 for question 298.

Table 10.1

price	Quantity Demanded
$12	1
$11	2
$10	3
$9	4
$8	5
$7	6
$6	7
$5	8
$4	9

298. Table 10.1 shows the demand schedule for a monopolist facing a constant marginal cost of $4. Assume that he firm pays no fixed costs. How many units of output will the firm produce, and how much economic profit will be earned?

(A) 5 units; $8
(B) 5 units; $40
(C) 7 units; $36
(D) 5 units; $20
(E) 7 units; -$6

ANS :- (D) The firm must find the level of output where marginal revenue equals the marginal cost of $4. Total revenue is price multiplied by quantity, and marginal revenue is the change in total revenue when 1 more unit is sold. The total revenue at 4 units of output is $36 (4 × $9), and the total revenue at 5 units is $40 (5 × $8). The marginal revenue of the fifth unit is $4 ($40 - $36). Profit is total revenue minus total cost. There are no fixed costs, and since the marginal cost of producing each unit is $4, and 5 units are produced, the total cost of producing those 5 units is $20 (5 × $4). Profit is therefore $40 - $20 = $20.

299. When we compare monopoly to perfect competition in the long run, we expect the monopoly model to generate an outcome with

(A) Higher prices, break-even profits, and deadweight loss
(B) Higher prices, economic profits, and deadweight loss
(C) lower prices, economic profits, and deadweight loss
(D) higher prices, economic profits, and allocative efficiency
(E) higher prices, break-even profits, and allocative efficiency

ANS :- (B) The monopoly firm, because it is able to set the price, reduces the level of output below the perfectly competitive output, and in so doing, it is able to raise the price. There are barriers to entry in the monopoly market, so economic profits are able to last into the long run. Finally, because the monopoly price is greater than marginal cost, allocative efficiency is not achieved and deadweight loss exists.

300. A monopolist creates _____ because the _____ is greater than the _____.

(A) Economic profit; marginal revenue; marginal cost
(B) Economic profit; price; marginal cost
(C) Deadweight loss; marginal revenue; marginal cost
(D) Deadweight loss; price; average total cost
(E) Deadweight loss; price; marginal cost

ANS :- (E) Allocative efficiency, an outcome of perfect competition in which there is no deadweight loss, does not exist in the monopoly market. The allocative efficiency level of output occurs when price is equal to marginal cost, but the monopolist reduces output to the level where marginal revenue, not price, is equal to marginal cost. This reduction in output means that some transactions that could be made are not made, and this creates the deadweight loss to society.

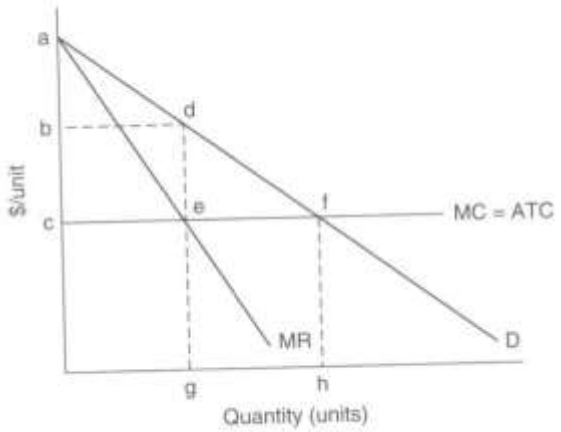


Figure 10.2

301. Refer to Figure 10.2. Using the labels provided in the graph, identify the area of deadweight loss that would exist if this were a monopoly market.

(A) def
(B) abd
(C) acf
(D) bcde

(E) efgh

ANS :- (A) The reason that area def is the monopoly deadweight loss is that those transactions from g units to h units of output should be made in a competitive market. Point d on the demand curve represents a buyer who is willing to pay a price that exceeds the firm's marginal cost (at point e) of producing that good. In this case, the buyer and the seller should be able to make a mutually beneficial transaction (negotiate a price) that is somewhere between point d and point e. The buyer would get consumer surplus, and the producer would get producer surplus from the transaction. But the monopoly firm will not produce the units between g and h, so all of those transactions go unmade and the surplus goes to nobody.

302. Refer to Figure 10.2. Suppose that the graph initially portrays a competitive market. If the market were to become a monopoly, use the labels in the graph to identify the area of lost consumer surplus.

(A) def
(B) abd
(C) bdfec
(D) bcde
(E) efgh

ANS :- (C) If the market is initially competitive, the price would be at point c and h units of output would be produced. Because price equals average total cost at point h, the firm would not earn any economic profit or consumer surplus. The entire area under the demand curve and above the marginal cost curve would be consumer surplus: the triangle acf. If a monopoly exists, output is reduced to g units and the price is increased to point b. Consumer surplus declines to a much smaller triangle: the area of abd. The difference between the large triangle acf and the new smaller triangle abd is what the consumer lost.

303. Refer to Figure 10.2. Suppose that the graph portrays a profit-maximizing monopolist. If the market were to become perfectly competitive, use the labels in the graph to identify the area of monopoly profit that would be transferred to consumers as consumer surplus.

(A) def
(B) abd
(C) bdfec
(D) bcde
(E) afc

ANS :- (D) Monopoly profit is the level of output multiplied by the difference between price and average total cost. In the graph, it can be seen as the area of a rectangle that is g units wide and (b – c) dollars high. The area of profit is therefore bcde, and if the market became perfectly competitive, this would be part of consumer surplus.

304. When a firm sells the same product to different consumers and charges the consumers different prices, the firm is said to be engaging in

(A) Price utilization
(B) Price discrimination
(C) Price minimization
(D) Predatory pricing
(E) Price maximization

ANS :- (B) Price discrimination can take many different forms, but the outcome is the same: two different consumers pay different prices for the same product. Sometimes this is obvious, like when a senior citizen receives

a discounted sandwich at a restaurant. Other times it is more subtle, like when a person buys a case of sodas and pays a lower price per soda than a person who buys from the vending machine.

305. Blueknighted Airlines flies round trip from Chicago to Houston several times a day. Steve buys a round-trip ticket one month in advance and pays a price of $200. If Julie buys the ticket one day in advance, and sits next to Steve on the plane, she pays a price of $1,000. Such differences in price are known as

(A) Utility maximization
(B) Revenue exploitation
(C) Price discrimination
(D) Antitrust pricing
(E) Predatory pricing

ANS :- (C) Airlines have mastered the art of price discrimination. Customers are separated by how far in advance they have reserved their seat. The airlines knows that a last-minute buyer is probably very desperate to fly to that destination and is therefore willing to pay a much higher price than a person who buys a month in advance. The one who buys months in advance is likely much more sensitive to a price and has the time to shop around for a better deal.

306. Suppose that a monopolist charges each buyer a price equal to her maximum willingness to pay. In this case of _____, total consumer surplus is equal to _____.

(A) Perfect price discrimination; zero
(B) Efficiency pricing; monopoly profits
(C) Perfect price discrimination; monopoly profits
(D) Inelastic price discrimination; zero
(E) Bulk pricing; zero

ANS :- (A) An extreme form of price discrimination is one in which a customer pays a price equal to his or her maximum willingness to pay price. In this form of price discrimination, sometimes called perfect or first-degree price discrimination, if Sally would pay $10 for that book, that is the price she is charged. If James would pay only $5 for that book, that is the price he is charged at the same time Sally is charged $10 for the identical book. In this pricing scheme, all consumer surplus is taken by the firm. The difficulty, of course, is the firm's challenge in actually determining what each consumer is willing to pay.

307. Which of the following statements are true?

I. Price-taking firms and monopolists alike can participate in price discrimination.
II. Successful price discrimination requires the ability to prevent customers from reselling the product.
III. Under a system of price discrimination, customers with lower price elasticities of demand tend to pay higher prices than customers with higher price elasticities of demand.

(A) I only
(B) II and III only
(C) II only
(D) III only
(E) I, II, and III

ANS :- (B) Only firms that have the ability to set different prices for their product have the possibility of engaging in price discrimination. It is also important the firm prevents resale between customer groups. Suppose a child could buy a ticket to the movie for $4, but the adult must pay $8. An enterprising 10-year-old could buy many child

tickets and resell them to adults in the parking lot for $6. If this happens, the price discrimination will not be effective. The firm will always try to determine which group of customers is least sensitive to a higher price and charge that group the higher price.

308. Suppose that the only theatre in town has successfully had the following pricing system for years: seniors pay $5, children under 12 years old pay $4, local students pay $6, veterans pay $7, and all other adults pay $8. According to price discrimination theory, which group has the greatest price elasticity of demand?

(A) Children under 12 years old
(B) Seniors
(C) Students
(D) Veterans
(E) Adults

ANS :- (A) If the firm has two or more groups of customers, each with different levels of price sensitivity, the firm will seek to exploit those differences in price elasticity of demand by charging the least sensitive group the highest of prices. After all, for that particular group, any percentage increase in price will be met with a smaller percentage decrease in quantity demanded, and total revenues from this group will rise. If a group is relatively elastic in their demand for movie tickets, any percentage decrease in price will cause a larger percentage increase in quantity demanded, and total revenues from that group will rise.

309. If one producer can supply the entire market at a lower per-unit cost than if the same market were being supplied by more than one firm, it is referred to as a _____.

(A) Full-employment monopoly
(B) Monopsony
(C) Duopoly
(D) Natural monopoly
(E) Perfect monopoly

ANS :- (D) A special kind of monopoly is a natural monopoly. These are extremely large producers, like public utilities, that can produce additional units of output at a very low marginal and average total costs. Because of the large capital investment (a power plant) and infrastructure (the power grid), it is more cost-effective to have one large utility to supply power to an entire geographic region than it would be for several smaller firms to do the same, each at a smaller scale.

310. A natural monopoly can emerge in a market due to

(A) Several firms colluding to act as one firm
(B) One firm acquiring all available patents
(C) Sole ownership of an important production resource
(D) Free entry and exit of firms
(E) Economies of scale over the entire range of market demand

ANS :- (E) The key to a natural monopoly is that the firm is so large that it is more efficient for this monopolist to supply the entire market than it would be for several smaller firms to divide the market. Efficiency in this case is measured by how cheaply the product can be produced. A huge firm with a vast range of economies of scale has, by definition, a long-run average total cost curve that diminishes with output.

311. A monopolist is able to maintain profits into the long run primarily because

(A) Of mutual interdependence
(B) Of collusive behavior
(C) Barriers to entry exist
(D) Of product differentiation
(E) Of price-taking behavior

ANS :- (C) The primary reason that a monopolist can enjoy profits in the long run is because there are no firms competing for those profits. In perfect competition, short-run profitability is eliminated by long-run entry of new firms. As firms enter, the price is driven down and profits are driven to zero. The barriers to entry in a monopoly market protect those profits from competition----no firms entering means that the firm's profits will not decrease.

312. The characteristic of monopoly that allows the firm to set the price of the product is that

(A) There are no close substitutes for the product
(B) Firms are mutually interdependent
(C) There is extensive product differentiation
(D) There are no barriers to entry
(E) The firm experiences diseconomies of scale

ANS :- (A) Because the firm produces a product with no close substitutes, the demand for the firm's product is the same as the market demand for the product. This creates a situation such that the firm, rather than accepting a price set in the market, is able to set the price at the level that maximizes profit. For this reason, monopolies are sometimes called price makers to distinguish them from perfectly competitive price takers.

313. Because a monopolist has _____, the level of output will be _____ than the competitive level of output.

(A) Diseconomies of scale; less
(B) Price-setting ability; less
(C) A standardized product; less
(D) Product differentiation; more
(E) Barriers to entry; more

ANS :- (B) The monopoly firm has a downward-sloping demand curve for its product; in fact, the demand fore its product is also the market demand for the product. If the firm's price of each unit sold was equal to marginal revenue from that sold unit, the monopolist would produce the same quantity as would a perfectly competitive industry. But the marginal revenue for a monopolist is less than the price, so the point where marginal revenue intersects marginal cost occurs at a level of output that is below the competitive market output.

314. In the long run, the monopolist can maintain a price that exceeds average total cost at the quantity produced because

(A) Perfect information exists
(B) Of a differentiated product
(C) There are barriers to entry
(D) Market demand is downward sloping
(E) **There is mutual interdependence between firms**

ANS :- (C) Anytime a price is greater than average total costs, the firm is earning positive economic profit. This occurs for the monopolist, both in the short run and long run, because there are barriers to entry. If new firms could enter the market, the price would fall until the profits were equal to zero.

315. In a monopoly, the price exceeds marginal cost because

(A) The firm produces a standardized product
(B) Of the extensive economies of scale that exists
(C) Asymmetric information exists
(D) The firm has the ability to set the price
(E) Of cartel behavior

ANS :- (D) A firm in perfect competition has no control over the price, so every unit they sell earns marginal revenue equal to exactly the price. But if a monopoly firm has the ability to set the price, a lower price will increase quantity demanded, but the marginal revenue earned is less than the price. This happens because the monopolist must lower the price for all units, not just the next unit. Because the marginal revenue is less than the price, when the firm sets marginal revenue equal to marginal cost, the price will ultimately exceed marginal cost.

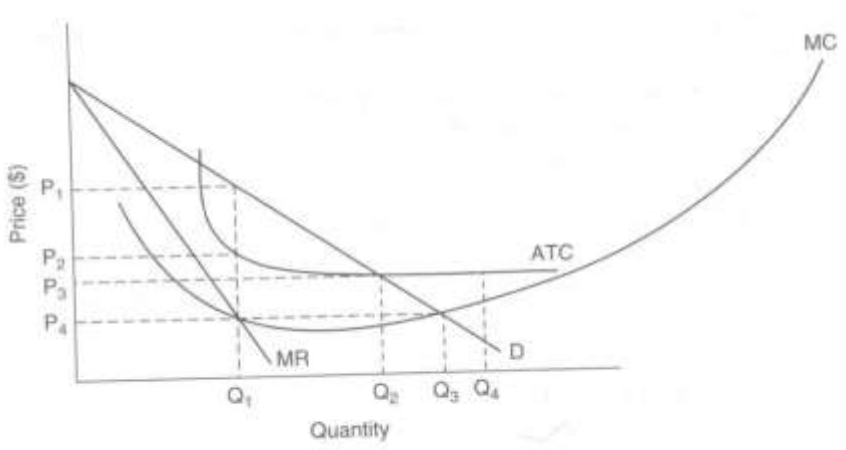


Figure 10.3

316. Using the labeling in Figure 10.3, at what level of output would a regulated monopolist be earning break-even profits? What price would the regulated monopolist charge?

(A) Output= Q_1 Price = P_1
(B) Output = Q_1 Price = P_2
(C) Output = Q_2 Price = P_3
(D) Output = Q_3 Price = P_4
(E) Output = Q_4 Price = P_3

ANS :- (C) Economic profit is the difference between the price of each unit sold, minus the average total cost of each unit produced, multiplied by the level of output. If the price is equal to the average total cost of each unit, the firm will just break even. To find this in the graph, find the intersection of average total cost and demand, because the demand curve gives the price for any quantity of output sold.

317. Using the labeling in Figure 10.3, if the government wanted to regulate the monopolist to produce the output that was socially efficient, what output would be produced and what price would be charged?

(A) Output = Q_1 Price = P_1
(B) Output = Q_1 Price = P_2
(C) Output = Q_2 Price = P_3
(D) Output = Q_3 Price = P_4
(E) Output = Q_4 Price = P_3

ANS :- (D) The socially efficient (or allocatively efficient) level of output is produced at the output where price is equal to marginal cost. This is also the level of output that, because of its efficiency, produces zero deadweight loss. To find this point of efficiency, find the intersection of demand and marginal cost.

318. Suppose the monopolist in Figure 10.3 is initially unregulated. If the government were to mandate that the firm produce where economic profits were zero, how would output and price change?

	Change in output	change in price
(A)	**Increase by ($Q_2 - Q_1$) units**	**decrease by ($P_1 - P_3$) dollars**
(B)	**Increase by ($Q_2 - Q_1$) units**	**decrease by ($P_1 - P_2$) dollars**
(C)	**Increase by ($Q_3 - Q_1$) units**	**decrease by ($P_2 - P_3$) dollars**
(D)	**Increase by ($Q_4 - Q_1$) units**	**decrease by ($P_2 - P_4$) dollars**
(E)	**Increase by ($Q_3 - Q_2$) units**	**decrease by ($P_1 - P_4$) dollars**

ANS :- (A) An unregulated monopolist would produce where profits are maximized, and output (Q_1) is where marginal revenue equals marginal cost. The price (P_1) associated with this output is at the demand curve above Q_1. Regulating this firm would require output (Q_2) to be where price (P_3) is equal to average total cost. Thus the regulation would increase output by ($Q_2 - Q_1$) units and lower the price ($P_1 - P_3$).

319. Suppose the monopolist in Figure 10.3 is initially regulated to earn break-even profits. If the government were to mandate that now the firm must produce where there is no deadweight loss to society, how would output and price change?

	Change in output	Change in Price
(A)	**Increase by ($Q_2 - Q_1$) units**	**decrease by ($P_1 - P_3$) dollars**
(B)	**Decrease by ($Q_2 - Q_1$) units**	**increase by ($P_1 - P_3$) dollars**
(C)	**Decrease by ($Q_3 - Q_1$) units**	**increase by ($P_1 - P_3$) dollars**
(D)	**Increase by ($Q_4 - Q_1$) units**	**increase by ($P_2 - P_4$) dollars**
(E)	**Increase by ($Q_3 - Q_2$) units**	**decrease by ($P_3 - P_4$) units**

ANS :- (E) A regulated monopolist that is required to break even would produce at output (Q_2) to be where price (P_3) is equal to average total cost. A new regulation requiring the firm to produce with no deadweight loss would require a price P_4 equal to marginal cost at output level Q_2. This particular regulation would increase output by ($Q_3 - Q_2$) units and decrease the price by ($P_3 - P_4$) dollars.

320. Suppose the monopolist in Figure 10.3 is initially regulated to produce the socially efficient level of output. If the government were to completely deregulate the market and allow the firm to maximize profit, how would output and price change?

	Change in output	change in price
(A)	**Increase by ($Q_2 - Q_1$) units**	**decrease by ($P_1 - P_3$) dollars**

(B) Decrease by ($Q_2 - Q_1$) units increase by ($P_1 - P_3$) dollars
(C) Decrease by ($Q_3 - Q_1$) units increase by ($P_1 - P_3$) dollars
(D) Decrease by ($Q_3 - Q_1$) units increase by ($P_1 - P_4$) dollars
(E) Increase by ($Q_3 - Q_2$) units decrease by ($P_3 - P_4$) dollars

ANS :- (D) The socially efficient level of output corresponds to the output where price is equal to marginal cost. A complete deregulation of the market would allow the firm to move to the profit-maximizing output and price combination. This type of deregulation decreases output by ($Q_3 - Q_1$) units and increases the price by ($P_1 - P_4$) dollars.

CHAPTER 11

OLIGOPOLY

321. Which of the following would definitely be a characteristic of an oligopoly industry?

(A) A large number of producers each producing a relatively small share of production in an industry
(B) A large number of producers where a few firms produce most of the output in an industry
(C) An industry with no barriers to entry
(D) An industry with differentiated products
(E) An industry where products are fairly standardized

ANS :- (B) Oligopoly industries are characterized by a few large producers who make up the majority share of production in an industry. For example, suppose an industry has 1,000firms. Even though this is a large number of firms, the industry would be considered an oligopoly if two of those firms produced 90% of the goods in the market. Oligopoly industries are also characterized by barriers to entry. This is fairly intuitive: if these industries were easy to enter or easy to compete with on the basis of quantity, we would not see them dominated by a few large producers for very long. Finally, oligopoly markets can have either differentiated or standardized products, so seeing only one or the other doesn't really give us a clue about the market structure of the industry.

322. Which of the following characteristics would we expect to see only in an oligopoly industry?

(A) Advertising
(B) Patents
(C) Copyrights
(D) Interdependent pricing
(E) Barriers to entry

ANS :- (D) In some sense, oligopolies are the vaguest type of industry in terms of their defining characteristics, having some things in common with monopolies and monopolistic competition. Barriers to entry such as patents and copyrights can exist in either monopolies or oligopolies. Since oligopolies and monopolistically competitive firms both can have differentiated products, there is incentive to advertise and further differentiate their goods (to get a higher price). The one true defining characteristic of oligopolies is mutual interdependence of price and quantity.

323. Which of the following characteristics do some oligopolies and all perfectly competitive industries have in common?

(A) Homogeneous products
(B) Heterogeneous products
(C) Barriers to entry
(D) High concentration ratios
(E) A small number of firms

ANS :- (A) Perfectly competitive industries have homogeneous (meaning standardized or identical) products, no barriers to entry, and many firms, each of which have little to no market power. Oligopoly firms are characterized by having either homogeneous or heterogeneous (meaning differentiated) products, so the two types of industries can have the feature of homogeneous products in common. The degree of market power in an industry is sometimes measured in concentration ratios, which determine the degree to which a few industries control the production in the market. Note that an oligopoly would be characterized by a fairly high concentration ratio; a perfectly competitive industry on the other hand would have a concentration ratio at or near zero.

324. As long as costs and product demand are the same for all kinds of industry, the quantity that is produced in an oligopoly market will always be _____ market, and the price will always be _____ market.

(A) Higher than a monopoly, higher than a monopoly
(B) Higher than a monopoly, lower than a perfectly competitive
(C) Higher than a monopoly, higher than a perfectly competitive
(D) The same as a monopoly, higher than a perfectly competitive
(E) Higher than a perfectly competitive, the same as a perfectly competitive

ANS :- (C) Oligopolies can be described as being somewhere in between perfectly competitive markets and monopolies. A perfectly competitive market will always have the lowest price and highest quantity. A monopoly will have the highest price and lowest quantity. Therefore, it is not surprising that oligopoly industries tend to produce more than a monopoly, but also charge a higher price than a perfectly competitive industry would.

325. What is the minimum number of firms required for an industry to be an oligopoly?

(A) 1
(B) 2
(C) 3
(D) 100
(E) Many

ANS :- (B) An oligopoly industry is somewhere between a monopoly and perfect competition. A single-firm industry would be a monopoly, so there would need to be at least two firms in an industry for it to be considered an oligopoly. Such an industry with two firms is sometimes called a duopoly and is frequently used to illustrate many of the findings that we see in oligopoly industries in the simplest way.

326. Which of the following industries best describes an oligopoly?

(A) A college campus with a single cafeteria
(B) A market for tutoring services where hundreds of college students offer tutoring for hundreds of high school students
(C) A market for babysitting where there are four babysitters
(D) A market for labor in a town with a single employer
(E) A market for water and sewage in a city where there is a single official water supplier

ANS :- (C) While there is no strict definition of the number of firms (in this case, babysitters would be the firms) in an industry, whenever there are only few firms, it is very likely that the industry will behave as an oligopoly. A college campus with a single bookstore and a town with a single utility provider both describe monopolies. With its many suppliers and buyers, the market for tutoring would be perfectly competitive. The market for labor in which there are many sellers but only one buyer is a variation on monopoly called a monopsony.

Use table 11.1 for questions 327-328.

Table 11.1:

Firm	Share of the Market
Kerry's Koffee	35%
Monica's Mocha Emporium	25%
Jonathan Javahaus	11%
Coffee Wonderland	6%
The Last Drop	5%
Central Perk	5%
Java The Coffee Hut	3%
The Daily Grind	3%
Wakey Wakey!	3%
Miss Melly's Coffee and Tea	2%
The Koffee Kart	2%

327. Refer to Table 11.1, which describes the market share of coffee shops in Madison. What is the four-firm concentration ratio of this market?

(A) 77%
(B) 10%
(C) 19.25%
(D) -10%
(E) 0%

ANS :- (A) Oligopolies are sometimes determined not by the number of firms in an industry, but by how much of the market share a small number of firms have in a market. That is, even if there are many firms in a market, if a few firms dominate that market, then the industry will act as an oligopoly. One of the ways to measure the degree to which a few firms dominate an industry is to use a concentration ratio, which is simply the sum of the shares of a certain number of the largest firms. In this example, a four-firm concentration ratio would simply be the sum of the shares of the market held by each of the four largest firms, in this case, 35% + 25% + 11% + 6% = 77%, which means these four firms control 77% of the market for coffee in this town. The higher the degree of concentration, the more likely an industry is to behave as an oligopoly.

328. **Refer to Table 11.1, which describes the market share of coffee shops in Madison. What kind of industry in this market likely to be?**

(A) Monopoly
(B) Monopsony
(C) Oligopoly
(D) Oligopsony
(E) Competitive

ANS :- (C) An industry with a concentration ratio over 50% is likely to be an oligopoly. In general, concentration ratios between 50% and 80% are considered to be medium or moderately concentrated and are likely to behave as an oligopoly. Concentration over 80% is considered highly concentrated. Note that a concentration ratio of 100% is actually a single firm controlling the entire market, which would be a monopoly. An oligopsony is a special case of an oligopoly in which there are only a few sellers and only a few buyers.

329. A group of firms that agrees to act as a monopoly is called a _____.

(A) Natural monopoly
(B) Increasing cost industry
(C) Cartel
(D) Perfect competition
(E) Nationalized industry

ANS :- (C) A cartel is a group of firms that agree to set either price or quantity in a market in order to generate an industrywide profit that is identical to what a monopoly would earn. By cooperating and choosing a price, firms can get a higher price than they would if they were competing against each other.

330. Which of the following make it difficult for oligopolies to form cartels in the United States?

I. Antitrust regulation
II. The collusion among firms
III. The self-interest of cartel members

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I and III only

ANS :- (E) Oligopoly firms would like to be able to form cartels and earn monopoly profits. Unfortunately, several factors make it unlikely for firms to be able to successfully collude. First, collusion (such as price fixing) is illegal in the United States through a variety of antitrust legislation, such as the Sherman Antitrust Act. Second, even if collusion were legal, once firms have agreed on a fixed price or quantity, they have incentives to "cheat" because doing so would be in their best interest. Firms that can secretly cheat on such agreements hope to increase profits even more than they would had they followed the agreement.

331. Which of the features of an oligopoly market most directly creates the potential fore long-run profits?

(A) Cartels
(B) Barriers to entry
(C) Collusion
(D) Homogeneous products
(E) Interdependent products

ANS :- (B) The potential for long-run profits exist only for two kinds of industries: monopolies and oligopolies. For both, it is the existence of barriers to entry that create the potential for long-run profits. In the other types of industries, long-run profits become zero because anytime firms in an industry experience profits, more firm will enter and drive the profits down for the existing firms.

332. In the market for sushi in a small town, there are three sushi restaurants. When Dan's Sushi Palace sets its prices, its rivals Heather's Sushirama and Sarah's Sushi Parlor follow suit. This practice is called

(A) Extortion
(B) Price discrimination
(C) Overt collusion
(D) Price leadership
(E) Stabilization pricing

ANS :- (D) Price leadership, where one firm first sets its price and other firms follow that firm's lead, is a form of tacit price collusion. In such a case, firms are essentially agreeing to not compete on the basis of price. While explicit pricing agreements are illegal in the United States, price leadership is not uncommon.

333. One of the defining characteristics of oligopoly markets is the conflict between _____ and _____ in the industry.

(A) The number of firms; antitrust regulation
(B) Self-interest; cooperation
(C) Antitrust regulation; tax policy
(D) Choosing price; choosing quantity

ANS :- (B) There is an inherent tension in oligopolies between a firm's self-interest and the potential benefit of cooperating. If firms are able to cooperate, they could act as a monopoly and earn higher profits. However, once an agreement is made between firms, an oligopolist is frequently better off by breaking that agreement, which leads to the agreement ultimately breaking down. This is one of the reasons that even if there are no regulations against collusion, cartels have the tendency to break down.

334. The market for Gloomps is characterized by the demand curve Q = 20 – 2P, where Q is the market quantity and P is the market price. If the market for Gloomps is a duopoly, and one firm decides to produce 5 Gloomps and the other firm decides to produce 3 Gloomps, what will be the market price for Gloomps?

(A) $20
(B) $12
(C) $16
(D) $12
(E) **$6**

ANS :- (E) This question illustrates the interdependence of price in an oligopoly using the simplest kind of oligopoly, a duopoly (i.e., an oligopoly comprising two firms). The market price of Gloomps will depend on the number of Gloomps that are being sold in the market. If one firm produces 5 and the other firm produces 3, the market quantity, Q, is 8. Plugging Q = 8 into the market demand curve yields 8 = 20 – 2P. Solving for P yields P = $6.

335. The market for Gloomps is characterized by the demand curve Q = 20 – 2P, where Q is the market quantity and P is the market price. Gloomps can be produced at zero cost. If the market for Gloomps is a duopoly and the two firms are able to collude, which of the following quantites would be best for them to collectively choose?

(A) 50
(B) 20
(C) 10
(D) 5
(E) 8

ANS :- (C) This is an example of what is called a Cournot (or Cournot-Nash) duopoly, in which there are two firms that can produce a good at zero cost. If firms can collude, they then simply need to choose the market quantity that will give them the most revenue (firms are profit maximizers, but profit = TR – TC, since TC = 0, this means Profit = TR). To find profit, multiply the quantity that the cartel chooses by the price that the cartel will get for that quantity. If the cartel produces Q = 20, then 20 = 20 – 2P yields a price of zero, and the firm gets zero profits. If the duopoly produces 5 units, Q = 5 and 5 = 20 – 2P yields a price of $7.50, and a total revenue of $37.50. If you work through all of the possible combinations of P and Q in this market, a market quantity of 10, which yields a price of $5, yields the highest profit. (Hint : Construct a table with three columns: Q, P, and profit. Calculate the value of P and profit for each quantity, starting with 0, then 1, then 2, until you get to Q = 20. Then look for the line where profit is the highest.)

Use Table 11.2 for questions 336—337.

Q	P	Profit
0	$24	$0
1	$21	$21
2	$18	$36
3	$15	$45
4	$12	$48
5	$9	$45
6	$6	$36
7	$3	$21
8	$0	$0

336. Refer to Table 11.2, which gives the market demand for Purpletts, a good with no cost of production. If this market is a duopoly and firms are able to collude, what price will they choose?
(A) $24
(B) $12
(C) $4
(D) $8
(E) $0

ANS :- (B) This is an example of what is called a Bertrand duopoly. It is similar to a Cournot duopoly, but here firms choose a price that they want to get in the market and then produce the amount that gets them that price. At a price of $12 the industry profit is $48, which is the highest profit that the industry can get, and the two firms will produce a total of 4 units of the good.

337. Refer to Table 11.2, which gives the market demand for Purpletts, a good with no cost of production. Suppose the two firms in this duopoly market have agreed to set the market quantity at the cartel price and split the quantity sold equally between the two firms. One of the firms is considering breaking the agreement and increasing its production by 1 unit. What is the quantity that this firm is considering producing, their profit if they break the agreement, and their profit if they keep to the agreement instead?

Quantity the Firm is considering Producing	Profit if they Violate the Agreement Between Firms	Profit if they do not Violate the Agreement between Firms
(A) 4	48	24
(B) 2	27	24
(C) 3	24	27
(D) 3	27	24
(E) 2	24	27

ANS :- (D) If the two firms are able to agree upon a price and quantity, they will set these at Q = 4 and P = $12 because this combination gives the industry the highest profits (industry profit = $48). If they split this equally between the two, each firm produces 2 units, which they each sell at a price of $12, which yields each firm a profit of $24. If one firm decides to increase their production by 1 unit, while the other firm remains at the agreed-upon quantity, the cheating firm will produce 3 units, the market quantity will be Q = 5, and each producer will get a price of $9. The cheating firm will get a profit of 3 × $9 = $27, and the firm that kept the agreement will make a profit of $18. This is why cartels tend to fall apart: unless the firms can enforce this agreement, they each have incentive to cheat.

338. Despite the existence of antitrust regulation, price or quantity setting may still happen through _____.

(A) Price taking
(B) Monopoly pricing
(C) Price discrimination
(D) Overt collusion
(E) Tacit collusion

ANS :- (E) Tacit collusion can occur when regulation makes it illegal to make explicit agreement to set price or output. When firms engage in pricing strategies such as price wars, this may end up being very damaging to all of the firms involved. Instead, they may engage in actions such as price leadership to keep a price war from occurring.

339. Which of the following best describes the reason why game theory is useful for analyzing oligopoly behavior?

(A) In an oligopoly, firms act strategically to increase their market share at the expense of their competitors' market share.
(B) Firms view the ability to beat their rivals as a game to be played and won, regardless of the profit that they have at the end of the game.
(C) A market with only two suppliers cannot be demonstrated with a traditional supply and demand model.
(D) Oligopolies have no costs to produce their goods, so there is never a supply curve for an oligopoly.
(E) Game theory does not account for the strategies of other firms, so it omits information that is not necessary to analyze oligopoly behavior.

ANS :- (A) Game theory is a method of analyzing situations where strategic behavior occurs. In an oligopoly, a firm's profit will depend not just on its actions, but also on the actions of all other firms in a market. Therefore, oligopoly markets are ideally suited for analysis using game theory, as unlike the other types of industries, firms must behave strategically.

340. Which of the following best describes a dominant strategy?

(A) A strategy that is a best response to another player choosing their best response
(B) A strategy that is the best strategy to play, regardless of another player's strategy
(C) A strategy that is never a good strategy to choose, regardless of another player's strategy
(D) A payoff matrix
(E) A strategy that will never be chosen

ANS :- (B) The term $dominant\ strategy$ refers to a strategy that a player should always play because it is always the best response to any strategy that the other player may do. If a strategy dominates other strategies, it means that the player will always get a better payoff playing the dominant strategy than he would get by playing any other strategies, regardless of what the other player or players do. A "best response", on the other hand, is a strategy that is the best choice to make, given a particular action taken by the other player or players.

341. Another term for a Nash equilibrium is a

(A) Dominant strategy
(B) Dominated strategy
(C) Cooperative equilibrium
(D) Noncooperative equilibrium
(E) Strategy

ANS :- (D) A Nash equilibrium is an outcome in which a player is playing his or her best response to another player's best response. It is a noncooperative outcome in the sense that this is the outcome we would expect to see if there is no cooperation between players. Each player takes an action that is in his or her best interest, given that all of the other players are also doing what is in their best interest as well, and do not take into account the effect of their actions on each other.

Use TABLE 11.3 for questions 342----343.

Table 11.3

Pricing strategies and Associated Profits for Two Taco Shops

		The Taco Bus	
		Low Price	High Price
The Fajita Wagon	Low Price	Taco Bus: $1,000	Taco Bus: $500
		Fajita Wagon: $1,000	Fajita Wagon: $6,000
	High Price	Taco Bus: $6,000	Taco Bus: $4,000
		Fajita Wagon: $500	Fajita Wagon: $4,000

342. Refer to Table 11.3, which describes the payoffs to different pricing strategies for a duopoly. Which best describes the best strategy choices for the Fajita Wagon?

(A) The Fajita Wagon should charge low prices only if the Taco Bus charges high prices.
(B) The Fajita Wagon does not have a good way to respond to the Taco Bus choosing a high price.
(C) The Fajita Wagon should charge low prices only if the Taco Bus charges low prices.

(D) The Fajita Wagon should charge high prices only if the Taco Bus charges low prices.

(E) The Fajita Wagon should charge low prices whether or not the Taco Bus charges high prices.

ANS :- (E) Table 11.3 shows a payoff matrix for a two-firm taco industry. The Fajita Wagon's best choices will depend on what the other firm does, and for this reason they are called "best responses". If the Taco Bus chooses a low-price strategy, the Fajita Wagon will be better off if they also choose a low price. So the Fajita Wagon's best response to Taco Bus playing the low-price strategy is to play the low-price strategy. If the Taco Bus chooses a high price, the Fajita Wagon is best play off if they play the low-price strategy, so the Fajita Wagon's best response to the other firm choosing a high price is to choose a low price.

343. Refer to Table 11.3, which describes the payoffs to different pricing strategies for a duopoly. What set of strategies would be the Nash equilibrium for this game?

(A) The Fajita Wagon earns $1,000 profit, and the Taco Bus earns $1,000 profit.

(B) The Fajita Wagon earns $4,000 profit, and the Taco Bus earns $4,000 profit.

(C) There is no Nash equilibrium in this game.

(D) The Fajita Wagon adopts a high price, and the Taco Bus adopts a high price.

(E) The Fajita Wagon adopts a low price, and the Taco Bus adopts a low price.

ANS :- (E) A Nash equilibrium occurs when all players are playing best responses to other players also playing best responses. Note that a Nash equilibrium is expressed as a combination of strategies and not the payoffs to those strategies. In this case, if Taco Bus plays the low-price strategy, Fajita Wagon's best response to that is to play the low-price strategy, and the best response for the Taco Bus to play if Fajita Wagon is choosing "low price" is also to play "low price".

Use Table 11.4 for questions 344----347.

Table 11.4

A set of Firm Strategies and Payoffs (Firm1, Firm 2)

		Firm's 2's Choices	
		A	B
Firm's 1's Choices	X	($15, $10)	($20, $18)
	Y	($13, $20)	($14, $15)

344. Refer to Table 11.4, which describes the payoffs to different strategies for a duopoly. Why is the Nash equilibrium of this game likely to be what we see in the real world?

(A) Firms do not have an incentive to alter their strategies from this set of strategies.

(B) Firms wish to see the other firm do as badly as possible.

(C) Firms seek to maximize industry profits.

(D) Firms are prevented by law from colluding.

(E) Firms are unable to change their strategies.

ANS :- (A) The reason that a Nash equilibrium is an equilibrium is that firms are doing the best they can in terms of maximizing their profit, given that other firms are also doing the best they can. Additionally, it is an equilibrium in the sense that once firms are playing these strategies, they have no incentive to alter their strategy. For instance, if Firm 1 were to suddenly change their strategy to Y, their profit would go sown; so Firm 1 has no incentive to alter

their strategy. Likewise, if Firm 2 changed their strategy to A, their profit would go down, so it would not make any sense for Firm 2 to change their strategy.

345. **Refer to Table 11.4, which best describes the set of strategies and their associated payoffs for two firms. Which of the following describes the non-cooperative equilibrium for this game**?

Firm 1's Strategy	Firm 2's Strategy	Firm 1's payoff	Firm 2's payoff
(A) A	B	$15	$20
(B) X	A	$10	$15
(C) X	B	$20	$18
(D) X	A	$15	$10
(E) X	B	$13	$20

ANS :- (C) A noncooperative equilibrium is another way of saying a Nash equilibrium. To find the noncooperative equilibrium, we find the equilibrium that we would expect to see if firms were unable to coordinate their actions. The Nash equilibrium in this situation is when Firm 1 plays the strategy X and Firm 2 plays the strategy B. Payoffs to a particular combination of strategies are read from the table as payoff to the player on the left, payoff to the player on the top.

346. Refer to Table 11.4, which describes the set of strategies and their associated payoffs for two firms. Which of the following describes why the strategies {A, Y} are unlikely to be played?

(A) If firm 2 plays strategy A, Firm 1's best response is to play strategy X.
(B) If Firm 1 plays strategy A, Firm 2's best response is to play strategy X.
(C) If Firm 1 plays strategy Y, Firm 2's best response is to play strategy B.
(D) If Firm 2 plays strategy A, Firm 1's best response is to play strategy Y.
(E) If Firm 2 plays strategy A, Firm 1 does not have a good response to this strategy.

ANS :- (A) The set of strategies {A, Y} are unlikely to be played, because at least one player can make herself better off by altering her strategies if that is played. If the set of strategies {A, Y} is played, then firm 1 has a payoff of $13 and Firm 2 has a payoff of $20. However, if Firm 1 knows that Firm 2 is going to play the strategy A, they could increase their payoff from $13 to $15 by changing their strategy to X.

347. Refer to Table 11.4, which describes the set of strategies and their associated payoffs for two firms. Which of the following describes each firm's dominant strategy?

(A) Neither firm has a dominant strategy.
(B) Firm 1's dominant strategy is X, and Firm 2 does not have a dominant strategy.
(C) Firm 1's dominant strategy is A, and Firm 2 does not have a dominant strategy.
(D) Firm 2's dominant strategy is B, and Firm 1's dominant strategy is X.
(E) Firm 2's dominant strategy is B, and Firm 1's dominant strategy is Y.

ANS :- (B) A dominant strategy is a strategy that one player always plays regardless what the other player does, because that one strategy ia always the best response to anything the other player does. Whether Firm 2 plays A or B, Firm 1's best response is always to play the strategy X. Therefore, Firm 1 has a dominant strategy of X (and a dominated strategy of Y, since they would never play Y). Firm 2, on the other hand, does not have a dominant strategy. If Firm 1 plays the strategy X, Firm 2 is best off if they play the strategy B. However, if Firm 1 plays the strategy Y, Firm 2 is better off if they play the strategy A.

Use Table 11.5 for questions 348----350.

Table 11.5

A prisoner's Dilemma

		Scott	
		Confess	**Don't Confess**
Ian	**confess**	**Scott :- 10** **Ian :- 10**	**Scott :- 20** **Ian:- 0**
	Don't confess	**Scott :- 0** **Ian:- 20**	**Scott:- 2** **Ian :- 2**

348. Refer to Table 11.5, which describes the payoffs for two people who have been accused of a crime and the payoffs, in the form of years in prison (a negative value refers to more time in prison), to confessing or not confessing. Which of the following describes Scott's dominant strategy?

(A) Scott does not have a dominant strategy.
(B) Scott's dominant strategy is to confess only if Ian does not confess.
(C) Scott's dominant strategy is to not confess only if Ian confesses.
(D) Scott's dominant strategy is to confess.
(E) Scott's dominant strategy is to not confess.

ANS :- (D) Scott's dominant strategy is to confess. Note that this is a dominant strategy because it is the best strategy to choose for any of Ian's possible choices. It would not be correct that a dominant strategy only in certain situations. That would, by definition, make it not a dominant strategy because a dominant strategy is a strategy that is always the best strategy to play.

349. Refer to Table 11.5, which describes the payoffs for two people who have been accused of a crime and the payoffs, in the form of years in prison (a negative value refers to more time in prison), to confessing or not confessing. What would be a Nash equilibrium in this situation?

(A) There is no Nash equilibrium.
(B) (confess, don't confess)
(C) (confess, confess)
(D) (don't confess, confess)
(E) (don't confess, don't confess)

ANS :- (C) This is a classic game known as the prisoner's dilemma. In this situation, the Nash equilibrium is (confess, confess) because it is a noncooperative outcome. The players would actually be better off if they could somehow cooperate and choose the strategies (don't confess, don't confess) because in that situation they each spend only two years in prison. Unfortunately, if they do play that set of strategies, both players immediately have an incentive to change their strategies, since if one player doesn't confess, the other player is better off by confessing. As a result, they both end up with a less than optimal outcome.

350. Refer to Table 11.5, which describes the payoffs for two people who have been accused of a crime and the payoffs, in the form of years in prison (a negative value refers to more time in prison), to confessing or not confessing. What is the combination of strategies that would provide the highest payoff for this game?

(A) There is no optimal set of strategies.
(B) (confess, don't confess)

(C) (confess, confess)
(D) (don't confess, confess)
(E) (don't confess, don't confess)

ANS : - (E) The optimal set of strategies is the strategies that make players the best off possible without regard to strategy. In this situation, the optimal outcome is that each player spends only two years in prison. Note that this would be difficult to achieve, however, if both players are acting in their own interest.

351. In a small town there are two pizza restaurants. If neither restaurant advertises, its revenue will not change. If only one firm advertises, the firm that advertises will double its revenue and the firm that doesn't advertise will see a decrease in its revenue, but if both firms advertise, their revenue will not change. What outcome would be predicted by game theory in this market?
(A) Both restaurants will advertise.
(B) One restaurant will advertise.
(C) Neither restaurant will advertise.
(D) Game theory is only a theory and cannot predict real-world events.
(E) Game theory would predict that sometimes one restaurant would advertise, and the rest of the time both will advertise.

ANS :- (A) The outcome that would be predicted in this market is a Nash equilibrium outcome, because both firms act in their own self-interest, knowing that the other firm is also doing the same. If you set up a table that shows the strategies as well as the payoffs to the strategies each player can make, given what the other player chooses, you will find that both firms will advertise, and any attempt to change from that set of strategies will make the firm that alters its strategy worse off.

352. The primary goal of antitrust policy is to ensure that
(A) Consumers can trust the safety and quality of products
(B) Perfectly competitive industries do not behave like oligopolies
(C) Oligopolies do not behave like monopolies
(D) Firms in an industry can act as a cartel to raise prices
(E) Workers can engage in collective bargaining with firms for higher wages

ANS :- (C) Antitrust policies are designed to foster competitive markets and to deter the behaviors and anticompetitive outcomes of monopoly power. It is important to understand that antitrust laws do not forbid the growth of firms into very large and very profitable enterprises. They are in place to prevent business practices that can serve to manipulate markets, unfairly exploit consumers, or oppress competitors and suppliers.

353. Which of the following regulations was designed to prevent collusive and anticompetitive practices by firms?
(A) The Herfindahl-Hirschman Act of 1949
(B) The Equal Pay Act of 1963
(C) The Marketing Act of 1914
(D) The Fair Trade Act of 1976
(E) The Sherman Antitrust Act of 1890

ANS :- (E) The Sherman Antitrust Act was really the landmark piece of legislation to attempt to curb some of the corporate abuses seen in the nineteenth century. At the time, prevailing opinion was that large firms were fixing

prices and raising them to artificially high levels that could only be maintained through collusive cartel-like behavior. While more than 100 years old, the Sherman Act is still one of the foundations of antitrust laws today.

354. Which of the following characteristics of oligopoly markets makes it easier for firms to engage in price collusion?

(A) Dissimilar marginal costs across firms
(B) The absence of barriers to entry
(C) The presence of both large and small firms
(D) A small number of firms
(E) Vigilant enforcement of antitrust laws

ANS :- (D) If firms wish to form an illegal cartel to reduce output, raise prices, and earn monopoly profits, they must first come to an agreement on how best to accomplish this outcome. It is much easier to come to a collusive price-fixing agreement if the number of firms is small, they are of similar size, and they have similar cost structures. The more diverse the firms in the cartel, the more difficult it will be to form an agreement that suits all firms. If the agreement favors some firms over others, it is more likely to come undone.

CHAPTER 12

MONOPOLISTIC COMPETITION

355. Which of the following best reflects the profit maximization choice for a monopolistically competitive firm?

(A) P = MC = MR
(B) P < MR = MC
(C) P > MC = MR
(D) P < MR < MC
(E) P > MR > MC

ANS :- (C) Like other industries, the profit-maximizing choice of quantity for a firm in a monopolistically competitive industry is where the marginal revenue of that quantity is equal to the marginal cost of that quantity (MR = MC). However, a firm in a monopolistically competitive industry will have some control over the price it can charge as it faces a downward-sloping demand curve. Therefore, they will then go up to demand curve to find the price that consumers are willing and able to pay for that quantity.

356. Which of the following is the primary way that monopolistically competitive industries differ from perfectly competitive industries?

(A) Perfectly competitive firms have no barriers to entry, but there are barriers to entry in monopolistic competition.
(B) Perfectly competitive firms have identical products, but firms produce products in monopolistic competition that are more diverse.
(C) Perfectly competitive firms exhibit long-run profits, but monopolistically competitive firms do not have profits in the long run.
(D) Perfectly competitive industries have many firms, whereas monopolistically competitive firms are characterized by a small number of firms selling the majority of products in a market.
(E) Perfectly competitive industries have control over the price that they can charge consumers, whereas monopolistically competitive firms cannot individually influence price.

ANS :- (B) Monopolistically competitive industries are similar to perfectly competitive industries in several ways, including having a large number of firms and no barriers to entry. The key way in which they differ, however, is that firms in monopolistically competitive industries sell products that are slightly different from each other, and as a result each firm has some control over price.

357. The monopolistic aspect of monopolistic competition refers to the fact that

(A) There are legal barriers to producing a good that could compete with firms already in the market
(B) Like monopolies, firms in these industries earn positive long-run economic profits
(C) Firms in a monopolistically competitive industry choose MR = MC as their profit maximizing choice of quantity, just as monopolies do
(D) Like monopolists, monopolistically competitive firms have incentive to advertise
(E) Firms in a monopolistically competitive industry have, in a sense, a monopoly over their own good, which is slightly different from other goods in the market

ANS :- (E) Monopolistically competitive firms in essence have a monopoly over their own good, but they are competitive in the sense that there are a large number of other firms selling similar products. For instance, in the market for potato chips, one firm may have a distinctive kind of potato chip and be the only ones selling that distinctive chip, but there are many other firms also selling their own style of potato chips. At first glance, C may appear to be correct because monopolistically competitive firms do in fact choose the quantity where MR = MC. However, since firms in all four of the industries do this, it does not make them distinctively monopoly-like in nature.

358. The monopolistically competitive industry is most similar to _____ in the number of firms and _____ in their ability to set price.

(A) Monopoly, oligopoly
(B) Oligopoly, perfect competition
(C) Oligopoly, monopoly
(D) Monopoly, perfect competition
(E) Perfect competition, monopoly

ANS :- (E) Monopolistically competitive industries are characterized by (i) a large number of firms with a small share of the market (similar to perfect competition), (ii) each producing a slightly differentiated product (like a monopoly, since they have a "monopoly" over their own distinct good), and (iii) having low barriers to entry (similar to perfect competition).

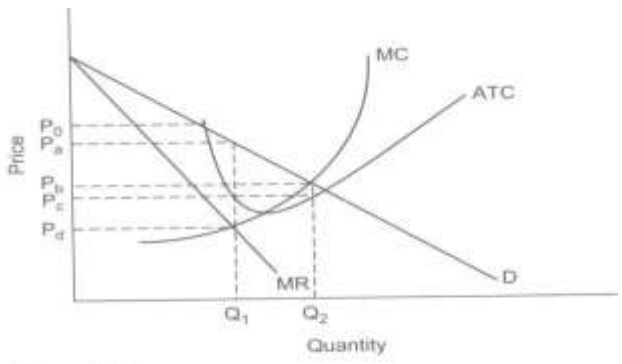


Figure 12.1

359. Refer to Table 12.1. The monopolistically competitive firm facing the demand and cost curves in the graph would choose a quantity of _____ and a price of _____.

(A) Q_1, whatever was determined in the market
(B) Q_1, P_a
(C) Q_1, P_b
(D) Q_2, whatever was determined in the market
(E) Q_2, P_b

ANS :- (B) The monopolistically competitive firm has the same profit-maximizing rule as in other types of industries: the profit-maximizing choice of quantity will be the point at which the marginal cost curve intersects the marginal revenue curve. This intersection occurs at the quantity of Q_1. However, the firm then chooses to set a price on the demand curve by finding the price (in the graph, it is P_a) on the demand curve that corresponds to that quantity.

360. Refer to Table 12.1. The marginal cost of the profit-maximizing choice of quantity is

(A) P_a
(B) P_b
(C) P_c
(D) P_d
(E) P_0

ANS :- (D) The output Q_1 represents the profit-maximizing choice of quantity for this firm. To find the marginal cost of Q_1 units, we find the point on the marginal cost curve associated with this quantity, which is P_d (also the point where MR = MC). Note, however, that the price that this firm will charge for Q_1 units is P_a, so in this situation $P_a > P_d$, which means that the price exceeds the marginal cost for this quantity.

361. Refer to Figure 12.1. The short-run profits that a monopolistically competitive firm would earn are represented by the area

(A) $P_bP_dQ_1$
(B) $(P_a—P_c)\ Q_1$
(C) $P_bP_cQ_1$
(D) $(P_b—P_c)Q_2$
(E) $0P_dQ_1$

ANS :- (B) The area is a rectangle represented by the difference between the price of the good (P_a), the cost per unit of producing the good that can be found on the ATC curve (P_c), and the quantity that is sold in the market (Q_1). Students frequently (and mistakenly) use the point on the marginal cost curve to calculate the cost. However, the marginal cost tells you only what it cost to make the last unit of production (in other words, what it cost to produce the Q_1th unit) but not what the typical cost per unit is.

362. Refer to Figure 12.1. Which of the following could potentially be the long-run price for this firm?

I. P_a
II. P_b
III. P_c

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) II and III only

ANS :- (D) In the long run, monopolistically competitive firms earn zero economic profit, so the price will be at a point just tangent to the average total cost (ATC) curve. Since this firm is currently earning positive profits in the short run (at price P_a), the price must eventually fall below this short-run price. Price P_d is below the ATC curve and would never be a long-run price. Note that this also implies that even in the long run, the price that the firm charges will be higher than marginal cost.

363. Refer to Figure 12.1. Which of the following best describes how other firms entering this industry would alter this graph?

(A) The ATC curve would shift down.
(B) The ATC curve would shift left.
(C) The demand and marginal revenue curves would shift to the left.
(D) The MC curve would become downward sloping.
(E) The MC curve would shift to a new point along the demand curve.

ANS :- (C) In a monopolistically competitive industry, if firms are earning economic profits, as the firm in Figure 12.1 is, the other firms will enter the industry as well. This effectively reduces the size of the market for this market for this firm, so the demand curve for their product (along with the marginal revenue curve) will decrease. This will continue until the firm is earning zero economic profits.

364. Refer to Figure 12.1. Which of the following types of industries could this graph represent?

(A) Monopoly in the short run, but not the long run
(B) Monopolistic competition in the short run, but not the long run
(C) Perfect competition in the short run, but not the long run
(D) Monopoly in the long run, but not the short run
(E) Monopolistic competition in the long run, but not the short run

ANS :- (B) The firm shown in Figure 12.1 is making positive economic profits because the price that the good is being sold at is greater than the average total cost of the quantity being sold. It could not be a monopolistically competitive firm in the long run. The monopoly graph is identical in the long run and in the short run, so neither A nor D is correct. Since the graph has a downward-sloping demand for the firm's good, it cannot be a perfectly competitive in the short run or the long run.

365. Which of these industries has incentive to advertise?

I. Public goods
II. Perfect competition
III. Monopolistically competition

(A) I only
(B) II only
(C) III only
(D) I and III only
(E) I, II, and III

ANS :- (C) Of these types of firms, only the monopolistically competitive industry has incentive to advertise. While not a choice, whether or not a monopoly has an incentive to advertise is debatable. On the one hand, the monopolist is the only firm in its industry, so it doesn't need to persuade customers to buy their good versus another firm's good. On the other hand, advertising would shift the monopoly demand curve to the right, increasing profits without sparking entry of new firms. A perfectly competitive industry doesn't have any incentive

to advertise either: it can already sell whatever quantity it desires at the market price and cannot control price, so the only effect advertising would have is to increase their costs.

366. Which describes the price and quantity that a profit-maximizing monopolistically competitive firm will choose in the long run?

(A) Produce the quantity where MC = MR, and set P = ATC.
(B) Produce the quantity where MC = MR, and set P < ATC.
(C) Produce the quantity where MC < MR, and set P = minimum ATC.
(D) Produce the quantity where MC > MR, and set P = minimum ATC.
(E) Produce the quantity where MC = MR, and set P = minimum ATC.

ANS :- (A) The profit-maximizing rule says that a firm will always choose the quantity where MC = MR. In the long run, however, the monopolistically competitive firm will face a smaller and smaller market (due to entry of new firms) for their good until the demand curve is just tangent to the ATC. This means that when they find the Q where MC = MR and then go up to the demand curve to set the price, they will be setting the price where P = ATC.

367. Which of the following is a kind of positive externality associated with monopolistically competitive industries?

(A) The Cobb-Douglas externality
(B) The business stealing externality
(C) The Lagrange externality
(D) The product variety externality
(E) The advertising externality

ANS :- (D) People enjoy variety, and even if this is not an explicit goal of buyers or sellers in a monopolistically competitive industry, it is a side effect of each producer selling a slightly differentiated good. For instance, consider the market for potato chips. In a perfectly competitive industry, there is only one style and one flavor of potato chips. Similarly, in a monopoly, there is also only one style or flavor. However, suppose someone wants to enter the potato chip market and it is monopolistically competitive. For a firm to take business away from the existing firms, they will need to introduce something new and different, and since consumers like variety, they get a positive benefit of another firm entering by virtue of another choice.

368. Which of the following is a kind of negative externality associated with monopolistically competitive industries?

(A) The Cobb-Douglas externality
(B) The business stealing externality
(C) The Lagrange externality
(D) The product variety externality
(E) The advertising externality

ANS :- (B) Unfortunately, when another firm enters a monopolistically competitive market, all the firms already in the market suffer. Consider, for instance, the market for apartments in a university town where there is a fixed pool of potential tenants of 10,000 students. If there are 200 apartment complexes, then the students are split among these 200 firms. However, if the 201st firms open, the pool of 10,000 students will be divided by 201 firms. Because another firm has entered, all existing firms are made worse off even if they haven't changed.

369. Which of the following is the best explanation for why monopolistically competitive firms advertise?

(A) Advertising ensures that they will have positive long-run profits.
(B) Advertising makes sure that they produce at the lowest possible cost per unit.
(C) If a monopolistically competitive firm advertises, a firm is able to earn a higher profit by further differentiating their good from others.
(D) Advertising allows a monopolistically competitive firm to produce at a point where price is lower than average variable cost.
(E) If a monopolistically competitive firm advertises, their marginal revenue curve will become a horizontal line.

ANS :- (C) A monopolistically competitive firm engages in advertising to differentiate their products, which may slow down the entry of new firms in the market. However, advertising does not erect barriers to entry, so the industry will eventually return to break-even profits. The firm is able to slow down or reverse the loss of market share to new firms, but ultimately it cannot stop other firms from entering.

370. Which of the following characteristics of a monopolistically competitive industry make it the most likely to advertise?

(A) P > MC and P = MR
(B) P > MC and barriers to entry
(C) P = MC and barriers to entry
(D) P > MC and no barriers to entry
(E) P < MC and P = MR

ANS :- (D) If P > MC, the firm must have some control over the price of their product. This occurs with monopolies and monopolistically competitive industries. For a perfectly competitive firm, it is true that P = MC = MR, and the firm can sell whatever quantity it wants and cannot reduce output to raise revenue. A monopoly has P > MC, but they have a small incentive to advertise because it is impossible for firms to enter the market and take away the market share. The only firm with a strong incentive to advertise would therefore be the one who had control over their price (P > MC) and had the potential to lose market share to competitors (no barriers to entry).

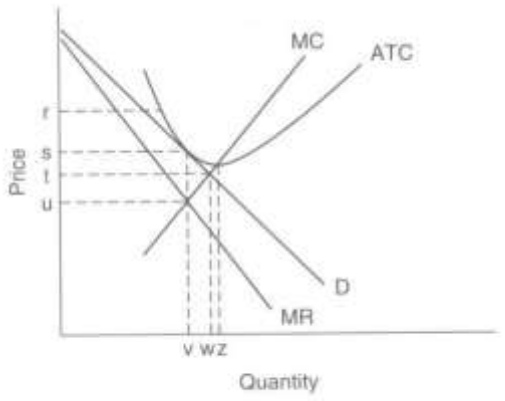


Figure 12.2

371. Refer to Figure 12.2. Which of the four types of industries could this represent?

(A) A perfectly competitive firm in the long run
(B) A monopolistically competitive firm in the long run

(C) A monopolistically competitive firm in the short run
(D) A perfectly price-discriminating monopolist in the short run
(E) A perfectly price-discriminating oligopolist in the long run

ANS :- (B) In the long run, as firms enter a monopolistically competitive industry with short-run profits, the demand curve that each firm faces shifts to the left. It will continue to shift to the left as more firms enter until the demand curve is just tangent to the average total cost curve. If the industry is experiencing short-run losses, firms will exit. The demand curve for each existing firm shifts to the right until demand is tangent to average total cost. In either case, in the long run the monopolistically competitive firm is producing at the point where MR = MC, and that they charge for the good is P = ATC; the firm is not making any profit.

372. Refer to Figure 12.2. Which of the following is true of this firm in the long run?
(A) P = r, ATC = s, MC = t
(B) P = u, ATC = s, MC = u
(C) P = s, ATC = t, MC = t
(D) P = s, ATC = t, MC = s
(E) P = s, ATC = s, MC = u

ANS :- (E) This graph represents a monopolistically competitive firm in the long run. We can determine this because the demand curve is just tangent with the average total cost curve at the point where MR = MC. At the quantity where MR = MR, the marginal cost of that quantity is u, the cost per unit (ATC) of that quantity is s, and the price that is charged for that quantity is also s. Since (P – ATC) = (s – s) = 0, the profit for each of the units produces is zero.

373. Refer to FIGURE 12.2. Which of the following is true of the long-run outcome for a monopolistically competitive industry?
I. The long-run profit-maximizing quantity is not the quantity that minimizes the cost per unit of production.
II. The long-run profit-maximizing quantity will be a quantity that reduces the amount of deadweight loss that occurs compared to a monopoly.
III. The long-run profit-maximizing quantity will be at a point where P < ATC and P > MC.
(A) I only
(B) II only
(C) III only
(D) I and II only
(E) II and III only

ANS :- (D) Firms in monopolistically competitive industries produce a quantity where P > MC because they have some control over price. This price is also equal to average total cost (P = ATC) because the demand for the firm's good will adjust until the firm is earning zero profits in the long run. The quantity that the firm chooses will be smaller than the quantity that minimizes the cost per unit of production. Because the firm charges P > MC, there is deadweight loss; however, because the firm has less control over price than a monopolist does, the firm would have less deadweight loss than a monopolist.

374. Refer to Figure 12.2. How much excess capacity does this firm have?
(A) z — v
(B) z — w
(C) v — z

(D) w — z

(E) v — z

ANS :- (A) Excess capacity is the additional quantity that could be produced if a firm is not using all of its resources in a cost-effective way, achieving productive efficiency. If the firm increased its production from v to z units, it would be producing a productively efficient quantity because this is where average total cost is minimized. In this graph, the productively efficient quantity is z, and the quantity that the firm will choose to produce will be v. Therefore, the difference between these, z – v, is the excess capacity.

375. Refer to Figure 12.2. Which of the following areas represents deadweight loss?

(A) (s – u) × v

(B) u × v

(C) $^{1}/_{2}$(t – u) × (w – v)

(D) (t – u) × (w – v)

(E) $^{1}/_{2}$(s – u) × (w – v)

ANS :- (E) Deadweight loss occurs when a firm does not produce a quantity where the demand curve intersects the marginal cost curve. The marginal cost and demand curves intersect each other at quantity w, but since MR = MC at v units, this is the amount that the firm produces. Deadweight loss occurs when the firm charges a price where P > MC. Here, the firm will charge a price of s for v units, but the marginal cost of v units is only u. This deadweight loss is the area of a triangle with a height of (s – u) and a width of (w – v) units.

376. Which of the following correctly completes the statement about monopolistically competitive industries?
Monopolistically competitive industries _____.

(A) Are neither allocatively efficient nor productively efficient in the long run

(B) Have deadweight loss in the long run but not the short run

(C) Have deadweight loss in the short run but not the long run

(D) Have long-run productive efficiency but not short-run productive efficiency

(E) Have no excess capacity in the long run, but do in the short run

ANS :- (A) Allocatively efficiency refers to a situation in which there is no deadweight loss. This only occurs when a firm charges a price equal to the marginal cost of production (P = MC). Productive efficiency occurs when a firm produces the quantity that minimizes the cots per unit of production (i.e., at the lowest point on the ATC curve). A monopolistically competitive industry is neither productively efficient nor allocatively efficient in the long run or the short run.

377. Excess capacity always occurs when a firm

(A) Makes an economic profit

(B) Makes break-even profits

(C) Produces a quantity below the quantity that minimizes the ATC curve

(D) Produces a quantity above the quantity that minimizes the ATC curve

(E) Has no barriers to entry, flooding the market with firms

ANS :- (C) The definition of excess capacity is producing an output less than the output that would minimize average total cost. What this means is that the firm is underutilizing its plant or equipment and is producing a less than optimal output. If a firm has excess capacity, it would lower its cost per unit if it increased its capacity.

378. Which of the following characteristics of a monopolistically competitive firm causes it to make no economic profits in the long run?

(A) Slightly differentiated products
(B) Large number of firms
(C) No barriers to entry
(D) The ability to price discriminate
(E) A large number of buyers

ANS :- (C) The absence of barriers to entry is what drives a monopolistically competitive firm's long-run profits to zero. Suppose that firms are earning positive profits in the short run. When a new firm enters the market, even if the new product offered by the new firm is slightly different from the incumbent firm, the new firm will "steal" some of the market share from the incumbent firm. This will cause the demand for the incumbent firm's product to decrease until P = ATC.

379. Which of the following characteristics lead to the price charged by a monopolistically competitive firm to be higher than the price charged by a perfectly competitive firm?

(A) Slightly differentiated products
(B) Large number of firms
(C) No barriers to entry
(D) The ability to price discriminate
(E) A large number of buyers

ANS :- (A) When a firm sells a product that is slightly different from other goods, they have some control over their price. While a perfectly competitive firm will charge a price equal to marginal cost (P = MC = MR), the monopolistically competitive firm will choose the quantity where MR = MC, but because people are willing and able to pay a price above the MR for that quantity, the price charged will be higher than that of a perfectly competitive firm.

380. Which of the following characteristics of monopolistic competition is likely to lead to firms that spend money on advertising?

(A) Firms produce a homogeneous product.
(B) Each firm sells a slightly differentiated good.
(C) Firms are able to perfectly price discriminate.
(D) There are a relatively small number of sellers.
(E) There are no barriers to entry.

ANS :- (B) Because each firm produces a product that is similar, but differentiated form, the products sold by the other the other firms, each firm has a product with characteristics that can be advertised to consumers. We might think of several restaurants in town that each has a slightly different menu. They each sell appetizers, entre´es, salads, and desserts, but they offer the dining customer a different menu and experience. These differences can be advertised to steal customers from rival restaurants and increase short-run profits for each firm.

381. Which of the following characteristics leads to the fact that a monopolistically competitive industry will be associated with deadweight loss?

(A) The long-run and short-run outcomes are identical.
(B) Each firm sells a slightly differentiated good.
(C) Firms are able to perfectly price discriminate.
(D) There are a relatively small number of sellers.

(E) There are no barriers to entry.

ANS :- (B) Because a monopolistically competitive firm has some control over the price it charges for its good as its good is slightly different from all other goods, the firm charges a P > MC. Whenever a firm charges a price greater than MC, it drives a wedge between the price that people are willing to pay for a good and the amount that it actually cost to produce that last good.

382. The type of industry that produces the higher quantity is the _____ because _____.

(A) Perfectly competitive industry; there are no barriers to entry
(B) Perfectly competitive industry; it has product differentiation
(C) Perfectly competitive industry; it has no control over price
(D) Oligopoly industry; it has no control over price
(E) Monopolistically competitive industry; there are no barriers to entry

ANS :- (C) Perfectly competitive industries produce the largest quantity because they have no control over price. It might be tempting to say that perfectly competitive industries produce the most because they have no barriers to entry. Note, however, that monopolistically competitive industries produce less than perfectly competitive industries, yet they also have no barriers to entry.

383. All else equal, as the number of firms in an industry increases,

(A) The quantity of a monopolistically competitive industry gets closer to the quantity produced by an oligopoly industry
(B) The quantity of a perfectly competitive industry gets closer to the quantity produced by a monopolistically competitive industry
(C) The quantity of an oligopoly industry gets closer to the quantity produced by a monopoly industry
(D) The quantity produced by an oligopoly industry gets closer to the quantity produced by a perfectly competitive industry
(E) The quantity produced by a monopoly industry gets closer to the quantity produced by an oligopoly industry

ANS :- (D) Holding other factors constant, as the number of firms increases, the market becomes more competitive. If an oligopoly of 4 times grows to include 40 firms or even 400 firms, the market outcome starts to become closer to that of a perfectly competitive industry. As more firms enter, the market power (i.e., the ability to individually control the price) of a firm goes down. The simplest comparison is that of monopoly to perfect competition. In monopoly, there is only one producer with absolute control over the price. In perfect competition, there are many firms, each with no control over price. Naturally, there are other factors, like product differentiation and barriers to entry, but all else equal, we can generally say that as the number of firms increases, the industry will become more and more competitive.

384. Which of the following industries have the potential for long-run profits?

(A) Monopoly, monopolistic competition, oligopoly, and perfect competition
(B) Monopolistic competition, oligopoly, and perfect competition
(C) Monopoly, oligopoly, and perfect competition
(D) Monopoly and oligopoly
(E) Monopoly and monopolistic competition

ANS :- (D) The source of long-run profits is barriers to entry. Both monopolies and oligopolies have barriers to entry, which means that these industries have the potential for long-run profits. Because monopolistically

competitive markets and perfectly competitive markets have no barriers to entry, in each of these types of industries, firms will enter and push down price until each firm is making no economic profit.

385. Which of the following industries would have allocative efficiency?

(A) Oligopoly only
(B) A single-price monopoly and perfect competition
(C) Monopolistic competition and perfect competition
(D) Oligopoly and perfect competition
(E) Perfect competition only

ANS :- (E) Allocative efficiency means that there is no deadweight loss. This occurs only if firms charge a price that is equal to marginal cost. This occurs only in two situations. First, if a firm has no control over price, P = MR for all units sold, so when profit is maximized, P = MR = MC. The other situation is a firm, usually a monopoly, is able to perfectly price discriminate. For this firm, price will equal marginal revenue for each unit sold and the firm will sell to the point where P = MR = MC. In this situation, however, there is no consumer surplus.

386. The market for published books is characterized by a large number of authors writing and selling books on a variety of topics, such as mysteries, romance novels, comedy, and young adult fiction. Anyone who writes a book can sell that book in a variety of online and print-based formats. There is a great deal of advertising in this market. Which of the following statements is true about the published book industry?

I. It is monopolistically competitive.
II. The price of books would be lower if all of the books sold were identical.
III. Authors can expect to make profits in the long run.

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II, and III

ANS :- (D) The market for published books is monopolistically competitive, since there are a large number of sellers, the authors, selling slightly differentiated products. Because there are no barriers to entry (anyone can write and sell a book), this will push long-run profits to zero. If the books were identical to each other, then this would be a perfectly competitive market, and the price in a perfectly competitive market is lower than the price in a monopolistically competitive market.

387. Which market structures are the most common market structures in the real world?

(A) Monopoly and perfect competition
(B) Monopolistic competition and oligopoly
(C) Monopolistic competition and perfect competition
(D) Oligopoly and perfect competition
(E) Monopoly, monopolistic competition, and perfect competition

ANS :- (B) The two extremes of competition, monopoly and perfect competition, are actually the rarest of the four industries. If you consider the features of the goods and services that are offered around you, it is apparent that you rarely, if ever, see markets that exhibit these features. Oligopolies and monopolistically competitive industries are far more common in the real world.

CHAPTER 13

FACTOR MARKETS

388. Suppose the demand for peppers is rising. How will this affect the demand for pepper pickers, the wage for pepper pickers, and employment in the pepper picker labor market?

	Demand	Wage	Employment
(A)	**Increase**	**increase**	**decrease**
(B)	**Increase**	**decrease**	**increase**
(C)	**Increase**	**increase**	**increase**
(D)	**Increase**	**decrease**	**decrease**
(E)	**Decrease**	**increase**	**decrease**

ANS :- (C) Supply and demand analysis in factor markets is done in the very same way as it is done in output markets. The only difference is that the product and factor markets are connected because the output of one (peppers) is a function of the other (pepper pickers). An increase in demand for the product causes an increase in the labor required to produce the product. The increase in demand causes equilibrium wages to rise and employment to rise in the labor market.

389. The economy is in a recession. And consumer spending for large appliances (such as refrigerators) has fallen. At the factories that produce these large appliances, we expect the demand for workers to _____ and wages for these workers to _____.

(A) Decrease; increase
(B) Decrease; decrease
(C) Increase; increase
(D) Remain unchanged; remain unchanged
(E) Increase; decrease

ANS :- (B) The weak demand for large appliances causes the equilibrium price of appliances to fall. Because the demand for the workers that assemble the appliances is a function of both the marginal productivity and the price of the output (value of the marginal product), a falling price of appliances causes the demand for assembly workers to also decrease. As the demand for workers falls, it causes both wages and employment to fall.

390. Because the demand for labor is a function of the demand for the goods produced by the labor, labor demand is referred to as

(A) A derived demand
(B) A complementary demand
(C) A perfectly elastic demand
(D) An aggregate demand
(E) An investment demand

ANS :- (A) When we talk about production functions, we say that output is a function of the quantity of labor employed. While this is true, it is also true that the quantity of labor employed is a function of how much output is being sold and the price at which the output is selling. Thus the demand for factors of production is said to be derived from the demand for the product being produced by the factor.

391. Which of the following would cause both wages and employment in the market for autoworkers to increase?

(A) A very weak stock market
(B) An increase in the price of gasoline
(C) An increased unemployment rate
(D) A growing size of the labor force
(E) An increase in the demand for cars

ANS :- (E) Since we are told that wages and employment in the market for autoworkers have both increased, it is likely due to an increase in the demand for autoworkers. The rising demand for labor can occur if the price of a substitute factor rises, the price of a complementary factor falls, the marginal productivity of the labor rises, or the price of the product rises. A rising demand for cars would increase the quantity of cars bought and the price of cars, thus boosting the demand for the autoworkers.

392. If we see that the unemployment rate among carpenters is rising and average wages for carpenters are falling, we might conclude that

(A) Interest rates are falling, making it easier for homebuyers to get an affordable mortgage
(B) Low prices for raw materials like lumber, copper, and cement are causing construction companies to increase building
(C) Tax laws give homeowners an even bigger tax reduction for interest paid on their mortgage
(D) A recession has caused the demand for new homes to fall
(E) Lower taxes have boosted demand for new construction

ANS :- (D) The labor market for carpenters will be very sensitive to the demand for construction projects. A recession decreases the demand for many products, but because new homes are so expensive, the demand for new homes will fall by a great amount. A decreased demand for new homes will also cause the price of the homes to fall in the housing market. All other choices describe situations that would cause the demand for housing or other construction projects to increase.

393. Which of the following would increase the demand for workers who assemble mobile phones?

(A) The wage of these assembly workers decreases.
(B) The demand for mobile phones increases.
(C) The supply of mobile phones decreases.
(D) The wage of these assembly workers increases.
(E) The demand for mobile phones decreases.

ANS :- (B) As mobile phones become more popular, the demand for phones increase, increasing the equilibrium price of mobile phones. The rising price and rising output of the phones both cause the demand for the assembly workers to increase. The stronger demand for the workers would also cause the wage of those workers and their total employment to rise.

Use Table 13.1 for questions 394—396.

Table 13.1

Units of Labor	Marginal Product of Labor (MP_L)
1	24
2	21
3	18
4	15
5	12
6	9
7	6
8	3

394. Refer to Table 13.1. If the competitive price of the product produced by the labor is equal to $2, what is the value of the marginal product of the fifth unit of labor?

(A) $12
(B) $2
(C) $24
(D) $6
(E) $10

ANS :- (C) Each worker, through his or her production, contributes dollar value to the firm. This dollar value is the marginal product of that worker multiplied by the price at which the additional output is sold. Given the price of the good (P), this value of the marginal product for any worker is $VMP_L = P \times MP_L$. Because the price of the output is $2 and the marginal product of the fifth worker is 12 units, the $VMP_L = \$2 \times 12 = \$24$.

395. Refer to Table 13.1. Suppose we know that the value of the marginal product of the seventh unit of labor is $15. If the firm operates in a competitive product market, what is the price of the good being produced by this labor?

(A) $2.50
(B) $2
(C) $6
(D) $15
(E) $7

ANS :- (A) A worker's value of the marginal product to the firm is the price of the product multiplied by that worker's marginal product. Because the $VMP_L = P \times MP_L$, we can use what we know to solve for the thing that we don't know. We know from Table 13.1 that the marginal product of the seventh worker is 6 units of output, and we are told that the value of the marginal product is $15 for that worker. We can then use the equation to solve for price: $P = VMP_L/MP_L = \$15/6 = \$2.50$.

396. Refer to Table 13.1. This firm sells output in a competitive product market at an equilibrium price of $3. If the competitive wage for a unit of labor is $45, how many units of labor will be employed?

(A) 2
(B) 3
(C) 8

(D) 5
(E) 4

ANS :- (E) A firm hires labor up to the point where the additional dollars earned from the unit of labor are equal to the additional cost of employing that unit of labor. The additional cost of a unit of labor is the competitive wage of $45. The additional dollars earned are found by computing the value of the marginal product for each worker: $VMP_L = P \times MP_L$. We are told that the competitive price of output is $3, so we multiply each marginal product in Table 13.1 by $3 and see that the value of the marginal product is $45 at the fourth unit of labor. The fifth unit of labor won't be employed, because VMP_L OF $36 falls below the wage of $45. In other words, the fifth unit of labor is only worth $36, so if a firm has to pay $45 for that unit of labor, it won't be willing to hire that unit.

397. If a firm hires labor in a competitive labor market and produces in a competitive output market, the firm's demand for labor is _____ and given by the _____.
(A) Downward sloping; marginal product of labor curve
(B) Upward sloping; value of the marginal product of labor curve
(C) Horizontal; wage
(D) Downward sloping; value of the marginal product of labor curve
(E) Horizontal; market price of output

ANS :- (D) The demand for labor can be thought of as the maximum price a firm would pay to employ a particular quantity of labor. To derive this maximum price, we must figure out how much benefit the firm receives from each unit of labor employed. This benefit is the value of the marginal product, and this is the price of the product being sold multiplied by the marginal product of labor: $VMP_L = P \times MP_L$. Because the marginal product of labor diminishes with more labor employed, the firm's demand for labor is downward sloping.

398. Suppose that Jerry produces crunks and is employing six workers at the current market wage. If market demand for crunks rises and increases the price at which Jerry can sell them, how will this affect Jerry's demand for labor?
(A) The VMP_L curve shifts downward, increasing employment at the current market wage.
(B) The VMP_L curve shifts upward, increasing employment at the current market wage.
(C) The VMP_L curve shifts upward, decreasing employment at the current market wage.
(D) The VMP_L curve shifts downward, decreasing employment at the current market wage.
(E) The VMP_L curve does not shift, so employment does not change at the current market wage.

ANS :- (B) The labor demand curve is the value of the marginal product (VMP_L), and this curve slopes downward due to the diminishing marginal product of labor. If the wage were to fall in the labor market, Jerry would increase employment along the fixed VMP_L curve. However, if the price of crunks increases in the product market, the VMP_L increases for any quantity of labor. This creates an upward (or rightward) shift of the curve. Since the competitive market wage is constant, Jerry will find that he can increase his profits by hiring more workers.

399. Suppose a firm employs only labor at a market wage of w and capital at a market rate of r. To hire the least-cost combination of labor and capital, which of the following conditions must apply?
(A) $\frac{MP_L}{w} = \frac{MP_K}{r}$
(B) $\frac{MP_L}{r} = \frac{MP_K}{w}$
(C) $\frac{MP_L}{MP_K} - \frac{r}{w}$
(D) $w \times MP_L = r \times MP_K$

(E) $MP_L - MP_K$

ANS :- (A) There are many combinations of labor and capital that can produce a given level of output, but only one combination produces that output at the lowest possible cost. Suppose that the ratio of MP_L/w (marginal product of labor per dollar spent on labor) is greater than the MP_K/r (marginal product of labor per dollar spent on capital). In other words: $MP_L/w > MP_K/r$. This inequality tells us that the firm can spend one dollar hiring labor and that labor will provide more production than a dollar spent on capital; the firm should hire more labor and less capital. As more labor is hired, the MP_L falls, and as less capital is hired, the MP_K rises. On the other hand, what if $MP_L/w < MP_K/r$? This inequality tells us that the firm can spend one dollar hiring capital and that capital will provide more production than a dollar spent on labor; the firm should hire more capital and less labor. In each of these cases, the firm can reshuffle the hiring of labor and capital to produce the same level of output at lower and lower cost. The only time such cost savings are impossible is when $MP_L/w = MP_K/r$.

400. Sarah employs labor at wage of $20 and capital at a rate of $10. Currently the marginal product of labor is 5 units and the marginal product of capital is 2 units. Can Sarah adjust her combination of labor and capital to decrease her costs of producing the same level of output?

(A) Yes, she should decrease her employment of both labor and capital.
(B) No. she is already hiring the optimal combination of labor and capital.
(C) Yes, she should increase her employment of labor and decrease her employment of capital.
(D) Yes, she should decrease her employment of labor and increase her employment of capital.
(E) Yes, she should increase her employment of both labor and capital.

ANS :- (C) If Sarah were using the least-cost combination of labor and capital to produce a certain level of output, she will have found the combination such that $MP_L/w = MP_K/r$. To check, we use the information given. The marginal product of labor per dollar is (5 units)/$20 = .25 units per dollar. The marginal product of capital per dollar is (2 units)/ $20 = .10 units per dollar. This comparison tells us that Sarah should reallocate her money by employing more labor and less capital. This will allow her to produce the same level of output but at lower total cost.

401. Ricky has chosen the least-cost combination of labor and capital to produce 1,000 units of output. If the price of capital falls, we expect Ricky to increase his employment of _____, decrease his employment of _____, and see his capital-to-labor ratio (K/L) _____.

(A) Labor; capital; fall
(B) Capital; labor; stay unchanged
(C) Labor; capital; stay unchanged
(D) Capital; labor; rise
(E) Capital; labor; fall

ANS :- (D) Although Ricky has already found his least-cost combination of labor and capital, a changing price of capital can disrupt this equilibrium and cause him to recalibrate his optimal hiring. Initially, it is true that $MP_L/w = MP_K/r$. Once the price of capital falls, it is now the case that $MP_L/w < MP_K/r$, and capital is now providing more output per dollar. As Ricky starts to increase his hiring of capital, he reduces his hiring of labor, and thus the ratio of capital to labor (K/L) begins to increase.

Use Table 13.2 for questions 402—404.

Table 13.2

Hourly Wage	Jeffrey's Hours of Work	Ted's Hours of Work	John's Hours of Work
$10	0	40	40
$20	20	60	40
$30	40	50	40

402. Table 13.2 shows the hours of work three workers would supply to the labor market at three different wages. At any wage, each worker must decide how many hours to devote to work and how many hours to leisure. Assume that these three workers continue the labor supply for the entire market. If the market wage rises from $20 to $30, total hours of labor supplied will

(A) Rise from 20 to 40 hours
(B) Fall from 60 to 50 hours
(C) Remain constant at 40 hours
(D) Rise from 80 to 130 hours
(E) Rise from 120 hours to 130 hours

ANS :- (E) Each individual makes his own labor supply decision at each market wage. The total market supply of labor is the sum of each individual decision. Therefore, at a wage of $20, the total labor hours supplied is 120 hours (20 + 60 + 40). The total labor hours supplied at a wage of $30 is 130 hours (40 + 50 + 40).

403. Table 13.2 shows the hours of work three workers would supply to the labor market at three different wages. At any wage, each worker must decide how many hours to devote to work and how many hours to leisure. Which worker(s) has a backward-bending labor supply curve?

(A) Jeffrey
(B) Ted
(C) John
(D) Ted and John
(E) All Three

ANS :- (B) Each worker, at any given wage, has to choose how many hours of work to supply to the labor market and how many hours of leisure to consume. If the worker chooses to consume an hour of leisure, there is an opportunity cost equal to the wage that could have been earned by working. When the wage rises, it creates conflicting effects on this decision. On the one hand, each hour of leisure is now more costly and this prompts a substitution effect where the worker increases hours of labor and decreases hours of leisure. On the other hand, earnings are now higher at any hours of work supplied, which creates an income effect, assuming that leisure is a normal good, that prompts more consumption of leisure and fewer hours of labor supplied. If a higher wage causes the worker to supply more hours of labor, it must be the case that the substitution effect outweighs the income effect and the labor supply curve is upward sloping. However, if the income effect outweighs the substitution effect, the labor supply curve will bend backward and be downward sloping. Ted is the only worker who exhibits fewer hours of labor supplied at a higher wage.

404. Table 13.2 shows the hours of work three workers would supply to the labor market at three different wages. At any wage, each worker must decide how many hours to devote to work and how many hours to leisure. Which of the following statements is true?

I. **Jeffery's labor supply curve has a downward-sloping range.**

II. **Between wages of $10 and $20. Ted's substitution effect between labor and leisure is smaller than the income effect.**

III. **John's labor supply curve is the least elastic.**

(A) I only

(B) II only

(C) III only

(D) II and III only

(E) I and II only

ANS :- (C) The first two statements are incorrect. Jeffrey's labor supply curve is upward sloping because he continues to increase his hours of labor supplied as the wage rises; his labor supply curve does not have a downward-sloping range. Between the wages of $10 and $20, Ted increases his hours of work. The higher wages creates a substitution effect that would cause him to increase work and decrease leisure, but the higher wage also causes an income effect that would cause him to increase leisure and decrease work. Since we know that he has actually increased work, his substitution effect must be stronger than his income effect between those two wages. John's labor supply curve is vertical, or perfectly inelastic, because he continues to supply 40 hours of work at all wages.

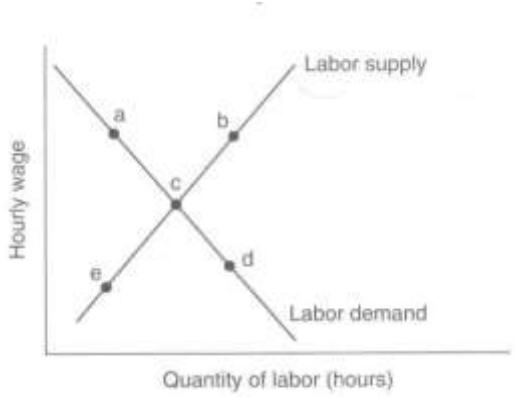


Figure 13.1

405. Figure 13.1 shows a labor market initially in equilibrium. Which of the following would cause a new equilibrium at point a?

(A) More workers qualify to work in this occupation.

(B) The government creates a rule making it more difficult for new workers to enter this market.

(C) Demand weakens for the good being produced by this labor.

(D) The price of a substitute factor of production rises.

(E) The price of a complementary factor of production falls.

ANS :- (B) Relative to current equilibrium, point a is on the demand curve and left of point c. This location indicates that the supply of labor must have decreased along the demand curve. If the government were to create something that made it more difficult for individuals to offer in this market, the supply curve would shift to the left. This type of rule exists in some occupations that require licensing, a certification, or the passing of an exam before a person can work.

406. Figure 13.1 shows a labor market initially in equilibrium. Which of the following would cause a new equilibrium at point b?

(A) more workers qualify to work in this occupation.
(B) The government creates a rule making it more difficult for new workers to enter this market.
(C) Demand weakens for the good being produced by this labor.
(D) The price of a substitute factor of production rises.
(E) The price of a complementary factor of production rises.

ANS :- (D) Relative to current equilibrium, point b is on the supply curve and right of point c. This location indicates that the demand for labor must have increased along the supply curve. If the price of a substitute factor has increased, firms will increase their demand for the labor as a way to produce the same output at lower production costs.

407. Figure 13.1 shows a labor market initially in equilibrium. Which of the following would cause a new equilibrium at point d?

(A) More workers qualify to work in this occupation.
(B) The government creates a rule making it more difficult for new workers to enter this market.
(C) Demand strengthens for the good being produced by this labor.
(D) The price of a substitute factor of production rises.
(E) The price of a complementary factor of production rises.

ANS :- (A) Relative to current equilibrium, point d is on the demand curve and right of point c. This location indicates that the supply of labor must have increased along the demand curve. If more workers qualify for this occupation, the supply curve will shift outward. This can happen because of demographic trends, immigration, or growing popularity of a particular field of study in high school and college.

408. Figure 13.1 shows a labor market initially in equilibrium. Which of the following would cause a new equilibrium at point e?

(A) More workers qualify to work in this occupation.
(B) The government creates a rule making it more difficult for new workers to enter this market.
(C) Demand weakens for the good being produced by this labor.
(D) The price of a substitute factor of production rises.
(E) The price of a complementary factor of production falls.

ANS :- (C) Relative to current equilibrium, point e is on the supply curve and left of point c. This location indicates that the demand for labor must have decreased along the supply curve. If the demand for the good being produced by the labor is getting weaker, both the equilibrium price and quantity are falling in that product market. These two changes in the output market contribute to a decreased demand for this labor in the factor market.

409. An effective minimum wage in a competitive labor market creates a _____ of labor because at the minimum wage _____.

(A) Surplus; the quantity of labor demanded exceeds the quantity of labor supplied
(B) Shortage; the quantity of labor supplied exceed the quantity of labor demanded
(C) Shortage; the quantity of labor demanded exceeds the quantity of labor supplied
(D) Surplus; the quantity of labor supplied equals the quantity of labor demanded
(E) Surplus; the quantity of labor supplied exceeds the quantity of labor demanded

ANS :- (E) An effective minimum wage is a price floor in the labor market (your text may also refer to it as $binding\ minimum\ wage$). The minimum wage is a set at a wage that exceeds the equilibrium wage and creates a gap between the quantity of labor supplied and the quantity of labor demanded. The higher wage causes more workers to supply hours demanded by employers. This surplus in the labor market won't be resolved by the market forces, because the law prevents the wage from falling back to equilibrium.

410. When a factor market has only one demander of labor, the market is labeled a (n)

(A) Natural monopoly
(B) Labor union
(C) Competitive market
(D) Monopsony
(E) Oligopoly

ANS :- (D) When only one producer exists in an output market, we call it a monopoly. When only one buyer (or employer) exists in a factor market, we call it a monopsony. A monopsonist employer is hard to imagine in a large urban setting where there are plenty of firms competing for available workers, but it can emerge in a small town or isolated community. For example, if there is only one hospital in a rural community, there is only one place for a person with a nursing degree to find employment, unless he or she wants to relocate to another town.

Use Table 13.3 for questions 411—412

Table 13.3

Wage	Units of Labor Supplied	Value of the Marginal Product of Labor
$4	1	$16
$5	2	$14
$6	3	$12
$7	4	$10
$8	5	$8
$9	6	$6
$10	7	$4

411. Refer to Table 13.3, which shows how a single employer can hire an increasing quantity of labor, but must pay the labor higher wages. The table also shows the firm's value of the marginal product of labor. What is the firm's marginal factor cost of the seventh unit of labor?

(A) $16
(B) $70
(C) $4
(D) $7
(E) $21

ANS :- (A) The total factor cost (TFC) is the quantity of the factor employed (labor in this case) multiplied by the wage each unit of labor is paid. In other words, total factor cost is the total payment made to labor, or payroll. Marginal factor cost (MFC) is the change in total factor cost divided by the change in the quantity of labor employed: MFC = $(\Delta TFC/\Delta L)$. In this problem, labor is being employed 1 unit at a time. The total factor cost of

employing six workers is TFC = $9 × 6 = $54, and the total factor cost of employing seven workers is TFC = $10 × 7 = $70, so the marginal factor cost of the seventh worker is $70 - $54 = $16.

412. Refer to Table 13.3 which shows how a single employer can hire an increasing quantity of labor, but must pay the labor higher wages. The table also shows the firm's value of the marginal product of labor. To maximize profit, how many units of labor will be employed and what wage will be paid?

UNITS OF LABOR EMPLOYED	WAGE PAID
(A) 3	**$6**
(B) 4	**$7**
(C) 7	**$10**
(D) 5	**$8**
(E) 4	**$10**

ANS :- (B) A monopsonist employer must find the quantity of labor where the value of the marginal product is equal to the marginal factor cost. The value of the marginal product of labor is given in Table 13.3, and it represents the labor demand curve. The marginal factor cost (MFC) is the change in total factor cost (TFC) at each level of unemployment. At 3 units of labor, TFC = $18, and at 4 units of labor, TFC = $28, so the MFC for the fourth worker is $10. The value of the marginal product at the fourth worker is also $10, it is the $7 wage necessary to entice four workers to supply their labor. It is important to note that a wage-setting monoposonist is a firm that ends up paying their workers a wage that is below the value of the marginal product.

413. Suppose Melanie's Mints is a firm that can hire labor in a perfectly competitive labor market, but sells its mints in a monopoly product market. Compared to affirm that sells mints in a perfectly competitive product market, ,Melanie will hire _____ units of labor and pay each _____ wage.

(A) Fewer; the same
(B) More; a lower
(C) Fewer; a lower
(D) More; the same
(E) Fewer; a higher

ANS :- (A) Melanie, like any employer, must find the quantity of labor where the marginal cost is equal to the marginal benefit of employment. Because the labor market is competitive, the marginal cost of employment is the wage. The marginal benefit of employment is the value of the marginal product. If the output market was competitive, the $VMP_L = P \times MP_L$. Because Melanie is a monopolist, she doesn't receive exactly the price for each unit of output sold, she receives marginal revenue that is less than the price. Melanie's VMP_L (or mopre correctly called the marginal revenue product MRP_L) therefore lies below, or to the left of, a perfectly competitive firm's VMP_L. This situation produces an outcome where the intersection of Melanie's labor demand curve with the wage will happen at a quantity of labor that is to the left of a perfectly competitive firm's intersection.

414. The factor market for capital is perfectly competitive and in equilibrium. If the price of labor, a substitute factor of production, falls , we expect

(A) Demand for capital to rise, increasing the rental rate and decreasing the quantity of capital employed
(B) Supply of capital to fall, decreasing the rental rate and decreasing the quantity of capital employed
(C) Demand for capital to fall, decreasing the rental rate and decreasing the quantity of capital employed
(D) Supply of capital to rise, decreasing the rental rate and increasing the quantity of capital employed
(E) Supply of capital to fall, increasing the rental rate and decreasing the quantity of capital employed

ANS :- (C) A factor market for capital operates in much the same way as the factor market for labor. If labor is a substitute factor for many employers, and the price of labor falls, firms will increase employment of labor and decrease the demand for capital. In the capital market, equilibrium price (or the rate) and quantity both fall.

415. The factor market of capital is perfectly competitive and in equilibrium. Suppose the government offers firms a subsidy to invest in capital equipment. In the capital market we expect

(A) Demand for capital to rise, increasing the rental rate and increasing the quantity of capital employed
(B) Supply of capital to fall, decreasing the rental rate and decreasing the quantity of capital employed
(C) Demand for capital to fall, decreasing the rental rate and decreasing the quantity of capital employed
(D) Demand for capital to rise, increasing the rental rate and decreasing the quantity of capital employed
(E) Supply of capital to fall, increasing the rental rate and decreasing the quantity of capital employed

ANS :- (A) A government subsidy for capital investment effectively lowers the cost of purchasing capital equipment for the firm. This subsidy would shift the supply curve in the capital market to the right (an increase in supply), thus putting downward pressure on the capital rate. In equilibrium the quantity of capital employed will increase.

416. The factor market for land is currently in equilibrium. In the production function, capital is a complementary factor with land, and capital and labor are substitutes for each other. If the supply of capital increases, causing a decrease in the rental rate of capital, how will this affect the market for labor and the market for land?

	Market for Labor	Market for Land
(A)	**Demand increases**	**Demand increases**
(B)	**Supply increases**	**Demand increases**
(C)	**Demand decreases**	**Demand decreases**
(D)	**Demand decreases**	**Supply increases**
(E)	**Demand decreases**	**Demand increases**

ANS :- (E) Capital is a substitute factor for labor. This means that employers can use capital and labor interchangeably. But capital and land are complementary factors, so this means that if more of one input is being used, more of the other input will also be used. Since capital is now less expensive, the demand for the substitute, labor, will decrease. Since more capital is being used (and also because it is less expensive), we will see firms increase their demand for land.

417. The factor market for land is currently in equilibrium. In the production function, capital is a complementary factor with land, and capital and labor are also complementary with each other. If the supply of capital decreases, how will this affect the market for labor and the market for land?

	MARKET FOR LABOR	MARKET FOR LAND
(A)	**Demand increases**	**demand increases**
(B)	**Supply increases**	**demand increases**
(C)	**Demand decreases**	**demand decreases**
(D)	**Demand decreases**	**supply increases**
(E)	**Demand decreases**	**demand increases**

ANS :- (C) A decrease in the supply of capital in the capital market will cause the capital rate to increase, and less capital would be employed by firms. Because the other factors, land and labor, are complementary with the capital, this will cause the demand for land and the demand for labor to both decrease.

CHAPTER 14

EXTERNALITIES

418. When a transaction between two parties conveys an external benefit to a third party, it is known as a

(A) Public good
(B) Natural monopoly
(C) Positive externality
(D) Negative externality
(E) Monopsony

ANS :- (C) We expect a good to provide benefit to those who actually consume it, but sometimes one person's consumption of a good provides benefit to another person who is not directly consuming that good. When a third party (i.e., someone who is neither a buyer nor seller in an exchange) receives this external benefit from the consumption or production of a good, it is called a positive externality.

419. Jane owns an orange grove. On the other side of the highway from her grove, Ted owns some honeybees and sells the honey. In the process of making honey, Ted's bees fly to Jane's orange grove and pollinate her trees, increasing the productivity of her orange grove. Ted's production of honey is an example of a _____ because Jane is the recipient of a(n)_____.

(A) Positive externality; Pigouvian subsidy
(B) Positive externality; external benefit
(C) Negative externality; external cost
(D) Natural monopoly; Pigouvian tax
(E) Positive externality; Pigouvian tax

ANS :- (B) Ted is receiving the private benefit from the sale of his honey, but in the process of producing the honey, his bees are benefiting Jane's orange grove. Jane is the recipient of this external benefit, and therefore we would say that a positive externality exists in the production of honey.

420. A positive externality is generated whenever one person's actions in an exchange provide _____ to others not involved in the exchange.

(A) External benefit
(B) Deadweight loss
(C) Product differentiation
(D) External cost
(E) A tax

ANS :- (A) When buyers and sellers exchange a good or a service in a market, both parties expect to gain from the transaction. The buyer receives private benefit, and the seller receives revenue. However, there are times when this private exchange generates benefit to third parties not actually involved in the exchange. This external benefit is referred to as positive externality.

421. Which of the following is most likely providing a positive externality to society?

(A) Cigarette smoking
(B) Coal-burning power plants
(C) Burning piles of leaves and yard debris
(D) Public education

(E) Garbage landfills

ANS :- (D) Public education is a positive externality because the benefits from education go beyond the private benefits received by the students receiving the education. A more educated community is typically more prosperous and has higher property values, more tax revenue for government services, less crime, and fewer social problems. The other choices in the question are situations usually associated with pollution and risks to our health.

422. Steve's mother always takes Steve to the health clinic to get a $10 flu shot for him before he starts another year of elementary school. This flu shot is a positive externality because

(A) It imposes an external cost on his classmates and teachers
(B) It increases the chance his unvaccinated classmates and teachers get the flu
(C) It requires his mother to pay $10 for the flu shot
(D) It reduces the chance that Steve gets the flu
(E) It reduces the chance his unvaccinated classmates and teachers get the flu

ANS :- (E) A flu shot reduces the chance that Steve gets the flu, but this is the private benefit enjoyed by the recipient of the shot. The reason the flu shot is a positive externality is that other people, like his teachers and classmates, also receive a benefit (a lower chance of getting the flu) from Steve's vaccination.

423. Houseweyer is a paper mill on the edge of town. In the production of paper, the mill emits a pungent aroma that wafts downwind and has caused property values to decline in affected neighborhoods. This is an example of

(A) A negative externality
(B) A public good
(C) External benefits
(D) A natural monopsony
(E) A common resource

ANS :- (A) The production of paper creates costs, in the form of inputs that must be employed, for the Houseweyer firm, but these are the private costs of producing paper. If the neighborhood downwind of the paper plant is experiencing an unpleasant smell and lower property values, then there are external costs of producing paper. These external costs are the essence of a negative externality. In other words, the firm is not considering the full costs of its production when making decisions.

424. When a transaction imposes external costs on third parties, it is referred to as a

(A) Public good
(B) Private good
(C) Negative externality
(D) Common resource
(E) Natural monopoly

ANS :- (C) A transaction in a market creates both cost and benefit for buyers and sellers. The seller must incur the private cost in hiring inputs to produce the good or service, but sometimes third parties outside of the market suffer costs. When this happens, it is said that the market is generating a negative externality. A good example of external costs is the adverse health effect of pollution.

425. A negative externality is generated whenever one person's actions provide _____ to others.

(A) External benefit
(B) Deadweight loss
(C) Product differentiation
(D) External cost
(E) A subsidy

ANS :- (D) When the production or consumption of a good or service creates an external cost on a third, it is called externality. These costs can often come in the form of pollution (air, water, noise, etc.) that is a by-product of market activities. Deadweight loss is the result of a negative externality, not the factor that generates the externality; the external costs to third parties cause the deadweight loss.

426. Jesse has purchased a new $500 stereo that is so loud it causes his neighbor JJ's windows to rattle and JJ has trouble sleeping. Jesse's actions are an example of a negative externality because

(A) Jesse had to pay the $500 cost for a stereo
(B) Jesse gets the benefit of the stereo
(C) JJ is incurring a cost from Jesse's use of stereo
(D) JJ enjoys the music coming from Jesse's stereo
(E) The stereo store received revenue from the sale of the stereo

ANS :- (C) When Jesse purchased the stereo, he incurred private cost and the stereo store received a private benefit. Jesse enjoys a private benefit from the use of his stereo, but JJ does not. Because of the loud music, the rattling of the windows, and the difficulty sleeping. JJ is experiencing a negative externality from the stereo.

427. Pollution from a corporation's factory is an example of _____ because it creates _____ the broader society.

(A) A negative externality; external benefits for
(B) A natural monopoly; economics of scale to
(C) An oligopoly; long-run profits for
(D) A public good; external costs for
(E) A negative externality; external costs for

ANS :- (E) A corporation's factor employs factors of production (inputs) and incurs private costs in that employment. However, if the production process also creates harmful pollution, then the factors of production are not the only costs of producing that good. The harm from the pollution imposes external costs on society, and this is a negative externality in the market.

428. If there is a positive externality in a market, the market level of output will create a situation where

(A) The marginal private benefit exceeds the marginal social benefit
(B) The marginal social benefit exceeds the marginal private benefit
(C) The marginal social cost exceeds the marginal private cost
(D) The marginal social cost exceeds the marginal private benefit
(E) The marginal social cost exceeds the marginal social benefit

ANS :- (B) Whenever there is a positive externality, at each level of output society benefits more than the individual(s) buying the product. In other words, the marginal social benefit (MSB) of a good is higher than the marginal private benefit (MPB) of the good at each quantity. Graphically, this appears as a marginal social benefit curve that is above the demand curve (which represents private social benefit).

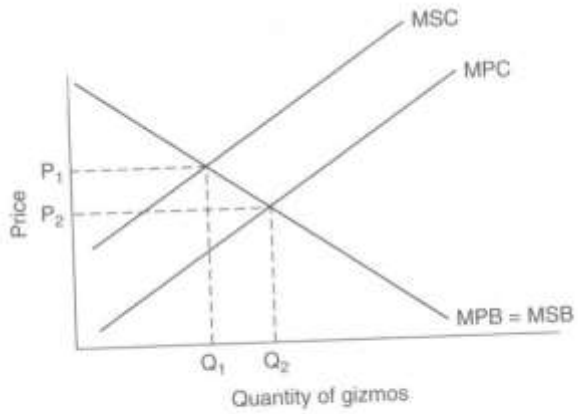


Figure 14.1

429. Refer to Figure 14.1, which shows the market for gizmos. A _____ exists in this market because at the market output, _____.

(A) Negative externality; MSC > MPC
(B) Positive externality; MSC > MSB
(C) Negative externality; MSB > MSC
(D) Negative externality; MSB > MPB
(E) Positive externality; MSC > MPC

ANS :- (A) The graph shows a marginal social cost (MSC) curve that lies above the marginal private cost (MPC) curve. The MPC curve represents the costs incurred by the producers of gizmos in their employment of inputs. The vertical distance between MSC and MPC is the external cost upon society from the production of gizmos; a negative externality exists.

430. Figure 14.1 shows the market for gizmos. If the market ignores the externality, what is the equilibrium market output and price? What is the socially efficient output and quantity?

	MARKET OUTPUT	MARKET PRICE	EFFICIENT OUTPUT	EFFICIENT PRICE
(A)	**Q_1**	**P_1**	**Q_2**	**P_2**
(B)	**Q_2**	**P_2**	**Q_1**	**P_1**
(C)	**Q_1**	**P_2**	**Q_2**	**P_1**
(D)	**Q_2**	**P_1**	**Q_1**	**P_2**
(E)	**Q_1**	**P_1**	**Q_1**	**P_1**

ANS :- (B) The market for gizmos will not recognize the marginal social cost, only the marginal private cost of producing gizmos. Therefore, the market comes to equilibrium at the intersection of the MPC and MSB = MPB curves Q_2 units are produced at a price of P_2. Due to presence of the external costs, the socially efficient quantity of gizmos would occur at the intersection of the MSC and the MSB = MPB curves; Q_1 units should be produced at a higher price of P_1.

431. Figure 14.1 shows the market for gizmos. If the socially efficient quantity of gizmos was being produced, it would be the case that

(A) MSC > MPC = MPB > MPC
(B) MSC = MPC = MPB > MSB
(C) MSC = MPB = MSB > MPC

(D) MSC > MPC = MPB = MSB
(E) MSC = MPC = MPB = MSB

ANS :- (C) The market for gizmos is generating a negative externality because the marginal social cost exceeds the marginal private cost of producing them. The market will fail to recognize the external cost (the vertical distance between MSC and MPC), so the market will produce too many gizmos at Q_2 at a low price of P_2. If those external costs were internalized, the efficient quantity of gizmos would be lower at Q_1 and the price would reflect those external costs at the higher P_1. At this quantity and price, MPB = MSB = MSC, but MSC > MPC.

432. The market for education generates external benefits to society. At the market outcome, it is the case that
(A) MSB = MSC
(B) MPC = MSB
(C) MPC > MPB
(D) MSB > MPB
(E) MPB > MSB

ANS :- (D) This is the very definition of a positive externality. Whenever a positive externality exists, as it does in the market for education, there are external benefits to the broader society on top of the private benefits to consumers of education. On an incremental basis, this tells us that the marginal social benefit (MSB) curve lies above the marginal private benefit (MPB) curve.

433. The market equilibrium price of a goozum is $12, and the equilibrium quantity is 1,000 units. Suppose that every time a goozum is purchased, another citizen's welfare is improved by $1. At the equilibrium quantity, we can tell that
(A) The marginal private benefit of a goozum is $1
(B) The marginal social benefit of a goozum is $1,000
(C) The marginal private benefit of a goozum is $12,000
(D) The marginal social benefit of a goozum is $13
(E) The marginal private cost of a goozum is $1

ANS :- (D) The market price of a goozum is $12, so this tells us that the marginal private benefit to consumers of goozum is $12. But if the private consumption of a goozum creates $1 of extra benefit to someone else, it must be the case that the marginal social benefit is $13. For any quantity of goozums, the marginal social benefit is the market price (or marginal private benefit) plus the external benefit to third parties.

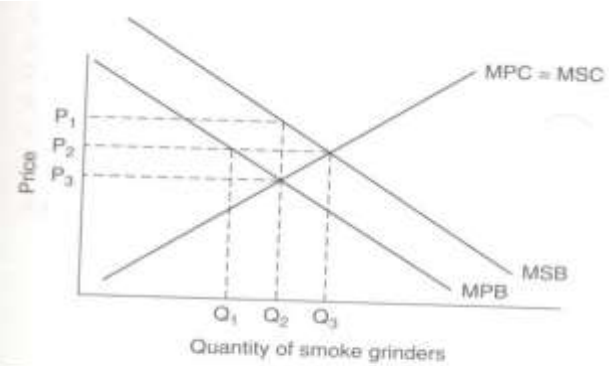


Figure 14.2

434. The market for smoke grinders is shown in Figure 14.2, on the previous page. At the market equilibrium, what can we say about the level of output, the price, and the level of deadweight loss?

Market ouput	Market Price	Deadweight loss
(A) Lower than the efficient output	Higher than the efficient price	Exists
(B) Lower than the efficient output	Lower than the efficient price	Exists
(C) Higher than the efficient output	Lower than the efficient price	Exists
(D) Higher than the efficient output	Higher than the efficient price	Exists
(E) Equal to the efficient output	Equal to the efficient price	Does not exist

ANS :- (B) The graph shows that the MSB curve lies above the MPB curve. This vertical distance is the external benefit society receives from the market for smoke grinders. The market will not recognize these external benefits, so it will produce a quantity Q_2 (where MPB = MSC = MPC) that is lower than the efficient quantity of Q_3 (where MSB = MSC = MPC). The market price P_2 will be lower than the efficient price P_3. Deadweight loss exist because the market is producing below the socially efficient level.

435. The market for smoke grinders is shown in Figure 14.2. Which of the following statements is accurate?

I. Deadweight loss exists because at Q_2 the MSB > MPB.
II. The socially efficient price of a smoke grinder is P_1.
III. A negative externality exists in this market.
IV. The socially efficient output is Q_1.

(A) I only
(B) I and IV only
(C) II only
(D) II and III only
(E) IV only

ANS :- (A) Deadweight loss exists because the socially efficient quantity of smoke grinders is not being produced in this market. The efficient quantity exists only if there is some way for the market to recognize that there are external benefits to society (MSB > MPB) from consuming and producing smoke grinders. If this is not the case, not enough smoke grinders will be produced.

436. The market for smoke grinders is shown in Figure 14.2. The deadweight loss in the market is equal to

(A) Zero
(B) $Q_2 \times (P_1 - P_3)$
(C) $\frac{1}{2} \times (Q_3 - Q_2) \times (P_1 - P_3)$
(D) $Q_1 \times (P_2 - P_3)$
(E) $Q_3 \times P_2$

ANS :- (C) The smoke grinder market is producing a quantity of Q_2 at a price of P_3, but because of the positive externality, this quantity is inefficient low and the price is too low. If the external benefits were internalized, the efficient quantity would be Q_3 smoke grinders at a price of P_2. The triangle between the efficient and inefficient

quantities, and bounded by the MSB and MPB curves, gives us the deadweight loss. This triangle is ($Q_3 – Q_2$) units wide and ($P_1 – P_3$) dollars high.

437. When production of a good generates harmful pollution to the environment, economists recognize a deadweight loss in that market because at the market outcome

(A) The marginal private cost exceeds the marginal social cost
(B) The marginal social benefit exceeds the marginal private cost
(C) The marginal private cost exceeds the marginal private benefit
(D) The marginal private cost exceeds the marginal social benefit
(E) The marginal social cost exceeds the marginal private cost

ANS :- (E) When pollution, a common source of negative externality, exists in a market, the external costs of that pollution will not be captured by the market. This creates a gap between the marginal private costs and the higher marginal social costs of production. Because the market ignores the marginal social costs, too much of this good will be produced, thus generating deadweight loss.

Use TABLE 14.1 for questions 438—440.

TABLE 14.1

Units of Plastics	Marginal Social Benefit = Marginal Private Benefit ($)	Marginal Private Cost ($)	External Cost ($)
1	15	5	4
2	14	6	4
3	13	7	4
4	12	8	4
5	11	9	4
6	10	10	4
7	9	11	4
8	8	12	4
9	7	13	4

438. Refer to Table 14.1. If the market for plastics is in equilibrium, what is the market price of plastics and the market quantity?

Market Price	Market Quantity
(A) $12	**4**
(B) $4	**5**
(C) $9	**7**
(D) $10	**6**
(E) $8	**8**

ANS :- (D) The table tells us that there are marginal social costs in the market for plastics; a negative externality exists. The market equilibrium will not recognize those $4 of marginal social costs, so the equilibrium will occur where the MSB = MPB = MPC, and this occurs at a price of $10 and the quantity of 6 units.

439. Refer to Table 14.1. If the market for plastics were producing at the socially efficient point, what is the efficient price of plastics and the efficient quantity?

	Market Price	Market Quantity
(A)	**$12**	**4**
(B)	**$4**	**4**
(C)	**$9**	**7**
(D)	**$10**	**6**
(E)	**$12**	**8**

ANS :- (A) The socially efficient quantity of plastics would be produced if the marginal social cost of producing plastics were equal to the marginal social and private benefit. The marginal social cost is the sum of the marginal private cost column and the external cost column of data. The MSC = MSB = MPB occurs at a quantity of 4 and a price of $12.

440. Refer to Table 14.1. The government wishes to impose a Pigouvian tax on plastics producers to eliminate the externality. How large should the tax be to move the output from the market outcome to the efficient outcome?

(A) $12
(B) $4
(C) $8
(D) $10
(E) $2

ANS :- (B) Because the market for plastics will recognize only the marginal private costs, the Pigouvian (or per-unit) tax on plastics must be added to the MPC data so that the market will move to the efficient quantity. The optimal tax must therefore be equal to the external cost of producing plastics, and in the table that cost is equal to $4 per unit.

441. During heavy rains the sewage treatment plant in town cannot handle the extreme volume of water that enters the facility, and it must release untreated sewage into the river that flows past Danielle's Day Care. The occasional aroma of sewage has caused Danielle to lose some customers, and her profits are falling. If we used the Coase theorem to remedy this situation, we might recommend

(A) A law requiring the sewage treatment plant to improve its handling of raw sewage
(B) A direct payment from Danielle to the sewage treatment plant to compensate the plant for her lost profits
(C) A direct payment from the sewage treatment plant to Danielle to compensate her for lost profits
(D) A per-unit tax on the sewage treatment plant equal to Danielle's lost profits
(E) A per-unit subsidy to the sewage treatment plant equal to Danielle's lost profits

ANS :- (C) The premise of the Coase theorem is that direct negotiations between parties can remedy the impact of a negative externality if the right to pollute, or the right to be safe from pollution, is clearly established. In this case, Danielle is the victim of a negative externality. The Coase theorem suggests that the sewage treatment facility could continue to occasionally pollute the river but would compensate Danielle for the damage to her profits. While a tax would lessen the pollution, this would not be a solution suggested by the Coase theorem.

442. Suppose that Killdeer Chemical has been a heavy polluter of the environment by releasing 500 tons of sludge every year. The government has dictated to Killdeer that they can emit only 250 tons or face steep penalties. This type of policy for the external costs of pollution is called

(A) A Pigouvian tax
(B) The Coase theorem
(C) Tradable emmisions permits
(D) Command-and-control standards
(E) A Pigouvian subsidy

ANS :- (D) When the government dictates strict limits on pollution, the policies are deemed command-and-control. The government gives the command to producers like Killdeer, and then Killdeer must act to control their sludge emissions. These policies can be effective, but economists find them to usually be an inefficient way to reduce pollution. Per-unit taxes and tradable pollution permits can often achieve the same goal of reducing pollution at lower cost to society.

443. The idea that externalities can be eliminated if the affected parties negotiate a settlement between themselves in the premise of

(A) A command-and-control standard
(B) A per-unit tax
(C) A Pigouvian subsoidy
(D) Tradable pollution permits
(E) The Coase theorem

ANS :- (E) The Coase theorem offered an alternative to direct intervention by the government in solving the market failures of externalities. The idea is very simple. If the number of people affected by the externality is small, the parties should be able to meet to discuss a solution. Theoretically, this solution would be efficient and less costly than involving government regulators or litigation.

444. When people get the flu shot, their action provide external benefits to the rest of us. These external benefits are not recognized by the market for flu shots. Of the following choices, which is the most direct way to achieve the socially efficient quantity of flu shots?

(A) Provide a per-unit subsidy to buyers of flu shots.
(B) Impose a per-unit tax on the providers of flu shots.
(C) Impose a per-unit tax on the buyers of flu shots.
(D) Require buyers and sellers to negotiate a fair price between themselves.
(E) Impose a price floor in the market for flu shots.

ANS:- (A) When a positive externality exists in a market, the market is not producing enough of the good or service, because the marginal social benefit of flu shots exceeds the marginal private benefit. If buyers of flu shots were given a subsidy equal to the external benefit, more people would pay for a flu shot and the market would get closer to the deficient quantity.

445. Because of the free-rider effect. A market will _____ a public good, requiring that _____ provide it.

(A) Underproduce; firms
(B) Efficiently produce; firms
(C) Underproduce; the government
(D) Underproduce; foreign consumers

(E) Overproduce; charities

ANS :- (C) When there is a free-rider effect, it means that some people are enjoying the benefit of a good or service without paying for it. In other words, the good or service is non-excludable. In this situation, private firms will find it impossible to profitably supply the good or service; not enough will be supplied by the market. Since the good or service is underproduced by the market, the government or nonprofit charities must step in to provide it.

446. If a negative production externality is present in a market,
(A) The marginal social cost exceeds the marginal private cost at the equilibrium output
(B) The marginal social cost is less than the marginal private benefit at the equilibrium output
(C) The marginal social cost is equal to the marginal private cost at the equilibrium output
(D) The marginal social benefit exceeds the marginal social cost at the equilibrium output
(E) The marginal social cost is less than the marginal private cost at the equilibrium output

ANS :- (A) A negative production externality describes a situation where there are spillover costs to society that go above and beyond the direct private costs of producing a good. The market supply curve reflects only the marginal private costs (MPC) of hiring inputs, but the spillover costs should be added to those marginal private costs to compute marginal social costs (MSC); therefore, MSC > MPC.

447. Positive externalities exist in market X when
(A) Consumers in market X receive spillover benefits from market X transactions
(B) Other third parties receive spillover benefits from market X transactions
(C) Producers in market X receive spillover benefits from market X transactions
(D) Third parties receive spillover costs from market X transactions
(E) Third parties are taxed by the government because of market X transactions

ANS :- (B) Positive externalities in market X mean that there are spillover benefits to society that are added to the private benefits. The private benefits are enjoyed by consumers making purchases in market X. However, if there are spillover benefits, others outside the market (third parties) are also enjoying something about the good in market X.

CHAPTER 15

PUBLIC AND PRIVATE GOODS

448. Which of the following is most likely a private good?
(A) A compact car
(B) Air pollution
(C) Local police departments
(D) Cancer research
(E) Space exploration

ANS :- (A) A compact car is a private good because it has two important characteristics: it is rival and it is excludable. Private goods are rival because once a consumer has purchased that particular car, nobody else can buy that same car. Private goods are also excludable because the seller can prevent a person from owning a car if that person is unwilling or unable to pay the going price.

449. Which of the following is most likely a public good?

(A) A pair of sandals
(B) A mobile phone
(C) A television
(D) A jet engine
(E) Space exploration

ANS :- (E) Public goods, like space exploration and other forms of scientific research, are those things that are both nonrival and nonexcludable. Something is nonrival if one person's consuming of 1 unit of the good does not prevent the next person from consuming that unit. There are really no consumable units for space research. A public good is nonexcludable if there is no way to prevent someone from the benefits of the good even if he or she is not paying for it. The knowledge gained from research or exploration is knowledge that all persons benefit from.

450. The characteristic of a private goods that describes how the good is distributed to those willing and able to pay it is called

(A) The commons
(B) Excludability
(C) Rivalry
(D) Efficiency
(E) Inefficiency

ANS :- (B) The excludability characteristic of private goods is what allows them to be exchanged in a market. Sellers can exclude a potential buyer from buying a good if that person is not willing or able to pay the price. If the good is distributed in a market, it ends up being sold to those who are willing and able to pay the market price.

451. A gallon of gasoline is a private good because it has the characteristic of _____.

(A) Homogeneity
(B) Nonrivalry
(C) Inefficiency
(D) Efficiency
(E) Excludability

ANS :- (E) A gallon of gasoline is a private good for two reasons: it is excludable and rival. The excludability characteristic is very important. If the owner of a gas station must give a gallon of gasoline to every person who wants one, even if they were not going to pay the price for it, the seller would not be in business very long.

452. There are twelve freshly baked apple pies at Dottie's bakery. While there are many people in town who should enjoy an apple pie, only those who are willing and able to pay the $10 price for a pie will receive a pie. This characteristic of apple pies is referred to as

(A) Excludability
(B) The commons
(C) Efficiency
(D) Rivalry
(E) Inefficiency

ANS :- (A) Dottie's bakery is happy to sell a customer an apple pie but will only do so if that person has $10 to spend oh the pie. This property of excludability makes Dottie's apple pies an example of a private good. If the pies

were nonexcludable, she could not profitably sell them, because she would be giving her piers to all persons, even those who did not have $10 to spend on a pie.

453. There are twelve freshly baked apple pies at Dottie's bakery. When Jason buys the very last apple pie, the next customer, Jennifer, finds there are no more pies and she must wait until tomorrow when more pies are ready for sale. Jennifer's situation is why apple pies have the characteristic of private goods known as

(A) Excludability
(B) Inefficiency
(C) Efficiency
(D) Rivalry
(E) The commons

ANS :- (D) The private good characteristic of rivalry means that consumers are rivals when it comes to buying scarce goods like the apple pies. Once Jason buys the last pie, that pie cannot be purchased by Jennifer or anyone else. The fact that pies are scarce and therefore rival means that there is a price that Dottie can charge in the market for pies and hope to earn a profit from the sale.

454. When economists say that a private good has the characteristic of excludability, it means that

(A) The government must provide the good to all, even if they are unwilling and unable to pay the price
(B) The same unit of a good cannot be consumed by more than one consumer at a time
(C) Sellers prevent buyers from buying the good if they are willing or unable to pay the price
(D) Access to the good is open for all to use and consume
(E) The government cannot produce the good and sell to consumers

ANS :- (C) This is the very nature of excludability, and it tells a lot about how private goods are distributed to consumers. Private goods are distributed in markets to those who can afford the market price that is determined by the intersection of market supply and market demand. If an individual's income or willingness is insufficient to pay the going price, they will not receive a unit of this good.

455. A gallon of milk is a private good because it has the characteristic of _____.

(A) Nonexcludability
(B) Rivalry
(C) A common resource
(D) Efficiency
(E) Homogeneity

ANS :- (B) The characteristic of rivalry is also important in defining private goods and understanding how they are effectively exchanged in markets. The characteristic of rivalry means that a particular unit of a good cannot be bought and consumed by two different consumers. If one person buys a gallon of milk, the next person cannot also buy that some gallon of milk.

456. When economists say that a private good has the characteristic of rivalry, this means that

(A) The government must provide the good to all, even if they are unwilling and unable to pay the price
(B) The government cannot produce the good and sell to consumers
(C) Sellers prevent buyers from buying the good if they are unwilling and unable to pay the price
(D) The same unit of a good cannot be consumed by more than one consumer at a time
(E) Access to the good us open for all to use and consume

ANS :- (D) When it comes to purchasing units of scarce private good, consumers are certainly rivals. This is never truer than during holiday shopping rush to buy the very last units of a particular popular toy or gadget. Only so many units of the item are on the shelf, and once a particular unit has been purchased, it cannot be purchased by another person.

457. Stan bought a can of soda for $1 at a vending machine. Which of the following demonstrates how cans of cans have the rivalry characteristic of private goods?

(A) Sharon wants to buy a soda but can't find $1 in her desk; so she goes without.
(B) Sharon doesn't like soda, so she doesn't buy any from the vending machine.
(C) The office manager has removed the vending machine so nobody can buy sodas.
(D) The office manager has a never-ending supply of sodas and provides one to any thirsty employee at no cost.
(E) Sharon goes to buy a soda but discovers than Stan has drunk the last one.

ANS :- (E) The nature of rivalry in markets for private goods is that once Stan has purchased and consumed that last soda, it cannot be consumed by Sharon or anyone else. Sodas, like all goods and services, are scarce and thus limited in availability. Choice A alludes to the excludability of private goods. Sharon wants a soda but cannot come up with the money to pay for it, so she is, at least temporarily, excluded from that market.

458. Which of the following are private goods?

I. A leather coat
II. A city fire hydrant
III. The country sheriff's policing
IV. A pair of sunglasses
(A) I only
(B) II and III only
(C) I, II, and IV only
(D) I and IV only
(E) III only

ANS :- (D) The leather coat and sunglasses are both private goods because both are rival and excludable and will be effectively exchanged in the market. For both goods, they are rival because once a particular coat or sunglasses are purchased, they cannot also be purchased by another person. They are both excludable because only those who can pay the market price will be able to buy the goods.

459. A meatball sub sandwich is a private good because it is

(A) Nonrival and nonexcludable
(B) Rival and nonexcludable
(C) Rival and excludable
(D) Nonrival and excludable
(E) Inefficient and unprofitable

ANS :- (C) A meatball sub sandwich is both rival and excludable, making it a private good. The good is excludable because the sandwich shop can refuse the sale of a sandwich to a person who doesn't want to pay the going price. The sandwich also has the rivalry characteristic because once a person has consumed that sub, it cannot be consumed by another person.

460. Which of the following is unlikely to be effectively exchanged in a market?

(A) Streetlights
(B) Gasoline
(C) Apples
(D) Paintbrushes
(E) Picasso paintings

ANS :- (A) Streetlights are considered public goods because they are both nonrival and nonexcludable and are therefore unlikely to be exchanged in a market. The streetlights are nonrival, because if a person enjoys the light, that person does not prevent someone else from enjoying the light. In this way, the light is not scarce. It would also be impossible to make a person pay for the use of the light when that person could just continue walking down a darkened street without paying. Because there is really no price that could exclude anyone, a market will fail to emerge for it.

461. Stoplights in a neighborhood are public goods because they are

(A) Nonrival and nonexcludable
(B) Rival and nonexcludable
(C) Rival and excludable
(D) Nonrival and excludable
(E) Efficient and rival

ANS :- (A) when one person sees and reacts to the stoplight, it does not go away for the next person who sees it. In other words, the benefit of the stoplight is not going to be exhausted if many people pass through that intersection. It would also be highly impractical for an entrepreneur to sell individuals a peek at the stoplight and prevent people from viewing the light if they were unwilling to pay. The light must be provided to all and is therefore nonexcludable.

462. Which of the following are public goods?

I. A NASA mission to Mars
II. A city fire department
III. A city park
IV. A pair of pants
(A) I only
(B) I, II, and III only
(C) I and II only
(D) II and III only
(E) IV only

ANS :- (B) These three goods and services are classic examples of public goods because they are nonrival and nonexcludable. City parks, protective services (like fire and police departments), and scientific research cannot be provided by the markets, because consumers will enjoy the benefits without paying (nonexcludable) and there are no real units to be consumed (nonrival). These goods and services benefit everyone and therefore must be provided by the government.

463. If a city installs a new art sculpture in the center of the city park, the sculpture is considered a public good because

(A) The city, not a corporation, hired a sculptor to create the artwork
(B) One person's enjoyment does not prevent another person from enjoying it

(C) The sculptor charged $25,000 to create the artwork
(D) The first person to visit the park prevents other visitors from seeing the sculpture
(E) The city will profit from charging each person viewing the artwork $2 for the pleasure to do so

ANS :- (B) The sculpture, like any piece of public art, is nonrival, just because Susan views the artwork does not mean she has reduced the inventory of art by 1 unit. The city could try to charge $2 to view the art, but people could always view the sculpture by viewing it from a distance or by not going to the park at all.

464. A common resource, like wild mushrooms growing in a public forest, is
(A) Nonrival and nonexcludable
(B) Rival and nonexcludable
(C) Efficient and excludable
(D) Nonrival and excludable
(E) Efficient and rival

ANS :- (B) Common resources, like the wild mushrooms in a public forest, are rival. If Melanie and Max harvest a wild mushrooms, Eric and Eli cannot also harvest that same mushroom. Because the forest is public, anyone can walk into the forest and begin to search for the mushrooms. This could lead to a rush to harvest the scarce mushrooms.

465. When common resources, such as schools of fish in the ocean, are _____ and _____, they tend to be _____.
(A) Nonrival; nonexcludable; overharvested
(B) Nonrival; excludable; overharvested
(C) Rival; nonexcludable; overharvested
(D) Rival; excludable; underharvested
(E) Rival; nonexcludable; underharvested

ANS :- (C) Schools of fish in the ocean are nonexcludable because virtually anyone can access the ocean and try to catch the fish. However, once the fish is caught by one person, it is rival because it cannot be caught by another person. The combination of rival and nonexcludable characteristics means that the fish will be overharvested. After all, if I don't catch that fish, someone else will.

466. Suppose that a stand of old=growth forest is on the public property and nobody can claim ownership of the trees. The trees and the lumber that they would provide are referred to as
(A) Private good
(B) Public good
(C) Negative externality
(D) Common resource
(E) Artificially scarce good

ANS :- (D) Timber on public land is a classic example of a common resource. The trees in the public forest are nonexcludable because anyone can come to a harvest a tree. However, the tree is also rival because once it is cut sown by one person, it cannot be felled by another person.

467. Which of the following best fits in the description of a common resource?
(A) A new house
(B) National defense

(C) Space exploration
(D) A manicure
(E) **Lobsters off the coast of New England**

ANS :- (E) Lobsters, like all fish and shellfish in the ocean, are common resources. They are rival because if Sven catches a lobster in his trap, his buddy Ollie can't also catch that lobster. They are also nonexcludable because the ocean is open to anyone who wants to drop a lobster trap and try to harvest lobster.

468. When a commonly held resource is overexploited because of a lack of property rights, it is referred to as a(n)
(A) Natural monopoly
(B) Tragedy of the commons
(C) Positive externality
(D) Spillover benefit
(E) Economic growth

ANS :- (B) The tragedy of the commons refers to the likely outcome of having an absence of property rights for a common resource that is both rival and nonexcludable. If a common resource, like wild mushrooms in a public forest, is not owned by anyone, it will be overharvested. After all, nobody is there to prevent a person from harvesting mushrooms, and the scarcity of the mushrooms causes everyone to harvest as many possible, as quickly as possible.

469. The city of Madison has a very large fireworks shows to celebrate Independence Day. The city knows that it cannot successfully charge an admission fee for the show, because people can easily view the fireworks from their homes without paying. This behavior is known as
(A) Private good problem
(B) Government bureaucracy problem
(C) Free-rider problem
(D) Tragedy of the commons
(E) Negative spillover costs

ANS :- (C) If a good like the fireworks show is nonexcludable, it will create a situation where people will choose to view the show without paying for it. If the fireworks are ignited for the pleasure of one, they are going to be visible for the pleasure of all. As a result, nobody will pay for the show, they will be free riders, and the city must provide it.

470. George, Elaine, and Jerry are working on a group project for their statistics class. The professor will give each student the same grade, no matter how much effort each student puts forth. George knows that Jerry and Elaine will work tirelessly to make the best grade on the project, so George puts forth minimal effort. Economists describe George's behavior as
(A) Free riding
(B) The tragedy of the commons
(C) Positive spillover benefits
(D) Irrational
(E) A private good

ANS :- (A) Any student who has worked on a group project like this has experienced with the free-riding behavior of people like George. If the student knows he will receive the same grade as the hardest-working member of the group, that free-riding student will put forth less than maximum effort.

471. Suppose a public art museum charges no admission fee, but asks for voluntary contributions from those who attend the museum. Economists would expect that contributions would be _____ because of _____ behavior.

(A) Low; irrational
(B) High; free-riding
(C) Low; inefficient
(D) High; rational
(E) Low; free-riding

ANS :- (E) Suppose that a person can attend the public art museum and enjoy all of the exhibits without contributing any cash to the voluntary collection box. Economists would describe this free-riding behavior as entirely rational and would expect that not much cash will be collected from the museum visitors. Because of this, museum must conduct fund-raising drives and receive government financial support.

472. A pay-per-view movie costs $10 for a cable TV subscriber, but many thousands of households can simultaneously view the movie. This movie's characteristics would be described as

(A) Rival and nonexcludable
(B) Efficient and nonrival
(C) Nonrival and excludable
(D) Rival and excludable
(E) Inefficient and excludable

ANS :- (C) Because a person cannot get the pay-per-view movie unless he or she pays the price of $10, the movie is excludable. However, in this situation a person's consumption of the movie does nothing to prevent thousands of other people from consuming the very same movie at the very same time. This makes the movie nonrival in consumption.

473. Which of the following goods would be considered nonrival and excludable?

(A) A gallon of gasoline
(B) Local police departments
(C) Scientific research
(D) Satellite television programming
(E) Satellite television programming
(F) A laptop computer

ANS :- (D) A satellite television programming is excludable because the satellite TV company will not connect a person to their network unless that person pays the price they are charging. However, once a person has paid the price and hooked up to the programming, that person can consume those television shows without reducing the quantity available to other viewers.

474. A large state forest charges an annual fee for a pass, but people with the pass can hike in state forest as much as they like. The state forest is

(A) Excludable and nonrival
(B) Excludable and rival

(C) Nonexcludable and rival
(D) Inefficient and rival
(E) Nonexcludable and nonrival

ANS :- (A) The state forest pass is excludable because I cannot receive access to the hiking trails if I am unwilling or unable to pay the fee. However, once I have paid the fee, I can hike in the forest as much as I like without consuming "units" of the hiking experience away from other pass holders. When goods are excludable but nonrival, they are sometimes referred to as "artificially scarce" goods or "club"goods.

475. Which of the following examples is most likely a common resource?
(A) Cans of soup
(B) Pay-per-view wrestling matches
(C) Tickets to the World Cup
(D) Oysters in Chesapeake Bay
(E) National defense

ANS:- (D) A common resource, like an oyster in Chesapeake Bay, is both rival and nonexcludable. It is nonexcludable because the bay is open for anyone with sufficient equipment to harvest oysters and consume or sell them. The oysters are rival in that once a person harvests that oyster, it cannot be harvested by another person.

476. Which of the following is the best example of a tragedy of the commons?
(A) A huge crop of rice causes prices to fall.
(B) Rough streets causes the city to pave the problems.
(C) Unlimited duck hunting causes the duck population to decline.
(D) A sale on lawn furniture causes the store to run out.
(E) A hurricane wipes out the coffee crop in Hawaii.

ANS :- (C) The tragedy of the commons emerges when there is a common resource that is rival and nonexcludable. Natural resources like ducks are rival because once a duck has been bagged by any hunter, it cannot be bagged by another. However, ducks are nonexcludable because anyone can go out to harvest ducks. If the harvest of ducks, fish, deer, and other wildlife is not regulated with licensing and limits, these species are likely to be greatly depleted.

477. Which of the following is most likely to be exchanged in a market?
(A) Climate change research
(B) City police
(C) Fire hydrants
(D) National defense
(E) Apartments

ANS :- (E) Markets are effective in exchanging private goods, so we must look for the choice that identifies a good that is both rival and excludable. An apartment is rival because a tenant cannot rent the apartment from the landlord unless he or she is paying the rent. The apartment is also excludable because once it is rented to one person, it cannot also be rented to the next person. The other choices represent public goods either at local, national, or international level.

CHAPTER 16

INCOME INEQUALITY AND POVERTY, AND TAXES

478. A poverty line is best described as which of the following?

(A) A line describing proportional income below which people struggle to survive
(B) An amount of income below which survival is impossible
(C) A level of income that is set by a government or other agency beneath which people are described as being "in poverty"
(D) A line that represents unequal proportions of income, below which people are described as being "in poverty"
(E) An absolute level of income that always describes people as being poor

ANS :- (C) The poverty line describes a level of income that is set by a government (or other agency such as the World Bank). Anyone earning an income less than that level of income is considered to be living "in poverty". The amount of income that qualifies as being the poverty line varies by country. A poverty line is a "threshold" measure in the sense that anyone earning beneath the poverty line is in poverty, but even $1 more in income makes someone not in poverty.

479. In the United States, the poverty line is equal to approximately:

(A) $10,000 for a family of 4
(B) Three times the amount of income required to have an adequate diet
(C) The amount of income it takes to rent a one-bedroom apartment and feed a family of four
(D) The minimum level of income that is required to survive
(E) The dollar amount of income that is required to be considered middle class

ANS:- (B) The poverty line in the United States is based on the amount of money that is required to obtain an adequate diet. This is because the Department of Agriculture determined that a family of three spent approximately $1/3$ of their income on food. This amount is adjusted annually to account for inflation.

480. Which of the following is a potentially source of income inequality?

I. Differences in ability
II. Differences in age
III. Differences in education and training

(A) I only
(B) II only
(C) III only
(D) I and III only
(E) I, II, and III

ANS :- (E) Differences in income, and thus differences in income inequality, can depend on any factor that causes incomes to differ. Differences in innate ability may lead to differences in marginal productivity and thus differences in income. There are life-cycle effects of income as well, where the very old and very young can earn less than people somewhere in between. Finally, more education can lead to higher productivity.

481. Which of the following is just a justification for income equality that is based on positive analysis?

(A) It is unfair that some people can earn more than others.
(B) The marginal benefit of wealth is lower at high levels of wealth and higher at lower levels of wealth.
(C) Guaranteeing income equality may alter incentives to make harder work more attractive.
(D) Unequal incomes are illegal.
(E) Unequal income always reflects discrimination against the poor.

ANS :- (B) According to the idea of diminishing marginal returns, wealth and income also have diminishing marginal returns. This means the benefit of $1 of additional income is much greater the lower the income level. If there is a great deal of income inequality with the majority of income earned by a small number of people, the total benefit of wealth to society is likely to be low.

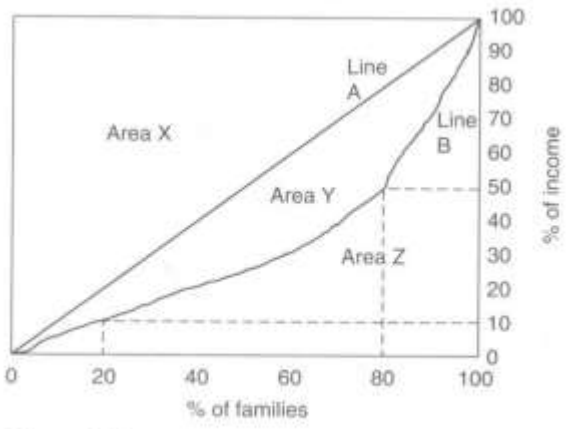


Figure 16.1

482. Refer to Figure 16.1. What does Line A represent?

(A) The poverty line
(B) The line of equality of income
(C) The Lorenz curve
(D) The quintile line
(E) The line of income inequality

ANS :- (B) Line A represents the line of equality. That is, any point on Line A represents the proportion of the population such that each income group earns exactly that level of income. For instance, along Line A, the 20th percentile income group earns exactly 20% of income, and the 80th percentile group earns exactly 80% of income. The line of equality is at a 45-degree angle from each axis.

483. Refer to Figure 16.1. What does Line B represent?

(A) The poverty line
(B) The line of equality of income
(C) The Lorenz curve
(D) The quintile line
(E) The decile line

ANS :- (C) Line B represents the Lorenz curve. This curve represents the cumulative distribution of wealth in a country. Each point along the Lorenz curve represents the cumulative amount of income that a particular

percentile of wealth earns. For instance, if the population axis is broken down by quintiles (i.e., by fifths of the population, so 20% of the population, 40%, 60%, 80%, and 100%) and point at 50% of the population is 10%, this is saying that 50% of the population cumulatively earns just 10% of the income.

484. Refer to Figure 16.1. Which of the following statements is true?

(A) The farther away the Lorenz curve is from the line of equality, the greater the amount of income inequality.
(B) The closer the Lorenz curve is to the line of equality, the greater the amount of income inequality.
(C) The more vertical Line A is, the greater the degree of income inequality.
(D) The less vertical Line A is , the greater the degree of income inequality.
(E) The higher Line B is above Line A, the degree the degree of income inequality.

ANS :- (A) The farther a Lorenz curve is from the line of perfect equality, the more unequally, the more unequally distributed the income is in the nation. In other words, the farther away the actual distribution of income is from what would be perfectly equal, the greater the amount of income inequality. The distance between these two curves is exactly what the Gini coefficient measures.

485. Refer to Figure 16.1. Which of the following areas is needed to calculate the Gini coefficient?

I. X
II. Y
III. Z
(A) I and II only
(B) I and II only
(C) I only
(D) I, II, and III
(E) II and III only

ANS:- (E) The idea behind the Gini coefficient is that it calculates the total area (Y) between the line of perfect equality and the Lorenz curve. The bigger this area, the further away this society is from having equitable income distribution. Taken as a ratio, the Gini coefficient is the area Y divided by the sum of area Y and Z. The Gini is useful, because the greater this coefficient, the greater the degree of income inequality.

486. Refer to Figure 16.1. How is the Gini coefficient calculated?

(A) Line B – Line A
(B) Line A – Line A
(C) Area X/Area Y
(D) Area X/(Area Y + Area Z)
(E) Area Y/(Area Y + Area Z)

ANS :- (E) The Gini coefficient measures the area between the two curves as a ratio of the total area underneath the line of equality. The Gini coefficient represents the degree of income inequality that exists. In other words, the Gini coefficient measures how far away the Lorenz curve is from the line of equality. The larger the Gini coefficient, the more unequal the income distribution, and the smaller the Gini coefficient, the closer the economy is to having perfect income equality.

487. Refer to Figure 16.1. Which of the following statements is true?

(A) 10% of families earn $20,000 in income each.
(B) 20% of families each make 10% of all income earned in the country.
(C) 20% of families earn a total of 10% of the income earned in the country.
(D) 60% of families earn 50% of the income in the country.
(E) Income is distributed equally in this country.

ANS :- (C) The Lorenz curve reflects a cumulative distribution, so each point on the Lorenz curve represents the cumulative amount of income earned by that group. For instance, suppose the total amount of income in this country is $400,000 and the population is 100 people. The 20th percentile represents the 20 people earning at least. Earning 10% of the total income means that earnings of these 20 people are $40,000.

488. Which of the following is true of a Gini coefficient?

I. The closer the Gini coefficient is to 1, the greater the degree of income inequality.
II. The Gini coefficient is a good measure of poverty.
III. The closer the Gini coefficient is to 0, the greater of income inequality.
(A) I only
(B) II only
(C) III only
(D) I and II only
(E) II and III only

ANS :- (A) The Gini coefficient measures the degree of income inequality only, not the extent of poverty. In fact, it is entirely possible for a country to have a very low Gini coefficient and a very high degree of poverty(e.g., if everyone in a country had income that was equally distributed, but all lived beneath poverty line). Since the Gini coefficient measures the distance between the Lorenz curve and the linje of equality, a Gini coefficient of zero effectively says that they are the same curve.

489. Jenny earns an income of $10,000 and Samford earns an income of $40,000. If they each earn another $1,000 of income, Jenny will pay $100 in tax and Samford will pay an additional $400 in tax. Which of the following statements is true?

(A) Samford has a lower average rate than Jenny.
(B) Samford has a lower marginal tax rate than Jenny.
(C) Samford has a higher marginal tax rate than Jenny.
(D) Samford and Jenny pay the same marginal tax rate.
(E) Samford and Jenny both pay a proportional tax.

ANS :- (C) The marginal tax rate is the amount that each additional dollar of income is taxed. Since Jenny pays $100 in tax on $1,000 in income, she pays a $100/$1,000 = 10% marginal tax rate. Since Samford pays $400 in tax on $1,000 in income, $400/$1000 = 40% marginal tax rate. While it may be tempting to say that this is a proportional tax, because each pays a proportion of their income in tax, a proportional tax is when each person pays the same proportion of tax, regardless of income. For example, if there was a 10% proportional tax on income, Jenny would pay a total of $1,100 in tax and Samford would pay a total of $4100 in tax.

490. Jenny earns an income of $10,000 and Samford earns an income of $40,000. If they each earn another $1,000 of income, Jenny will pay $100 in tax and Samford will pay an additional $400 I tax. Which of the following beat describes the type of tax system that Jenny and Samford are in?

(A) Flat tax
(B) Progressive tax
(C) Regressive tax
(D) Capital gains tax
(E) Sales tax

ANS :- (B) Jenny and Samford are under a progressive tax system, meaning as income increases, the average tax rate increases. For instance, suppose that each pay the same tax rate of 20% on their initial level of income. This means that if Jenny earns an additional $1,000 of income, she will pay 20% × $10,000 + 10% × 100 = $2,100 in tax, or an average tax rate of 2,100/11,000 = 19.1%. If Samford earns an additional $1,000 in income, he will pay 20% × 40,000 + 40% × 1000 = $8,000 + $400 = $8,400, which gives him an average tax rate of about 20.5%. Since he pays a higher tax rate at a higher income, this is considered a progressive system.

491. Charles earns $20,000 per year and spends about 10% of his income on food. Prodigy earns $30,000 per year and spends about 8% of his income on food. If a tax rate on food of 3% is imposed, what kind of tax is this?

(A) Flat tax
(B) Progressive tax
(C) Regressive tax
(D) Capital gains tax
(E) Negative income tax

ANS :- (C) If Charles spends $2,000 of his income on food and 3% of this is taxed. Charles would pay $60 in tax, giving him an average tax rate of 0.3%. If Prodigy spends 85 of his income on food, he spends $2,400 on food and pays $72 in tax, giving him an average tax rate of 0.24%. Since Prodigy pays a lower average tax rate even though his income is higher, this would be an example of a regressive tax.

492. If the labor supply curve is more _____, then redistributive wealth policies will lead to _____ incentive to work.

(A) Elastic, no change in
(B) Inelastic, no change in
(C) Elastic, an increased
(D) Inelastic, a decreased
(E) Elastic, a decreased

ANS :- (E) If the labor supply curve is elastic, this means that people's work effort would be very responsive to changes in income. If redistributive income policies lead to less additional income for more effort and people are responsive to this, then wealthier people may respond to redistributive wealth policies by reducing work effort. This is one of the reasons that some policy makers oppose redistributive wealth policies.

493. Which of the following pairs of income tax policy and labor supply would be associated with the smallest efficiency loss?

(A) Elastic labor supply, flat tax
(B) Elastic labor supply, highly progressive tax
(C) Elastic labor supply, highly regressive tax
(D) Elastic labor supply, negative income tax
(E) Inelastic labor supply, flat tax

ANS :- (C) If the labor supply curve is elastic and if net income after tax increases, then individuals will provide more work effort to earn ore. If there is a regressive tax, the more you earn, the lower your effective tax rate, thus giving incentives to work harder and minimizing inefficiency from taxation. Unfortunately, the trade-off for this efficiency is equity—this would result in the least amount of wealth redistribution from higher-income people to lower-income people.

494. If a policy maker was most concerned with equity issues, which of the following taxes would that policy maker likely propose?

(A) Regressive income tax
(B) Progressive income tax
(C) Flat income tax
(D) Flat sales tax
(E) Lump sum tax

ANS :- (B) A progressive income tax is a redistributive wealth policy. This is because those at higher incomes pay a greater share of the tax as a proportion of their earnings, while lower-income individuals, who are more likely to use public services, pay a lower share of tax as a share of their own earnings. Therefore, if a policy maker was more concerned about equity than efficiency, he or she would choose a redistributive wealth policy such as progressive income tax.

495. Which of the following is the most appropriate measure to determine the actual share of taxes that an individual pays?

(A) Average tax rate
(B) Marginal tax rate
(C) Efficient tax rate
(D) Mandatory tax rate
(E) Equity tax rate

ANS :- (A) The average tax rate measures the true share of an individual's income that he or she pays in taxes and is in fact the effective rate of taxation. For instance, if a person earns $10,000 per year and pays a 10% tax rate on the first $5,000 in income, and a 20% tax rate on the next $5,000 in income, that individual pays a total of ($5,000 × .10) + ($5,000 × .20) = $1,500 in taxes. We can then divide $1,500/$10,000 = 15%, and see that this person has an overall, or average, tax rate of 15%.

496. Which of the following statements best describes the idea behind the equity and efficiency trade-off?

(A) In order to make a few people better off, you will have to make the vast majority of people worse off.
(B) The most effective way for a corporation to pay a tax is to pass it along to the shareholders.
(C) The most efficient tax rate is one that taxes everyone at the same rate (i.e., an equitable tax rate).
(D) To achieve a more equitable income distribution through tax policy.
(E) Equity cannot be achieved, but efficiency can be achieved.

ANS :- (D) The idea behind the equity-efficiency trade-off is that these goals are mutually exclusive: to obtain a higher degree of equity through redistributive policies, you alter individual incentives, which may lead to inefficiencies (which we capture with the concept of deadweight loss). Therefore, policy makers with one of these objectives to achieve that goal.

497. Marjorie earns $100,000 per year and pays an average tax rate of 25%, Randi earns $80,000 per year and pays an average tax rate of 15%, and Renee earns $45,000 per year and pays no income tax, but receives a tax refund due to tax credits of $4,500 per year. Which of the following features does this tax system include?

(A) Progressive taxes, regressive taxes, and flat taxes
(B) Regressive taxes and flat taxes
(C) Regressive taxes and income taxes
(D) Progressive taxes and lump sum taxes
(E) Negative income tax and progressive taxes

ANS :- (E) The higher income that each individual earns, the greater the effective tax rate that each person pays. This is the definition of a progressive tax. Note that one person pays no tax and receives a tax refund, even though that person hasn't paid any taxes. This negative income tax is effectively a subsidy.

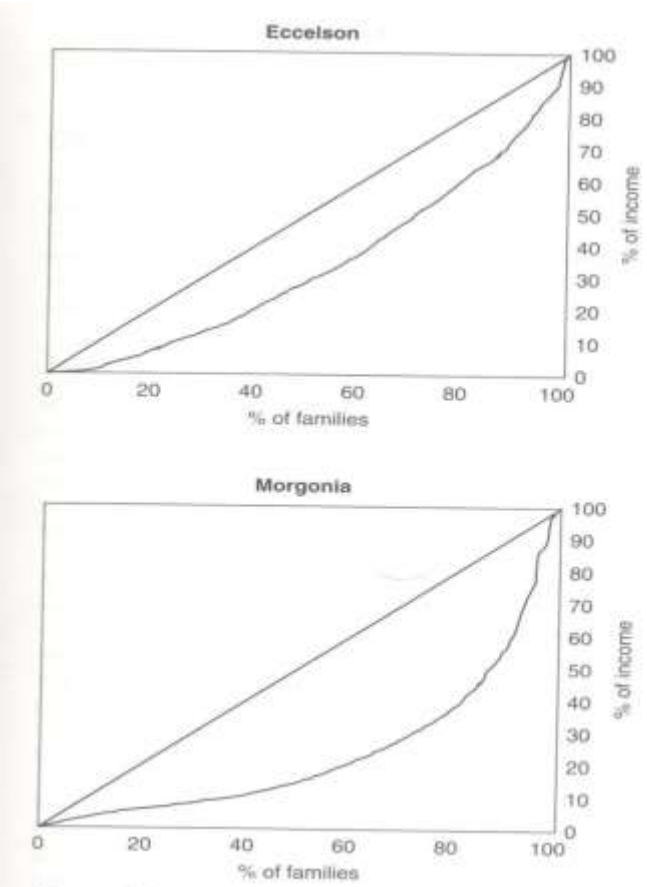


Figure 16.2

498. Refer to Figure 16.2, on the previous page. Which of the following statements can be made based on the information in the figures?

(A) Eccelson has a higher degree of poverty than Morgonia.

(B) Morgonia has a higher degree of poverty and inequality than Eccelson.

(C) Morgonia has a higher degree of inequality than Eccelson.

(D) Morgonia has a higher tax rate than Eccelson, which has caused greater inequality.

(E) Morgonia has a higher level of inequality caused by educational disparities.

ANS :- (C) The Lorentz curve shown in Figure 16.2(i) and 16.2(ii) only inform us of the income distribution of each country. We can tell by the area between the Lorentz curve and line of equality for each country that Morgonia has a higher degree of income inequality than Eccelson. However, this does not give any indication of the source of the inequality or even the poverty level in each country.

499. Which of the Gini coefficients is closer to the Gini coefficient that represents income inequality in the United States since the year 2000?

(A) 0
(B) 1
(C) .95
(D) .30
(E) .45

ANS :- (E) The United States has a Gini coefficient that has ranged from about .45 to .47 over the period 2000—2011. Other countries with a similar degree of income inequality are the People's Republic of China, Pakistan, and Argentina. The United States has a relatively greater degree of income inequality compared to other developed nations such as Canada and the United Kingdom.

500. Which of the following regions has the highest Gini coefficients?

(A) Southern Europe (countries such as Greece, Italy, and Spain)
(B) Southern Africa (countries such as Botswana, Namibia, and South Africa)
(C) Northern Europe (countries such as Finland, Norway, and Sweden)
(D) The Middles East (countries such as Iran, Israel, and Yemen)
(E) Australia

ANS :- (B) The highest degree of income inequality, and thus the highest Gini coefficient, is found in far southern Africa. South Africa , Botswana, Lesotho, and Namibia all have Gini coefficients greater than 6. The smallest amount of income inequality, and thus the smallest Gini coefficients, is found in Northern European countries such as Sweden and Norway.

MACROECONOMICS

CHAPER 1

General Macroeconomic Issues

1. The ---- is the short-run alternation between economic downturns and economic upturns.
- **(A) Aggregate demand curve**
- **(B) Economic growth rate**
- **(C) Business cycle**
- **(D) Product life cycle**
- **(E) Circular flow model**

ANS : (C) The economy rises and falls over time as a result of many factors like economic policy, international events, and political decisions. Economists describe these fluctuations as the business cycle. When the economy is weakening, it is said that we are in a contraction or recession; the end of a contraction is called the trough of the cycle. When the economy is strengthening, we are through an expansion; the end of an expansion is called the peak of the cycle. One full business cycle is measured from peak to peak or trough to trough.

2. Since the Great Depression, most economists believe that economic policy can smooth out the volatile fluctuations of
- **(A) The Business cycle**
- **(B) The national debt**
- **(C) Tax rates**
- **(D) Government spending**
- **(E) International trade**

ANS : (A) Prior to the Great Depression, it was commonly accepted that the economic business cycle was impervious to policy decisions. No matter what a government might choose to do, the natural expansion and contraction of the economy would keep moving forward over time. The pain of the Great Depression convinced many economists that there was certainly a role for a more activist approach to smoothing out the swings of the business cycle. John Maynard Keynes is one of the most well-known economists to take this position, and his prescriptive policies have come to be known as Keynesian economics.

3. As the business cycle is rising, the economy is experiencing
- **(A) A depression**
- **(B) The peak**
- **(C) An expansion**
- **(D) A recession**
- **(E) The trough**

ANS : (C) The business cycle is typically described in four stages : contraction, trough, expansion and peak. If the level of economic activity is rising, the economy is improving, and we are in the expansion stage. When expansion ends at the peak, the economy is about to take a downturn into contraction. At the end of the contraction is the trough, and we are about to turn back into the expansion stage.

4. When the business cycle is in the ––––– stage, the unemployment rate is ––––.

(A) Contraction; falling
(B) Expansion; falling
(C) Trough; at its lowest
(D) Peak; at its highest
(E) Expansion; equal to zero

ANS : (B) The unemployment rate is inversely related to the strength of the economy. When the economy is strong, or in the expansion stage of the business cycle, jobs are plentiful and unemployment rate falls. The unemployment rate, even when we are at the peak of the business cycle, will never be equal to zero, because there will always be people who are moving back and forth between jobs looking for better opportunities.

5. When the business cycle is in the ––––– stage, the unemployment rate is ––––

(A) contraction; falling
(B) Expansion; rising
(C) Trough; at its lowest
(D) Trough; at its highest
(E) Trough; equal to zero

ANS : (D) As the economy moves through the business cycle, the unemployment rate moves in the opposite direction. When the economy is weakening, or going through the contraction stage, employers are reducing their hiring of labor, and the unemployment rate goes up. At the bottom of the business cycle, the trough, the unemployment rate is usually the highest.

6. Typically the rate of inflation begins to increase at what stage of the business cycle?

(A) Depression
(B) Contraction
(C) Trough
(D) Expansion
(E) Peak

ANS : (D) As the economy moves through the business cycle, household purchasing is moving in the same direction. When the economy is beginning to get stringer and moving into the expansion phase, households begin to increase their purchasing of goods and services. Firms begin seeing an increase in sales and a decline in inventories. This consumption begins to increases prices throughout the economy, so we begin to see more inflation as the economy is in expansion. At the peak of the business cycle, inflation should be at its highest point and is about to slow down as economic activity falls into the contraction phase.

7. Usually when the business cycle is in the ––––– stage, the inflation rate is ––––.

(A) Contraction; falling
(B) Expansion; falling
(C) Peak; at its lowest
(D) Trough; at its highest
(E) Peak; negative

ANS : (A) As the economy is moving through the business cycle, the inflation rate is moving in the same direction. When the economy is weakening, or going through the contraction stage, households are buying fewer goods and

services, firms are finding inventories rising, and prices begin to fall. At the bottom of the business cycle, the trough, the state of economic activity is at its lowest and the inflation rate is usually lowest.

8. A nation's measure of national output is typically weakest during which stage of the business cycle?
- **(A) The peak stage**
- **(B) The trough stage**
- **(C) The expansion stage**
- **(D) The growth stage**
- **(E) The inflationary stage**

ANS : (B) National output, or GDP, is the broadest measure of economic activity. When the economy is expanding, GDP will be rising and rising at a faster rate. On the other hand, when the economy is contracting, GDP will be slowing down and perhaps even declining. At the bottom of the business cycle, the trough, economic activity is its weakest.

9. Suppose the economy is experiencing a very strong expansionary stage of the business cycle. Which of the following is likely true?
- **(A) National income is falling.**
- **(B) The employment rate is falling.**
- **(C) Gross domestic product is rising.**
- **(D) The unemployment rate is rising.**
- **(E) The inflation rate is falling.**

ANS : (C) Gross Domestic Product (GDP) is the measure of a nation's level of economic activity, and therefore, GDP rises and falls with the business cycle. During a recession, or contraction, households and firms boost their spending, employers increase the quantity of labor hired, and GDP rises.

10. Economic growth is
- **(A) The long−run increase in national output**
- **(B) The same as an expansion in the business cycle**
- **(C) Achieved only when the unemployment rate reaches zero**
- **(D) Experienced at the peak of the business cycle**
- (E) **The natural result of the end of a recession**

ANS : (A) Economic growth is a long−run phenomenon that describes more than just the short−term ups and downs of the business cycle. Consider the output of a restaurant. In the short−run, the restaurant will see changes in daily output (number of meals served); some days they are extremely busy with lots of customers, and some days they are rather slow. In the day−to−day business of the restaurant, a busy day would not signify economic growth. However, if the restaurant was so busy that ownership needed to build a second restaurant to handle the many customers, the restaurant has now fundamentally increased its ability to produce output; this is growth.

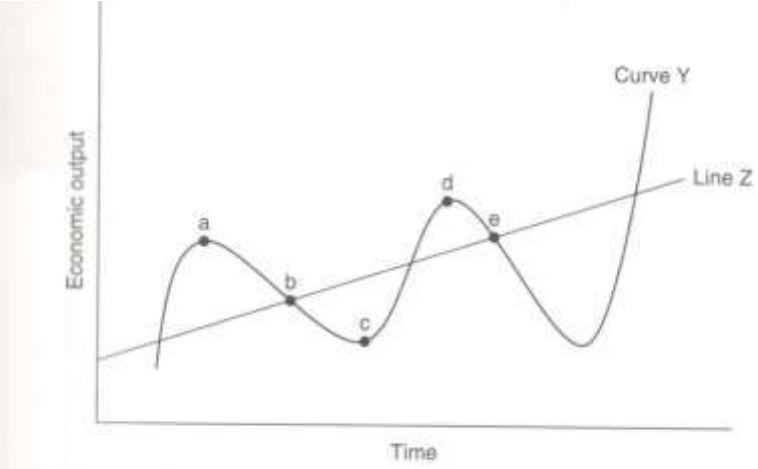


Figure 3.1

11. Which of the following movements in Figure 3.1 represents economic growth over time?

(A) Point b to point c
(B) Point a to point b
(C) Point c to point d
(D) Point c to point a
(E) Point b to point e

ANS : (E) Points b and e both represent points in a contractionary phase of the short−term business cycle. Both points are also, however, on the long−term growth line (line Z) for this economy. Even though both points describe a weakening economy in the short term, point e tells us that even in the midst of that recession the economy is still producing more output than a similar recession in the past. There has therefore, been economic growth between point b and point c.

12. In Figure 3.1, we can see economic growth as

(A) The ups and downs of economic output represented by Curve Y
(B) The long−term upward trend in economic output represented by Line Z
(C) The movement from point c to point d on Curve Y
(D) Point d on Curve Y
(E) The movement from point a to point c on Curve Y

ANS : (B) The up−and−down movements represented by Curve Y are the short−term fluctuations in economies output of the nation's business cycle. However, we can see that Curve Y fluctuates around the long−term upward trend of Line Z. Line Z tells us that no matter the current stage of the business cycle of the over time the nation is producing more economic output. This is the nature of growth.

13. Refer to Figure 3.1. Which range of points would define the length of a recession?

(A) Point b to point c
(B) Point a to point c
(C) Point c to point d
(D) Point c to point a
(E) Point b to point e

ANS : (B) A recession is a prolong contraction economic output, so it is depicted as a downturn in the business cycle measured in length of the time from a previous peak of economic activity to a trough. Once the economy begins to recover and the business cycle turns upward the recession is officially over. While there is no strict definition. A recession typically defined as at least to quarters (6 months) of declining output. The National Bureau of Economic Survey (NBER) has determined the average length of recession since the end of World War II is 11 months.

14. Refer to Figure 3.1. Which range of points would define the length of a complete business cycle?

(A) Point b to point c
(B) Point a to point c
(C) Point c to point d
(D) Point a to point d
(E) Point b to point e

ANS : (D) One full length of a business cycle is the time that it takes for a nation's economy to move from a peak to a peak or a trough to a trough. Therefore, one full business cycle includes all four stages : peak, Contraction, trough, and the expansion. The National Bureau of Economic Research has determined that the average length of a business cycle from peak to peak since World War II is 66 months.

15. Refer to Figure 3.1. An economic expansion is seen as ––––, and economic growth is seen as ––––.

(A) Point a to point d; point b to point e
(B) Point b to point c; point a to point d
(C) Point c to point d; point b to point e
(D) Point c to point d; point a to point d
(E) **Point a to point d; point a to point d**

ANS : (C) An expansion in the business cycle is defined as the period between a trough and a peak in economic activity. The expansion describes a nation that was in a recession and is now employ ideal resources and increase output. This is not the same as economic growth, which is more of a long–term picture of a nation's capacity for producing goods and services.

16. Which of the following statements is accurate about economic growth and expansion?

I. Economic growth is a long–term upward trend in a nation's ability to produce goods and services.
II. Economic expansion is a short–term increase in economic output as an economy recovers from a recession.
III. An economy's business cycle rises and falls around the long–term economic path of growth.

(A) I only
(B) II only
(C) III only
(D) I and III only
(E) I, II and III

ANS : (E) All of these sentences are correct. Economic growth is a long–term upward trend in a nation productive capacity, while the business cycle represents the short–term recession and recoveries of the macroeconomic. At any given point in time, the economy is somewhere in the business cycle which may be above or below the path of growth.

CHAPTER 2

National Income Accounts

17. Which model is used to show the flows of money, factors of production, and goods and services in the economy?

(A) The Phillips curve model
(B) The model of production possibilities
(C) The circular−flow model
(D) The aggregate demand and aggregate supply model
(E) The rational expectations model

ANS : (c) A useful way to model the flow of money and goods throughout and economy is circular−flow model, also known as the circular−flow diagram. In its simplest form, households spend money on goods and services produced by firms. That money is received by firms as revenue and firms use the revenue to higher factors of production (labor, land, capital) from households. The hiring of factors means that money flows back to households as wage and interest income. The idea is very intuitive: any dollar spnet by 1 person (on firm) is a dollar earned by another person (on firm).

18. A household spends money on −−−− and in exchange sells −−−− to firms.

(A) Revenue; services
(B) Goods and services; factors of production
(C) Imports and exports; taxes and transfers
(D) Bonds; stocks
(E) Goods and services; revenue

ANS : (B) In the simplest version of circular−flow diagram, households spend their money on goods and services in the product markets. These products are sold by firms who receive the household spending as revenue. To produce these goods and services, the firms need to hire labor, capital and land in te factor markets. The households own these factors so they end up selling the factors to the firms and receive wages, interest and rent payments in return.

19. In a closed economy with no government sector, all money paid by firms to households in the −−−− is returned to firms as consumption spending in the −−−−.

(A) Foreign sector; domestic sector
(B) Product markets; factor markets
(C) Stock market; bond market
(D) Factor markets; product markets
(E) Export market; import market

ANS : (D) A closed economy refers to an economy that has no foreign sector so there are no imports or exports. Without a government's presence, the only economic actors are the households and the firms. Households own the factors of production and sale those factors to the firms in the factor market. The most common example is the labor market where households offer their labor supply to employers in exchange for money wages. The households take those wages and buy the goods and services produced by the firms and sold in the products markets.

20. In the circular–flow diagram for the nation of Portlandyburg, which of the following would be considered a monetary leakage?

(A) Household saving in the Portlandyburg financial sector
(B) Firms hiring citizens of Portlandyburg in the labor markets
(C) Households spending on imported goods
(D) Households paying taxes to the government of Portlandyburg
(E) Government selling bonds to firms and households of Portlandyburg

ANS : (C) A monitory leakage from a nation's circular–flow of spending is any kind of spending that leaves an economy. When the households of Portlandyburg purchase goods produced in other nation's, hose imported products come in to the Portlandyburg in the economy but the money leaks out. The other choices given are examples of money that stays within the Portlandyburg economy and simple changes hands as transactions are made.

21. In the circular–flow diagram of a private closed economy, private savings ends up as

(A) Wages paid to labor
(B) Export spending
(C) Revenue earnings for firms
(D) Government borrowings
(E) Investment spending by firms

ANS : (E) A private closed economy is an economy without a government sector and that doesn't engage in foreign exchange. In the circular–flow diagram with no government and no foreign sector, a household has only two ways in which to use the income earned from the factor markets: consumption or savings. If the households decide to save money, those funds go into the banks of the financial markets. In this closed economy, money saved can only reenter the economy when the banks lend it to firms for investment projects; thus all funds that are saved end up being invested.

22. The sum of all wages, interest, rent, and profit is called

(A) National income
(B) The budget balance
(C) Net exports
(D) Government spending
(E) National savings

ANS : (A) One way to tabulate the amount of money that is being circulated throughout the economy is to add up all sources of income for the factors of production. In the factor markets, the labor resource earns wages, capital earns interest, land earns rent and entrepreneurial ability earns profit. The sum of all sources of factor income in a nation is called national income.

23. When computing the value of a nation's domestic output of goods and services, we can add up all of the income earned by the factors of production in the economy. In this way we are calculating national output with the

(A) Expenditure approach
(B) value–added approach
(C) income approach
(D) public sector approach
(E) national savings approach

ANS : (C) There are two common ways to compute the total value of economic activity in a nation, and the circular−flow diagram helps demonstrate this. The expenditure approach adds up all of the dollars that are spent on all goods and services. However, dollars that are spent in product markets must end up as income for factors in the factor markets. The income approach is therefore to sum up all of the income that is earned by the land, capital, labor, and entrepreneurial factors of production.

24. Which of the following would be included in the income approach to calculation of national income?

(A) Government lending to a foreign country
(B) Wages
(C) Import
(D) Savings
(E) Government borrowing

ANS : (B) The income approach tabulates all of the income paid to the factors of production in the nation's factor markets. Capital is paid interest income, land is paid a rental rate, and labor is paid wages. The leftover profit is paid to the entrepreneurial ability supplied to the factor markets.

25. In the circular−flow diagrams, wages and salaries represent

(A) Factor income earned by capital
(B) Interest earned from lending money to firms
(C) Rental income earned from the leasing of land to the government
(D) Factor income earned by labor in labor markets
(E) Factor income earned by firms when hiring labor

ANS : (D) We refer to the factor income earned by labor in the labor markets as wages, or wages and salaries. These are the payments that firms make to households in exchange for supplying their labor. Firms also employ capital and land, and we call those payments interest and rent, respectively. If a firm also earns a profit, we allocate that source of income to the entrepreneurial talents employed by the owners of the firm.

26. In an economy with a public sector, household disposable income is equal to

(A) Gross labor income
(B) Interest plus rent plus profit
(C) Transfer payments from the government minus taxes paid
(D) Consumption spending
(E) Gross labor income plus transfer payments from the government minus taxes paid

ANS : (E) When the circular−flow model includes the government (the public sector), the government influences how much income households actually have to spend on goods and services. Households earn gross labor income from the labor markets and pay taxes to the government. However, some households receive transfer payments back from the government because they qualify for certain benefits (like veteran's benefits or food stamps). Once taxes are subtracted and transfers are added, the household is left with disposable income that they can save or spend.

27. When computing the value of a nation's domestic output of goods and services, we can add up all of the spending done by all sectors in the economy. In this way we are calculating national output with the

(A) Expenditure approach
(B) value−added approach
(C) income approach

(D) public sector approach
(E) national savings approach

ANS : (A) In the circular−flow diagram, all dollars earned by some factor of production are spent by some sector of the economy. There are four groups who can spend money on goods and services within the nation: domestic consumers, firms, the government, and foreign consumers. If we add up the value of all this spending within the economy, we have computed the value of the goods and services that were produced within the economy.

28. A nation's gross domestic product (GDP) can be determined with which simple formula?
(A) GDP = C + I + G
(B) GDP = C + I + G + X
(C) GDP = C + I + G + (X – M)
(D) GDP = C – I + G + (M – X)
(E) GDP = S + I

ANS : (C) This equation quite simply tells us that the value of all things produced is equal to the value of the spending on those things that were produced. Domestic spending can come from consumers (C), firms (I), and the government (G). However, we must also consider the flow of dollars to and from other nations. When a foreign citizen buys a product made domestically, the domestic economy adds it as an export (X). However, when a domestic consumer buys a product made in another country, we must subtract that spending from the domestic economy as an import (M). When we subtract import spending from export spending, we are adding the final component of net exports (X – M) is shortened to NX, which stands for net exports (or the difference between exports and imports).

29. In a specified period of time, a nation's gross domestic product (GDP) is the
(A) Total value of government spending, minus taxes collected
(B) Total value of all final goods and services produced within the nation's borders
(C) Total value of all intermediate goods and services produced within the nation's borders
(D) Total disposable income earned by households in the nation
(E) Total value of all final goods and services produced by a nation's citizens, regardless their geographic location

ANS : (B) When we compute the total value of the products made in the economy, it is important to note that we are adding up the value of the final goods, not the intermediate goods. An intermediate good is a product that requires further modifications before it reaches its final consumptive purpose. For example, suppose that a frozen cheese pizza is composed of three items: a crust, some sauce, and some cheese. The pizza company buys a crust for $2, some sauce for $0.50, and some cheese for $1 and produces a final product, the frozen cheese pizza, which it sells for $6 at the store. The pizza is worth only $6 as a contribution to a nation's GDP. If we added up all of the intermediate products, we would mistakenly believe that the pizza was worth $9.50 ($9.50 = $2 + $0.50 + $1 + $6). This form of double counting is avoided if we focus only on the final $6 value of the pizza.

30. Suppose we know that gross domestic product (GDP) is $10, 000 and that consumption spending is $7000, investment spending is $1500, and government spending is $2500. We can determine that
(A) Net exports are equal to −$100
(B) Export spending is $1000 and import spending is $0
(C) Export spending is $1000 and import spending is $1000
(D) Net exports are equal to −$1000
(E) Net exports are equal to $1000

ANS : (D) We know that total GDP is $10, 000 and that GDP is the sum of consumption (C), investment (I), government spending (G), and net exports (X – M). If we use the information given, we can solve for the missing component of net exports. GDP = $10, 000 = $7, 000 + $1, 500 + $2, 500 + (X – M) = $11,000 + (X – M). If we must be the case that net exports are −$1, 000. Note that net exports can be negative: this occurs when imports exceed exports.

Use Table 4.1 for question 104

Table 4.1

GDP in 2011

Consumption spending	$50
Wages and salaries	$30
Government spending	$12
Exports	$8
Investment spending	$14
Imports	$2
Interest	$12
Rents	$8
Profits	$32

31. Using the data in Table 4.1, what is GDP in 2011?

(A) $162
(B) $100
(C) $164
(D) $84
(E) $82

ANS : (E) There are two ways of solving this problem that give the same result: the expenditures approach and the income approach. The expenditures approach is to add up the spending: GDP = C + I + G + (X – M), and this is equal to $82. The income approach is to add up factor income : NI = wages + interest + rent + profit, and this is also equal to $82. Resist the temptation to add up all of the members, as you would be counting each dollar twice; once when it was spent and once when it was earned.

32. Which of the following would be an intermediate good?

(A) A visit to the doctor before a tropical vacation
(B) Your vacation to the island of Yap
(C) A new skateboard your brother brought
(D) Gasoline purchased for your car
(E) Coal used in generating electricity

ANS : (E) An intermediate good is something that requires further processing or modification for it to serve its final purpose. The coal is not the final product because it must be transformed (burned) to generate the electricity and that electricity is the final product. Gasoline is also burned, but it is burned to drive you around town. As a final product, the gasoline has reached its final purpose.

33. A wealthy owner of the local soccer team pays a construction company to build a new stadium for the team. The stadium would count in GDP as

(A) Investment spending

(B) Government spending
(C) Consumption spending
(D) Export spending
(E) Import spending

ANS : (A) New construction, whether it is residential (like a house) or commercial (like a stadium), is considered investment spending. Investment spending also includes a firm's purchase of physical capital equipment like trucks, forklifts, computers, or photocopies. Last, investment spending includes the value of any unsold product inventories that were produced in one year but not sold until the next.

34. Which of the following would be classified as consumption spending (C)?
(A) The state of Oklahoma buys some police cars.
(B) Ellie enrolls in some classes at the University of Oklahoma.
(C) A firm in Canada buys some cattle raised in Oklahoma.
(D) A cattle rancher in Oklahoma builds a new barn.
(E) The US Air Force builds a new base in Oklahoma.

ANS : (B) Ellie's enrollment at the university is consumption spending, as she is purchasing a service in those college courses. The state's purchase of police cars and the US Air Force's construction of a base are both examples of government pending (G). The farmer's construction of a barn is part of investment spending (I), and the Canadian purchase of Oklahoma−raised cattle is export spending (X).

35. Cans of chili are produced in December 2011 but not sold to a grocery store until January 2012. These unsold cans of chili count
(A) In 2011 gross domestic product (GDP) as inventories and are part of consumption spending
(B) In 2011 GDP as consumption spending
(C) In 2011 GDP as inventories and are part of investment spending
(D) In 2012 GDP as inventories and are part of investment spending
(E) In 2011 GDP as intermediate goods and in 2012 GDP as final goods

ANS : (C) In the accounting of GDP, we want to sum up the value of all things produced. But what if it is produced and not yet sold? In this case, the value of the product (cans of chili) are counted as unsold inventory and added to 2011 investment spending. It may seem like an unusually way of handling things, but we know that the chili was produced, so it should count as part of national production. We also know that it was not consumed (yet), so it cannot rightly be counted as consumption spending.

36. A laptop computer purchased by you is ––––, and the same laptop computer purchased by the US Department of Agriculture is ––––.
(A) Import spending; export spending
(B) Consumption spending; investment spending
(C) Consumption spending; consumption spending
(D) Consumption spending; government spending
(E) **Export spending; import spending**

ANS : (D) If a product, like a laptop computer, is bought by a private citizen (you), it is considered consumption spending. If it is bought by a local, state, or federal government (the US Department of Agriculture), it is considered government spending. In many cases, households and the government buy many similar things.

However, in other cases, as with military weapons and weather satellites, the goods purchased by the government are quite different from those bought by private citizens.

37. An American furniture company sells cedar tables to a store in Canada. In Canada this transaction will be recorded as ––––, and in the United States this will be recorded as ––––.

(A) Import spending; export spending
(B) Import spending; consumption spending
(C) Consumption spending; export spending
(D) Consumption spending; consumption spending
(E) Export spending; import spending

ANS : (A) The tables were produced in the United States so they must be included in US GDP. Had they been purchased by a domestic furniture store and sold to domestic customers, they would be counted as consumption spending (C). Since they were purchased by Canadian consumers, they are counted as export spending (X). The tables were not produced in Canada, so the value of that consumption is subtracted from Canadian GDP as import spending (M).

38. In tabulating gross domestic product (GDP), which component of spending is subtracted from the total?

(A) Exports
(B) Imports
(C) Consumption
(D) Investment
(E) Government

ANS : (B) Gross domestic product (GDP) is the value of all goods and services produced in a nation. However, some items produced in a nation are actually not consumed in that nation; they are exported to other nations. Likewise, not all goods consumed in a nation were actually produced within that nation; they were imported from other countries. If we are trying to tabulate all of the production in a nation, we can add up all of the spending in a nation, but we must subtract sny spending on goods that were imported from other nations.

39. A consumer in the United States buys a truck built in South Korea. Is the production of this truck added or subtracted in the gross domestic product (GDP) of the United States and of South Korea? In what categories of GDP is this transaction included?

From the United States	Added or Subtracted	From South Korea	Added or Subtracted
(A) Imports	Subtracted	Investment	Added
(B) Imports	Subtracted	Imports	Added
(C) Investment	Added	Exports	Added
(D) Consumption	Added	Consumption	Added
(E) Imports	Subtracted	Exports	Added

ANS : (E) The American consumer who buys a truck produced in South Korea has purchased an imported product. The value of his spending on the imported truck is subtracted from US GDP because it was not produced in the United States. However, because it was produced in South Korea, it is added in that nation's GDP as an export.

40. To adjust nominal gross domestic product (GDP) to real GDP, we must adjust for changes in

(A) Interest rates
(B) The population

(C) Prices
(D) The balance of trade
(E) Government spending

ANS : (C) To get a more accurate picture of whether the value of a nation's output is really growing, we must take into account the impact that rising prices will have on nominal GDP. Since nominal GDP reflects both units of output produced and the price at which those units were sold, to compute real GDP we adjust for the impact of price inflation by using prices from a reference or base year. In this way, by holding prices constant we can see whether (in real terms) the value of a nation's output has indeed risen.

41. Suppose that nominal gross domestic product (GDP) increased from $2000 to $2100 from year 1 to year 2. Which of the following scenarios would explain why real GDP neither increased nor decreased between your 1 and year 2?
(A) The aggregate price level decreased by 5%.
(B) The aggregate price level increased by 1%.
(C) The aggregate price level decreased by 2.5%.
(D) The aggregate price level increased by 5%.
(E) The aggregate price level remained constant.

ANS : (D) Between years 1 and 2, nominal GDP increased by 5%. We compute this percentage change as $100 \times (\$2{,}100 - \$2{,}000)/\$2000 = 5\%$. Real GDP is nominal GDP adjusted for inflation, so if inflation increased by exactly 5%, then real GDP stayed constant. If inflation had risen by more than 5%, real GDP would have fallen. If inflation had risen by less than 5% or even decreased, real GDP would have risen.

Use Table 4.2 for questions 115–117.

Table 4.2

GDP in a Peaches and Herbs Economy

Year	Price of Peaches	Quantity of Peaches Produced	Price of Herbs	Quantity of Herbs Produced
2006 (base year)	$1	10	$0.50	20
2007	$2	10	$0.50	24
2008	$3	5	$1	30
2009	$3	15	$2	40

42. Table 4.2 shows the prices and outputs of an economy that produces only two goods, peaches and herbs. What is nominal gross domestic product (GDP) in 2007?
(A) $32
(B) $20
(C) $24
(D) $75
(E) $44

ANS : (A) Gross domestic product (GDP) is the combined function of a nation's output in a year and the price of that output. The value comes from the prices that prevailed in that year, so nominal GDP is the value of 2007

output measured in 2007 prices. To compute nominal GDP, we tabulate: $2 × (10 peaches) + $0.50 × (24 herbs) = $20 + $12 = $32.

43. Table 4.2 shows the prices and outputs of an economy that produces only two goods, peaches and herbs. What is real gross domestic product (GDP) in 2007, using 2006 as a reference year?

(A) $32
(B) $22
(C) $24
(D) $20
(E) $44

ANS : (B) Because prices can change from year to year, the computation of real GDP requires that we account for changes in the price level, rather than changes of output. One way of doing this is to use the prices that prevailed at a fixed point in time: the base year. Since 2006 is labeled as the base year, all real GDP computations must use 2006 prices. To compute real GDP in 2007, we tabulate : $1 × (10 peaches) + $0.50 × (24 herbs) = $10 + $12 = $22.

44. Table 4.2 shows the prices and outputs of an economy that produces only two goods, peaches and herbs. Between 2006 and 2008, real gross domestic product (DDP) increased by

(A) 5%
(B) 45%
(C) 0%
(D) 125%
(E) 25%

ANS : (C) Because 2006 is the base year, nominal GDP and real GDP are the same in 2006. To see how much real GDP has changed between 2006 and 2008, we first need to compute real GDP in both years. Real GDP in 2006 = $1 × (10 peaches) + $0.50 × (20 herbs) = $20. Real GDP in 2008 requires using 2006 prices and 2008 output. Thus real GDP in 2008 = $1 × (5 peaches) + $0.50 × (30 herbs) = $20. Since real GDP in both years is equal to $20, there was 0% growth.

45. Nominal gross domestic product(GDP) is

(A) Current year output measured in current year prices
(B) Current year output measured in base year prices
(C) Base year output measured in current year prices
(D) Base year output measured in base year prices
(E) Current year output measured in future year prices

ANS : (A) This is the actual definition of nominal GDP. In fact, another description of nominal GDP is “current year” GDP because it reflects current year output valued in that same current year’s prices. When comparing nominal GDP from one year to the next, we must adjust nominal GDP for any price inflation (or deflation) that might have occurred, because rising prices will make it appear that economy is growing when in fact it may just be a result of inflation and not greater output levels.

46. During a typical business cycle, the rate of real gross domestic product (GDP) growth is negative

(A) At the peak
(B) During an expansion
(C) During an economic boom

(D) At full employment
(E) During a contraction

ANS : (E) It is typical for a nation's real GDP to gradually increase over the long run, but during the short−run business cycle, the growth of real GDP can be fast at times and slower at other times. Negative growth (or declining real GDP) is usually observed when the economy is in the contraction stage. During this point of the business cycle, spending and investment are low, unemployment runs higher than normal, and national output slows.

47. Suppose that in year 1 real gross domestic product (GDP) was growing by 2% per year. In year 2, real GDP was growing by 3% per year. And in year 3, real GDP was growing by 4% per year. Knowing this, what can we say about the business cycle from year 1 to year 3?
(A) The economy was in a recession from year 1 to year 3.
(B) The economy was at a peak in year 1, and in recession from year 2 to year 3.
(C) The economy was in an expansion from year 1 to year 3.
(D) The economy was in a recession from year 1 to year 2, and at a trough in year 3.
(E) The economy was at a peak in year 1, and in a depression from year 2 to year 3.

ANS : (C) Since real GDP is growing at a faster and faster rate from year 1 to year 3, the economy is expanding. Typically the business cycle shows that economic activity, like real GDP, grows more quickly during an expansion. At the peak of an expansion, the economy begins to slow down and may even enter a recession.

48. Which of the following statements is true?
I. Steve mows his lawn twice a month, and the value of this service is included in GDP.
II. Becky irons her own clothes, and the value of this service is included in GDP.
III. Ayda is 12 years old and works as a babysitter for her neighbor and gets paid in cash. This service is not included in GDP.
(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II and III

ANS : (C) All three of these situations describe individuals who are contributing productive goods and services to the economy. However, despite how productive and useful these tasks might be, the official calculations of gross domestic product fail to include any of them. When people mow their own lawn or iron their own clothes, the value of their service is not included in GDP. When a babysitter is paid cash (under the table), the service is also not counted.

49. Which of the following acts are included in official gross domestic product (GDP) calculations?
(A) Dan is a volunteer coach for his daughter's soccer team.
(B) Sue is a mother of two who has decided to withdraw from the labor force to care for the children until they are teenagers.
(C) Linda sees that her gutters are clogged with leaves and spends her Saturday cleaning out the gutters.
(D) Kathy is paid to be the assistant soccer at the local high school.
(E) Eric spends his Tuesday afternoons volunteering to read books to the children at the public library.

ANS : (D) The calculation of a nation's gross domestic product does not include the value of volunteerism, despite the benefits that the community receives from those services. The accounting of GDP also fails to include the value of household production. If a parent like Sue decides to care for her own children, rather than hiring a nanny, that production is not counted. If Linda cleans out her own gutters, rather than hiring a professional, that production is not counted. The only person who is counted is Kathy, the part−time paid soccer coach. If Kathy had been volunteering her time, she would not be counted, even though she would still be providing the same productive service.

50. In 2008 Jackie bought a 1968 Ford Mustang for $40,000. When it was new, the Mustang sold for $5000. How much did the Ford Mustang contribute to GDP in 2008?

(A) $35, 000
(B) $0
(C) $5, 000
(D) $45, 000
(E) $40, 000

ANS : (B) The car had been produced in 1968 at a value of $5,000, and this was the car's contribution to GDP in 1968. Despite the fact that the "classic" car is now worth $40,000, it was not produced in 2008 –it was simply resold. A secondhand car (or anything for that matter) only counts once in GDP: in the year in which it was produced. The only exception to this rule of thumb is if the item has been enhanced over the years. For example, if the original car had been given a brand−new paint job in 2008, the value of the paint job would count toward 2008 GDP. The idea of GDP is that it captures current production, and the car represents production that occurred in 1968.

51. Suppose that a lawyer pays for a cell phone at $3 per hour and pays $10 per hour for office space. The lawyer charges $150 per hour for her legal advice. If the lawyer provides 4 hours of legal advice, how much gross domestic product (GDP) has been created?

(A) $600
(B) $480
(C) $400
(D) $760
(E) $160

ANS : (A) The value of the lawyer's service is $150 per hour for 4 hours, or $600. The cost of the cell phone and the office space are the costs of inputs that go into the production of legal services. It is correct to say that these inputs are not counted; they are. They are counted in the final cost of the lawyer's services.

52. Which of the following transactions would be included in the nation's gross domestic product (GDP)?

(A) Dave sells his used economics textbook to his girlfriend.
(B) Becky rakes her grandfather's leaves in exchange for a cold glass of iced tea.
(C) Melanie decides to $500 in the bank for an emergency fund.
(D) Pam goes to the public library to read romance novels.
(E) Stan buys a new romance novel at the local bookstore.

ANS : (E) When a new romance novel is bought at the bookstore, the nation's GDP goes up. However, when a used book or used golf clubs are resold to someone else, the GDP does not go up. There is a logical reason for this rule. Suppose that a set of golf clubs is bought new for $400 and then sold three times in the span of 3 days. If we counted each sale as an addition to GDP, this would amount to $4 \times \$400 = \$1{,}600$ of GDP in only 3 days. But this is

misleading because the golf clubs were produced only once, and they are worth only $400. This situation leads us to the conclusion that we should count only the value of the original production in the year in which it was produced.

53. Gross Domestic Product (GDP) in 2011 would include which of the following transactions?

(A) The purchase of a 1993 Chevrolet pickup truck
(B) The purchase of 1,939 shares of General Motors stock
(C) The purchase of a movie ticket to a screening of the classic 1939 movie *Gone with the Wind*
(D) Margaret receiving a Social Security check of $1939 from the US government
(E) Eli selling Max his old golf clubs for $193

ANS : (C) Even though *Gone with the Wind* was first produced in 1939, if a movie theatre is selling tickets to it now, then those tickets will count in 2011 GDP. After all, the service of showing this movie to paying customers is happening in 2011, so the value of that service should be counted in 2011. Social Security payments are not counted in GDP. These are cash payments from the government to retirees because they are retirees. These funds are not payment for the production of some good or service that the retiree has just provided to the government.

54. Within the circular−flow diagram, transfer payments are

(A) Counted in gross domestic product (GDP)
(B) A redistribution of money from one person to another person in the economy
(C) Another form of taxation
(D) A way of reducing consumer spending
(E) A leakage from the economy

ANS : (B) The government collects taxes from many people and uses the tax revenue to pay for government spending and government programs. Some of the government programs are used to provide supplemental income to certain segments of the nation, and the supplemental income payments are called transfer payments. For example, members of the military qualify for veterans' benefits once they retire. The elderly qualify for Social Security benefits once they reach the qualifying age. These transfer payments simply redistributive tax payments from some groups to recipients in other groups. They do not add to GDP, because they are not payments for goods or services currently being produced.

55. The conventional way of calculating gross domestic product (GDP) tends to underestimate the total economic well−being because it

(A) Includes the value of do−it−yourself projects
(B) Values $100 of bullets more than it values $100 of diapers
(C) Includes the value of a parent who drops out of the labor force to care for children
(D) Excludes the value of leisure time and volunteerism
(E) Includes the value of healthcare costs due to excessive tobacco use

ANS : (D) Gross domestic product does not necessarily translate into a good measure of a nation's well being. For example, GDP calculations omit the value of volunteerism and do−it−yourself work and leisure time. If you spend an hour working at your job, that counts in GDP. But if you spend that hour coaching your son's baseball team, that does not count in GDP. If you spend that hour pulling weeds in your herb garden, it doesn't count. Many people would agree that volunteerism and leisure time are important and have value. But because GDP doesn't include them, maybe it is understanding out nation's true well being.

56. During 2010 the country of Ericksburg had government spending of $3 billion, consumption spending of $9 billion, investment spending of $3.5 billion, and net exports of −$1 billion. Gross domestic product (GDP) in 2010 is equal to

(A) $14.5 billion
(B) $15.5 billion
(C) $16.5 billion
(D) $9 billion
(E) $12.5 billion

ANS : (A) To compute GDP in Ericksburg we just need to tabulate all of the spending. Gross domestic product by this accounting method is equal to C + I + G + (X – M). Using the values given in the problem, GDP = $9 + $3.5 + $3 − $1 = $14.5 billion.

CHAPTER 3

Inflation

57. In the United States, inflation is most often measured by changes in the

(A) Gross domestic product (GDP) deflator
(B) Produce price index (PPI)
(C) Consumer price index (CPI)
(D) Real interest rate
(E) Exchange rate between the dollar and other currencies

ANS : (C) While a price index can be created for any good or service, and GDP can be adjusted for inflation in a number of different ways, the most commonly used price index to measure inflation across the economy is the consumer price index, or CPI (technically the CPI−U is what is typically reported as the CPI). The CPI computes the cost of purchasing a basket of items bought by a typical urban American household, and changes in the CPI then describe the rate of inflation.

58. The purpose of the consumer price index is to capture changes in

(A) The cost of all goods produced in an economy
(B) The average of the prices of goods a typical urban consumer purchases
(C) The cost of goods consumers spend the greatest portion of their income on
(D) The cost of the inputs used to produce consumer goods
(E) The total change in consumer incomes

ANS : (B) The consumer price index (CPI) is designed to capture changes in the amount of money that a typical consumer spends to maintain the same standard of living every year. In other words, the CPI is designed to capture changes in the cost of living. A common misperception is that the CPI captures changes in the prices of all goods and services produced in an economy, but the CPI is not actually intended to do this. There are actually a variety of price indexes used to capture changes in other prices, such as the producer price index. However, the CPI is the most commonly reported price index.

59. When wages are adjusted for the effects of inflation, we can determine

(A) Nominal wages
(B) Real wages
(C) Real interest rates
(D) The natural rate of unemployment
(E) The exchange rate between the dollar and other currencies

ANS : (B) Current wages (i.e., wages that are measured in current dollars) are referred to as nominal wages. To remove the effect of price inflation on those wages, we must adjust (or deflate) the nominal wages to real wages. Real wages tell us whether the actual purchasing power of the nominal wages has risen or fallen.

60. The rate of inflation is the

(A) percentage change in an aggregate price index
(B) The growth in the money supply
(C) The percentage change in housing prices
(D) The percentage change in economic output
(E) Value of the consumer price index (CPI)

ANS : (A) The inflation rate is not just the value of a particular price index, like the consumer price index (CPI), but it is the rate at which the price index is changing. In other words, any given level of the CPI is not particularly revealing, but changes in that rate are what matter. If an aggregate price index is rising, the percentage change is the rate of price inflation. If it is falling, the percentage change is the rate of price deflation.

61. Which of the following is true of the consumer price index (CPI)?

(A) It is calculated using the same prices for the different goods that consumers buy each year.
(B) It is calculated using different prices for a different bundle of goods that consumers buy each year.
(C) It is calculated using prices from the 3−year period 1982−1984, using different goods for each year.
(D) It contains the same bundle of goods every year, a bundle that is adjusted periodically, but adjusts prices for the goods in the bundle each time it is calculated.
(E) It is calculated using a bundle of goods based on consumption patterns from 1982−1984 using different prices for each year.

ANS : (D) The consumer price index (CPI) is designed to capture changes in the prices of goods that a typical consumer produces. However, consumers do tend to change their pattern of purchases over time. Currently, the CPI bundle of goods is based on surveys conducted in 2007−2008 9ther period 1982−1984 represents the "base year" that the Bureau of Labor Statistics currently uses).

62. Which of the following goods are not included in the consumer price index (CPI)?

(A) Goods that consumers rarely purchase such as funeral services
(B) Goods that consumers purchase only sporadically, such as prescription drugs for illnesses
(C) Investment by households such as stocks and bonds
(D) Services such as college tuition
(E) Sales taxes on consumer goods

ANS : (C) The consumer price index (CPI) includes all items that a typical households might purchase, even if purchase of those items is sporadic or even very rare. To account for the frequency of purchases, items in the CPI are weighed to reflect how often, or rare, their purchase is. Investments such as stocks and bonds are essentially savings, rather than consumption, and are therefore not included.

63. Which of the following is the formula for calculating the rate of inflation between two years, year 1 and year 2?

(A) $100 \times (CPI_{base\ year} - CPI_{year\ 1} - CPI_{year\ 2})$

(B) $100 \times (CPI_{year\ 1} - CPI_{year\ 2}) / CPI_{base\ year}$

(C) $100 \times (CPI_{year\ 2} - CPI_{year\ 1})$

(D) $100 \times (CPI_{year\ 2} - CPI_{year\ 1}) / CPI_{year\ 1}$

(E) $100 \times (CPI_{year\ 2} - CPI_{year\ 1})\ CPI_{year\ 1}$

ANS : (D) To calculate any rate of change, you subtract the old value from the new value, then divide by the old value. In other words, (new – old)/old. To calculate inflation, you essentially are finding the rate of change of the CPI. The value is then the ratio that the measure changed by. So for instance, if you find that this equals 0.05, multiply by 100 to get the percentage change; 0.05 is the same as saying 5%.

Use Table 5.1 for questions 137–139.

Table 5.1

Year	Price Index
2005	95
2006	99
2007	100
2008	104
2009	110

64. Table 5.1 shows a hypothetical price index for 5 years. Which year is the base year?

(A) 2005

(B) 2006

(C) 2007

(D) 2008

(E) 2009

ANS : (C) Because of the way in which a price index is created, the price index in the base year is always equal to 100. A price index is created by calculating the price of a basket of items in a given year, dividing by the cost of that same basket in a base year, and then multiplying by 100. So if the market basket in 2007 cost $5,000, and if 2007 was chosen to be the base year, the 2007 price index $= 100 \times \frac{\$5000}{\$5000} = 100$.

65. Table 5.1 shows a hypothetical price index for 5 years. Between 2008 and 2009 the rate of inflation was

(A) 5.5%

(B) 4%

(C) 1.1%

(D) 5.8%

(E) 10%

ANS : (D) The rate of inflation is the percentage (or rate of) change in the price index between 2008 and 2009. To compute the percentage change, we subtract the 2008 value from the 2009 value, divide by the 2008 value, and multiply the ratio by 100. Therefore, the rate of inflation is equal to $[(110 - 104)/104] \times 100 = 5.8\ \%$. An easy way to remember how to do this is "100 × (new – old)/old".

66. Table 5.1 shows a hypothetical price index for 5 years. If nominal wages increased by 4% between 2007 and 2008, we can determine that

(A) Real wages fell 1%
(B) Real wages rose by 1%
(C) Real wages fell by 4%
(D) Real wages rose by 4%
(E) Real wages remained constant

ANS : (E) The price index increased by 4% (from 100 to 104) between those years, so the rate of price inflation was 4%. If we know that nominal wages increase by 4%, then nominal wages kept pace with inflation and purchasing power remained constant. In a real sense, consumers are able to buy the same market basket in 2008 as they did in 2007 without spending a larger share of their paychecks to do so.

67. The consumer price index (CPI) measures

(A) The cost of intermediate products used to make final goods and services
(B) The cost of the market basket of a typical urban family
(C) The cost of producing capital equipment used by a typical manufacturer
(D) The cost of housing for a typical urban family
(E) The cost of grocery items typically purchased by a urban family

ANS : (B) Several economic indicators give us a sense of whether prices are rising or falling across the economy. The consumer price index (CPI) is the measure of what it costs a typical urban household to purchase a market basket of goods and services. While no statistic can perfectly measure changes in overall prices, the CPI is the best one to determine whether consumers are gaining or losing purchasing power due to price changes.

68. If you hear that the 2011 consumer price index (CPI) is currently 210, you can determine that the same market basket costs

(A) 10% more than it did in 2010
(B) 10% more than it did in the base year
(C) 210% more than it did in the base year
(D) 210% more than it did in 2010
(E) 110% more than it did in the base year

ANS : (E) We know two things about this price index: it is equal to 210 in 2011, and it is equal to 100 in the base year. We don't need to know which year is the base year; we can determine the rate of inflation between that year and 2011 by calculating the percentage change. The inflation rate was $100 \times \frac{210-100}{100} = 110\%$.

69. What is the interpretation of a consumer price index (CPI) of 122 in year X?

(A) A bundle of goods in year X costs $22 more than in the base year.
(B) A bundle of goods in year X costs $122 more than in the previous year.
(C) A bundle of goods in year X costs 122% more than in the base year.
(D) A bundle of goods in year X costs 22% more than the previous year.
(E) A bundle of goods in year X costs 22% more than in the base year.

ANS : (E) The CPI is an index, not a dollar measure. This means that there is no true unit of measures (such as dollar), but rather it is a scale indicating the amount of change relative to the reference year (or base year) in terms of percent. For any CPI, the difference between that CPI and the base year CPI (which is always 100)

indicates the percentage change in the CPI since the base year (in this case, 22%). This can be verified by using the formula to calculate the rate of change between any two years.

Use Table 5.2 to answer questions 143–146.

Table 5.2

Annual price of Goods in a Consumer's Basket

Year	Grubs	Snars	Jems	Pols
2000	**$2**	**$1.50**	**$2.10**	**$1.00**
2001	**$3**	**$2.50**	**$2.10**	**$1.75**
2002	**$4**	**$4.90**	**$2.12**	**$2.00**

70. Refer to the data presented in Table 5.2. The bundle of goods that is purchased by a typical consumer in any given year is 5 Grubs, 10 Snars, 3 Jems, and 2 Pols. What is the cost of a bundle of goods in 2001?
(A) $9.35
(B) $7.64
(C) $49.80
(D) $79.36
(E) $16.50

ANS : (C) The first step in calculating a CPI is to calculate the cost of the bundle of goods in any given year. To do this, simply multiply the number of each goods bought by the price that it sold for in that year. For 2001, 5 Grubs are bought at $3 each, 10 Snars are bought for $2.50 each, 3 Jems are bought for $2.10 each, and 2 Pols are bought for $1.75 each, so (5 × $3) + (10 × $2.50) + (3 × $2.10) + (2 × $1.75) = $49.80.

71. Refer to the data presented in Table 5.2. The bundle of goods that is purchased by a typical consumer in any given year is 5 Grubs, 10 Snars, 3 Jems, and 2 Pols. If 2000 is the base year, what is the consumer price index (CPI) in 2001?
(A) 33.30
(B) 49.80
(C) 16.50
(D) 66.87
(E) 149.55

ANS : (E) The purpose of a CPI is to find the cost of a bundle of goods in reference to some base year, and the formula to find the CPI reflects this. To find the CPI in any given year X, you divide the cost of the bundle of goods in year X by the cost of the same bundle of gods in the base year and multiply by 100, or mathematically, CPI_X = (cost year X/ cost base year) × 100. Here, ($49.80/$33.30) × 100 = 149.55.

72. Refer to the data presented in Table 5.2. The bundle of goods that is purchased by a typical consumer in any given year is 5 Grubs, 10 Snars, 3 Jems, and 2 Pols, and 2000 is the reference year. What is the rate of inflation between 2001 and 2002?
(A) 59.36%
(B) 23.77%

(C) 49.80%
(D) 138.32%
(E) 88.77%

ANS : (A) to find the rate of inflation between any two years, subtract the old CPI from the new CPI and divide by the old rate of inflation; in other words: inflation rate = 100 × (CPI_{new} – CPI_{old}) / CPI_{old}. This gives you a percentage that reflects the increase in the price level between those two years. CPI_{2001} = 149.55 and CPI_{2002} = 238.32, so the rate of inflation between 2001 and 2002 is 100 × (238.32 – 149.55)/149.55 = 59.36%. Therefore, prices for the goods in the bundle increased 59.35% between 2001 and 2002.

73. Refer to the data presented in Table 5.2. The bundle of goods that is purchased by a typical consumer in any given year is 5 Grubs, 10 Snars, 3 Jems, and 2 Pols, and 2000 is the reference year. What is the rate of inflation between 2000 and 2001?
(A) 16.5%
(B) 49.55%
(C) 149.55%
(D) −16.5%
(E) −49.55%

ANS : (B) Whenever you are comparing a given year to the base year, an easy way to find the rate of inflation is to subtract the base year's CPI from the current year's CPI. Note that 149.55 – 100 = 49.55 and also 100 × (149.55 −100)/100 = 49.55%. Be careful, however, as this can be done only when comparing the CPI in a given year to the base year. If you attempt this with any other two years, you will get an incorrect result.

74. In 2007 the consumer price index (CPI) of Maxistan was 345, in 2008 the CPI of Maxistan was 370, and in 2009 the CPI of Maxistan was 400. What was the total amount of inflation in Maxistan between 2007 and 2009?
(A) The inflation rate of Maxistan cannot be determined using the information given.
(B) −315%
(C) 55%
(D) −13.75%
(E) 15.94%

ANS : (E) Note that one may find the rate of inflation between any two years, not merely between two consecutive years or between a given year and the base year. However, it is no longer an annual rate, but rather the total rate of inflation during the time period. Here (400 – 345)/345 = 15.94%, indicating that prices rose 15.94% during the two−year period 2007−2009.

75. In 2006 the consumer price index (CPI) of Maxistan was 290, and in 2007 the CPI of Maxistan was 320. If nominal gross domestic product (GDP) grew by 6%, which of the following statements is true?
I. Real GDP declined between 2006 and 2007.
II. Households whose incomes rose by 6% maintained the same standard of living.
III. Households earning 6% in nominal interest in their savings accounts had a decline in the value of their savings.
(A) I only
(B) II only
(C) III only
(D) I and III only

(E) II and III only

ANS : (D) Between 2006 and 2007, the rate of inflation was 10.34%. To find the real rate of growth of GDP, you subtract the rate of inflation from the nominal rate of growth: $6\% - 10.34\% = -4.34\%$, meaning that real GDP actually declined during this period. Note that this difference between nominal and real rates of growth also applies to household incomes and savings: if a households did not earn at least 10.34% in 2007 more than they did in 2006, their standard of living actually decreased. Similarly, unless they earning at least the rate of inflation in interest, the purchasing power of their savings will go down from year to year.

76. Consumers in the nation of Xela paid $500 for a bundle of goods in 2001, the reference year for Xela's consumer price index (CPI). For the same bundle of goods, they paid $700 in 2008, $750 in 2009, and $810 in 2010. What was the CPI in 2009?

(A) 300
(B) 150
(C) 116
(D) 110
(E) 108

ANS : (B) in this question, the cost of the bundle of goods each year has already been calculated, so we merely need to apply the CPI formula, $CPI_{year\ X} = \left(cost\ in\ year \frac{X}{cost} in\ base\ year\right) \times 100$, to find the CPI. In this case, ($750/$500) × 100 = 150. When calculating CPI, makes sure you use the correct base year.

77. In Erinia the cost of a basket of goods was $500 in 1979, $600 in 1980, $700 in 1981, $800 in 1982, and $900 in 1983. If the consumer price index (CPI) in 1983 is 150, what year is the base year?

(A) 1979
(B) 1980
(C) 1981
(D) 1982
(E) 1983

ANS : (B) to solve this, you must remember that the formula for CPI in 1983 would be CPI_{1983} = (cost of bundle in 1983/cost of bundle in base year) × 100. Since we don't know the base year, we can rewrite this so we are solving for x = cost of bundle in the base year. Therefore, 150 = (900/x) × 150. Solving for x, we get x = 600. Since the bundle of goods cost $600 in 1980, 1980 must be the base year.

78. Whenever there is inflation, firms must frequently change the prices they offer. This cost of inflation is known as

(A) Menu costs
(B) Shoe leather costs
(C) Distraction costs
(D) Production costs
(E) Misperception costs

ANS : (A) The idea of menu costs from the fact that when firms face higher costs for their inputs, they must raise the prices that they charge their consumers to produce the same goods. The mere act of changing a price is not itself productive, so if this happens often enough, it is an inefficiency associated with inflation. Consider your favorite local restaurant and all of the menu items that they have. If there was significant daily inflation, the

restaurant would have to have someone change the menus to reflect new prices every single day, taking that person away from productive activities such as preparing food or serving customers.

79. When Bill goes to fill up his car with gasoline, he notices that the price of gas at his corner store has increased by $0.50 per gallon. He drives to four different stations before he realizes that the price of gas has gone up at all gas stations, not just his corner store. This is an illustration of the idea of

(A) Menu costs
(B) Shoe leather costs
(C) Distraction costs
(D) Production costs
(E) Misperception costs

ANS : (B) The idea of shoe leather costs comes from the fact that when people observe a higher price on something they were planning on buying, they tend to look around to see if they can find a lower price somewhere else. This act of searching is not, however, costless. In Bill's case he burns gasoline while he is looking for cheaper gasoline. The term shoe leather costs refers to the fact that shoes used to have leather soles, and people would wear down their shoes looking for lower prices.

80. Which of the following parties is most likely to benefit from unexpected inflation?

(A) A person who owes money at a variable rate of interest
(B) A person who lends money at a variable rate of interest
(C) A person who owes money at a fixed rate of interest
(D) A person who lends money at a fixed rate of interest
(E) It is not possible for anyone to benefit from inflation.

ANS : (C) if a person borrows money at a variable rate of interest or loans money at a variable rate, the variation in the rate of interest paid (or received) tends to follow the rate of inflation. However, if someone borrows money at a fixed rate, the real value of the amount of money that they have to pay back goes if there is unexpected inflation.

81. Deflation is

(A) A decline in the overall price level
(B) A decrease in the rate of inflation
(C) An increase in the overall price level
(D) An increase in the rate of inflation
(E) A rapid decline in the rate of inflation

ANS : (A) Deflation is a decline in the overall price level. In calculating the rate of inflation between two years, deflation would be reflected in a negative rate of inflation. Deflation occurs when prices are actually going down, rather than when there is slower increase in prices –a process known as disinflation.

82. From 2000 to 2005 the annual rate of inflation in Ile averaged 6%. However, in 2006 the annual rate of inflation in Ile was 3%. Which of the following statements is true?

I. Ile experienced deflation in 2006.
II. Ile experienced disinflation in 2006.
III. Ile experienced inflation in 2006.

(A) I only
(B) II only
(C) III only

(D) I and II only
(E) II and III only

ANS : (E) Disinflation is a decrease in the rate of inflation. Note that this means that a country is still experiencing inflation, but the rate at which the inflation is occurring is slowing down. Note that if Ile had experienced inflation anywhere between 0% and 6% inflation in 2006, they would be experiencing both inflation and disinflation in 2006. If instead Ile had experienced a −1% change in the price level in 2006, they would have been experiencing deflation.

83. Which of the following is considered a cost of inflation?
I. Menu costs
II. Shoe leather costs
III. Money printing costs
(A) I only
(B) II only
(C) III only
(D) I and II only
(E) II and III only

ANS : (D) Menu costs refer to the time and expense associated with firms that must change prices when inflation occurs. Shoe leather costs refer to the time and expense associated with consumers who must seek out lower−priced goods when inflation occurs. While some attribute inflation itself to the printing of too much money, the expense of printing money is not a cost of the inflationary prices in the economy.

84. Barb receives a retirement pension that is indexed annually for inflation. This means that
(A) Her pension payments are adjusted for inflation to maintain her purchasing power
(B) Her pension payments are adjusted for inflation to increase her purchasing power
(C) Her pension payments are unadjusted for inflation
(D) Her pension payments are adjusted for inflation to decrease her real income
(E) Her pension payments are adjusted for inflation to increase her real income

ANS : (A) If Barb is receiving fixed pension, her purchasing power will begin to fall if price inflation occurs over time. To maintain her purchasing power (or real income), her pension payments are indexed, or adjusted, for inflation. For example, if inflation is 5%, her payments will rise by 5%. In this way Barb can purchase the same basket of items without spending a larger share of her income.

85. In 2009 Janet earned a salary of $40,000 per year and the consumer price index (CPI) was 210. In 2010 Janet earned a salary of $42000 and the CPI was 225. Which of the following statements is true?
(A) Janet has experienced a decrease in real earnings of about 2.14%.
(B) Janet has experienced an increase in real earnings of about 5%.
(C) Janet has experienced a decrease in real earnings of about 5%.
(D) Janet has experienced an increase in real earnings of about 2.14%.
(E) Janet's real earnings are essentially the same in both years.

ANS : (A) If the CPI is 225 in 2010 and 210 in 2009, then the rate of inflation between the two years is 7.14%. We can calculate the rate of increase of her salary in the same way we calculate the rate of increase in CPI: ($42,000 − $40,000)/$40,000 = 5%. Therefore, she is having to pay 7.14% more for all her goods and services, but only got a 5% raise to cover this. Effectively, her real increase in earnings is $5\% - 7.14\% = -2.14\%$.

86. Which of the following do economics generally consider the least desirable?

(A) Modest inflation
(B) Modest disinflation
(C) Significant disinflation
(D) Significant inflation
(E) Significant deflation

ANS : (E) While there are generally costs associated with inflation, deflation is widely agreed to be a "worst case scenario". The intuition behind this is clear on a number of levels. One reason is that deflation can lead to declines in production and investment, since people may hoard money (rather than save and invest money) that has now become more valuable. For instance, if you observed that the prices of goods were going down, you would likely postpone making large purchases such as automobiles until the price had declined. This can lead to a deflationary spiral, and deflationary periods are generally (although not always) associated with recessions or even depressions.

87. Andrew has a student loan that he pays a fixed 5% annual interest on. If all prices in the economy decline by 10%, Andrew is

(A) Better off, since he can now purchase 5% more goods and services
(B) Better off, since he can now purchase 10% more goods and services
(C) Worse off, since he now effectively pays 10% interest
(D) Worse off, since he now effectively pays 15% interest
(E) Unaffected, since he is not a lender of money

ANS : (D) One of the reasons that deflation is considered undesirable is that it effectively raises the interest rates on loans. Before deflation, you have to give up 5% worth of goods and services to pay the interest on the loan. However, if there is deflation, then your income is also decreasing, effectively taking away an additional 10% of purchasing power, relative to the unchanging amount that you owe, and then effectively the interest rate is 15%. Consider this: if there is deflation, even if someone were able to get a 0% loan in this situation, that person would be unlikely to take it because he or she would be unlikely to take it because he or she would effectively be paying 10% interest.

88. Which of the following will change significantly if the base year is changed?

I. The values of the CPI in each year
II. The values of the cost of the basket of goods in each year
III. The rate of inflation in each year

(A) I only
(B) II only
(C) III only
(D) I and III only
(E) I and II only

ANS : (A) When the base year is changed, the cost of the basket of goods in each year is unaffected. However, because the denominator in the formula for calculating the CPI is different, the CPI will be different for each year. This will not, however, significantly change the rate of inflation from year to year.

89. EliCo created a new gadget in 2002 that most consumers were purchasing by 2004. However, it was included in the consumer price index (CPI) until 2009. This creates a problem known as

(A) Unexpected inflation
(B) Expected inflation

(C) Quality bias
(D) Substitution bias
(E) Introduction of new goods bias

ANS : (E) When new goods are introduced, they are not reflected in the CPI immediately, as the CPI is calculated with the same bundle of goods and services from year to year. This can lead to a bias in the CPI in correctly capturing the true cost of living. Because of this, the Bureau of Labor Statistics (which calculates the CPI in the United States) periodically adjusts the bundle of goods in the basket.

90. The consumer price index (CPI) in Kayleestan assumes that households buy 10 pounds of chicken per week and 10 pounds of beef per week. If the price of chicken suddenly doubles and households shift their purchases to buy more beef, this leads to a problem in calculating the CPI known as
(A) Unexpected inflation
(B) Expected inflation
(C) Quality bias
(D) Substitution bias
(E) Introduction of new goods bias

ANS : (D) Substitution bias occurs when households, faced with a sudden increase in the price of one of the goods in their bundle, alter their consumption habits to consume more of another good instead. For instance, if the price of beef doesn't change, and in response to a doubling of chicken prices households stop buying chicken, then households' cost of living would not have changed at all. However, the CPI would be capturing the effect of the increase in the price of chicken by assuming that households do not alter their consumption bundles.

91. Which of the following are important when considering whether inflation is problematic or not?
I. The current level of prices
II. Whether or not the rate of inflation is very high
III. Whether or not inflation is expected
(A) I only
(B) II only
(C) III only
(D) II and III only
(E) I, II, and III

ANS : (D) The actual level of prices is generally unimportant. What is important, however, is whether the rate of inflation is high and volatile. Economists generally agree that a modest rate of inflation is not of great concern, but a sudden and unexpected increase (or decrease) in the price level can have serious and significant consequences.

92. Which of the following statements is true?
(A) Unexpected inflation can lead to distortions in economic activity.
(B) Deflation is a desirable alternative to inflation.
(C) Deflation is a desirable alternative to disinflation.
(D) Lenders who loan at fixed rates benefit when there is inflation.
(E) Volatility in inflation rates encourages lenders to loan more money.

ANS : (A) Because of the costs associated with unexpected (or unanticipated) inflation, firms an households may alter their decisions when faced with unexpected inflation. For instance, firms may have priced contracts inappropriately when prices suddenly rise and may face higher than expected costs. Households may agree to

labor contracts in which they earn less in real terms than they had bargained for. Further, lenders who cannot correctly anticipate inflation may be unwilling to lend money, as lenders are generally worse off when inflation occurs.

93. Sarah anticipates that the consumer price index (CPI) will increase by 5% in 2009. She believes that her performance at her job in 2008 warrants a 2% increase in salary in 2009. In 2008 she made $30,000 per year. What is the minimum she should accept in 2009 to get a 2% increase in her real salary?

(A) $30,000
(B) $32,100
(C) $30,600
(D) $31,500
(E) $32,130

ANS : (B) If Sarah currently makes $30,000 and wants a net 2% increase in her standard of living, she needs to also account for the increase in the price level of 5%. We know that the real change in salary is approximately equal to the nominal change minus inflation. To solve for the nominal change, we calculate the following: nominal change − $5\% = 2\%$, so we see that her nominal rate of pay must increase by 7%, and 7% of $30,000 is $2,100.

94. First Bank of Thereading loaned out money at 6% annual interest last year believing that inflation would be 2%. However, the actual rate of inflation was 3.5%. Which of the following did First Bank of Thereading experience?

(A) Unexpected inflation
(B) Expected inflation
(C) Quality bias
(D) Substitution bias
(E) Introduction of new goods bias

ANS : (A) The bank experienced unexpected inflation. This means that they were expecting to earn a real rate of interest of 4% ($6\% - 2\% = 4\%$); they instead earned a real rate of interest of $6\% - 3.5\% = 2.5\%$. From this it is clear why banks might be hesitant to loan money during periods of high rates of unexpected inflation –they may end up earning less money than they had planned.

95. The term hyperinflation refers to a period when

I. The rate of inflation is very high
II. The rate of disinflation is very high
III. The rate of deflation is very high

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II, and III

ANS : (A) Hyperinflation refers to a period when there are extremely rapid increases in the price level, sometimes even on a daily basis. There are numerous examples of hyperinflationary periods throughout history. For instance, Germany experienced a period of hyperinflation in the 1920s, and more recently Zimbabwe has experienced inflation of a magnitude so severe it ultimately abandoned its currency altogether.

CHAPTER 4

Unemployment

96. The labor force is best defined as

(A) The total number of employed persons
(B) The total number of unemployed persons
(C) The ratio of employed persons to unemployed persons
(D) The ratio of unemployed persons to employed persons
(E) The total number of employed persons plus the total number of unemployed persons

ANS : (E) The labor force is made up of the people who are involved in the world of work (the employed) or actively attempting to become involved (the unemployed). To be counted as a member of the labor force, one must fired be at least 16 years of age and then must be either working or seeking work. A person who is not working and is not seeking work is considered out of the labor force.

97. Eric is 12 years old and is paid to sweep the floor at his dad's shop 10 hours each week. According to the official employment statistics, Eric is

(A) Not counted in the labor force
(B) Counted as employed part−time
(C) Counted as employed
(D) Counted as underemployed
(E) Counted as employed full−time

ANS : (A) Eric is not 16 years old, so despite the fact that he is being paid to work at the family business, he would not be counted officially as an employed worker. Children under the age of 16 are considered out of the labor force, or "not of working age". Adults can also be out of the labor force, but that would be a result of their choice, not of their age.

98. To be counted as unemployed, one must be

(A) Working at least 1 hour per week
(B) Out of work and actively seeking work
(C) Working more than 40 hours per week
(D) Out of work
(E) Working for one job, but actively seeking a better job

ANS : (B) While in any nation there are many people who are not working, many of these people are not actually counted as unemployed. Among those not working, many are not old enough to be counted. Others who are working but not counted as unemployed would be those who do not wish to work at this point in their lives.

99. Sven works at the Burger Village for 10 hours each week but is looking for a better job at the Taco Plaza where he hopes he can work 40 hours each week. Officially, Sven is considered

(A) Unemployed
(B) Out of the labor force
(C) Employed
(D) A discouraged worker
(E) Marginally attached to the labor force

ANS : (C) Sven is working at least 1 hour in a week, so he is counted as an employed person. While he may not like his job very much, he is not considered a discouraged worker, a term that has special meaning in economics. A discouraged worker is a person who has removed him– or herself from the labor force due to long–term unemployment. This person has stopped searching for a job due to discouragement about ever finding one that fits his or her skills.

100. The sum of the employed persons and the unemployed persons is referred to as

(A) The employment rate
(B) The unemployment rate
(C) The labor force participation rate
(D) The labor force
(E) Those out of the labor force

ANS : (D) A person who is working at least 1 hour in a week is employed (E). A person who is not working but seeking work is unemployed (U). When we add up all of the employed persons and all of the unemployed persons, we get the labor force (LF), or LF = U + E.

101. A nation has a working–age population of 100 million, with 80 million working and 5 million unemployed and seeking work. The labor force participation rate is

(A) 85%
(B) 80%
(C) 75%
(D) 5%
(E) 100%

ANS : (A) One way to gauge the attachment of a population to the labor market is to measure the labor force participation rate (LFPR) –the fraction of the working–age population that is in the labor force (or LFPR = LF/Working Age Population). The labor force (LF) is the 80 million people who are working plus the 5 million people who are not working but are seeking work, or LF = U + E = 80 million + 5 million = 85 million. This allows us to compute LFPR = 85 million/100 million = 85%.

102. A nation has a working–age population of 100 million, with 85 million working and 10 million unemployed but not seeking work. The labor force participation rate is

(A) 85%
(B) 90%
(C) 10%
(D) 95%
(E) 11.1%

ANS : (B) To find the labor force participation rate (LFPR), we need three pieces of information: the number of unemployed (U), the number of employed (E), and the working–age population. We are given that there are 85 million people employed (E = 85), but we are not given U –we are only told that 10 million are not seeking work (they are not in the labor force, or NILF). Since U + E + NILF must be equal to the working–age population, then U + 85 + 10 = 100, there must be 5 million who are employed and seeking work. The labor force participation rate is therefore LFPR = (85 + 5)/100 = 90%.

103. Frank is a recent college graduate but is currently not working. In the last week he has had several phone interviews and continues to distribute his resume to potential employers. Officially Frank is counted as

(A) Out of the labor force
(B) A discouraged worker
(C) Employed part time
(D) Underemployed
(E) Unemployed

ANS : (E) Officially Frank is unemployed because he is over the age of 16, is not currently working, but is actively seeking work. To be counted as unemployed, someone must meet all three of these criteria. When asking people what they have done to actively seek work, activities such as sending resumes and having job interviews certainly qualifies as active search. If Frank had been passively reading the help−wanted ads in a newspaper, this would not qualify as active search.

104.The labor force participation rate is computed as
(A) (employed)/(working−age population)
(B) (unemployed)/ (working−age population)
(C) (unemployed)/ (employed + unemployed)
(D) (employed + unemployed)/(working−age population)
(E) (working−age population)/(employed + unemployed)

ANS : (D) The labor force participation rate (LFPR) is the fraction (or percentage) of the working−age population that is engaged in the labor force (LF) either by working (E) or being unemployed (U). Therefore, to compute LFPR rate, we divide the size of the labor force (E + U) by the working−age population.

105.A nation has a working−age population of 200 million, with 14 million not working and not looking for work and 170 million employed. The labor force participation rate is
(A) 7%
(B) 93%
(C) 85%
(D) 92%
(E) 8%

ANS : (B) There are 200 million people in this nation and 170 million are working, so 30 million are not working. Of that 30 million not working, 14 million are not seeking work, so these people are not counted in the labor force. Since there are 16 million who are unemployed and seeking work, the labor force participation rate is LFPR = (170 + 16)/200 = 93%.

106.You are told that the unemployment rate is 8%. This means that
(A) 92% of the working−age population is employed
(B) 8% of the working−age population is unemployed and seeking work
(C) 8% of the labor force is unemployed and seeking work
(D) 92% of the population is employed
(E) 8% of the population is unemployed and seeking work

ANS : (C) A common misconception about the unemployment rate is that it means that, in this case, 8% of the entire population is jobless. Some also believe that it means that 8% of adults (the working−age population) are

jobless. It really means that 8% of only the labor force is jobless and not seeking work. There are many other people who are voluntarily jobless, and they are not included in this statistic.

107. Jermaine is 50 years old and works third shift at the steel mill in Gary, Indiana. Every year in March the mill, for routine maintenance, does not employ a third shift. The following week the mill resumes employment of Jermaine's shift. During the week when Jermaine is not working, he is not seeking another job, because he knows he will resume work in a few days. Jermaine is considered

(A) Employed
(B) Unemployed
(C) Out of the labor force
(D) Retired
(E) A discouraged worker

ANS : (A) In situations like Jermaine's, he is still employed by the mill and will return to work when the routine maintenance is completed. His employment would have to completely cease and he would have to seek work to be counted as unemployed. Similarly, he is not out of the labor force because he is waiting to return to work. Similar situations arise when employees take a week or two of vacation time. Such employees aren't detaching themselves from the labor force or quitting their jobs, they are merely taking a vacation.

108. A nation has a working–age population of 200 million, with 14 million not working and not looking for work and 170 million employed. The unemployment rate is

(A) 7%
(B) 93%
(C) 85%
(D) 92%
(E) 8.6%

ANS : (E) To find the employment rate, we must first find the size of the labor force, which consists of the employed (E) and unemployed (U), or LF = U + E. Everyone in the working–age population must either be counted in E, U, or not in the labor force (NILF), or 200 = E + U + NILF. There are 200 million people in the working–age population, and 170 million employed. Of the remaining 30 million, 14 million are not seeking work so they are out of the labor force. Thus we conclude that 16 million are officially unemployed. The unemployment rate (UR) is the number of unemployed divided by the labor force, or UR = U/(E + U). Therefore, the UR = 16/(170+16) = 8.6%.

109. A nation has a working–age population of 95 million, with 81 million working and 5 million not working and not looking for work. The unemployment rate is

(A) 10%
(B) 88%
(C) 14.7%
(D) 93%
(E) 5.2%

ANS : (A) There are 95 million people in the working–age population, and 5 million people are not looking for a job. This leaves 81 million people who are working and 9 million people who are unemployed but looking for work. The labor force is the sum of the employed and unemployed, and thus the unemployment rate id UR = 9/(9 + 81) = 10%.

Use Table 6.1 to answer questions 183–185.

Table 6.1

The 2011 Population and Employment Status of Costa Erica

Total population	**300 million**
Population 15 years old and younger	**50 million**
Total working age population	**250 million**
Working at least 1 hour per week	**200 million**
Not working and seeking work	**10 million**
Not working and not seeking work	**40 million**

110. Table 6.1 describes the population of Costa Erica in 2011. The labor force participation rate (LFPR) is equal to

(A) 75%
(B) 84%
(C) 80%
(D) 67%
(E) 70%

ANS : (B) The LFPR is the percentage of the working–age population that is in the labor force: either employed or unemployed and looking for a job. In Costa Erica, the labor force is the 200 million employed workers and the 10 million unemployed but seeking work. When we divide the labor force by the working–age population, we get LFPR $= (200 + 10)/250 = 84\%$.

111. Table 6.1 describes the population of Costa Erica in 2011. The unemployment rate (UR) is equal to

(A) 25%
(B) 16%
(C) 10%
(D) 4.8%
(E) 20%

ANS: (D) The unemployment rate is the percentage of the labor force that is unemployed but looking for a job. We know that there are 10 million people in Costa Erica who fall into this category, so they are the unemployed. The labor force is the sum of the 10 million unemployed plus the 200 million employed persons. The unemployment rate is therefore: UR $= 10/(10 + 210) = 4.8\%$.

112. Table 6.1 describes the population of Costa Erica in 2011. Suppose that the nation's 2012 economy improves and 10 million citizens, who were not looking for work in 2011, begin to look for jobs in 2012. If we hold employment levels constant, how will this affect the labor force participation rate (LFPR) and unemployment rate (UR) in 2012?

(A) LFPR stays constant and UR decreases
(B) Both stay constant.
(C) Both increase.
(D) LFPR increases and UR stays constant.
(E) Both decrease

ANS : (C) As nation's economy improves, some people who were previously out of the labor force may begin to look for jobs. When 10 million of Costa Erica's citizens enter the labor force, this increases the ranks of the

unemployed and the labor force. Clearly the labor force participation rate is going to rise. Since all of these people are unemployed, the unemployment rate is going to rise. In fact, we can show this by recomputing the unemployment rate as UR = 20/(20 + 200) = 9.1% and the labor force participation rate as LFPR = (200 + 20)/250 = 88%.

113. The proportion of the labor force that is unemployed is called the

(A) Natural rate of employment
(B) Employment to population rate
(C) Discouraged worker rate
(D) Labor force participation rate
(E) Unemployment rate

ANS: (E) The unemployment rate tells us the fraction (or percentage) of the labor force that is unemployed. This is sometimes a misleading statistic because to be counted as employed, a person only needs to work 1 hour each week. Many people who are working just a few hours would really rather be working a full 40 hours, yet they are considered employed. Additionally, many do not have a job and are not, for whatever reason, seeking a job. These people are not considered unemployed. In these two ways, the unemployment rate doesn't always give us a perfect measure of the health of the labor market.

114. Roxie was fired from her job a year ago. For a year she successfully looked for work. Last month she gave up looking, and she has no plans to resume her job search. Roxie is classified as

(A) Out of the labor force
(B) Employed
(C) Unemployed
(D) Underemployed
(E) Unable to work due to disability

ANS: (A) When a worker loses her job and seeks a new job, she is unemployed. However, when she becomes tired of searching and stops trying to find a new job, she drops out of the labor force. This change of classification actually creates some difficulty in estimating the true state of the labor market.

115. The official unemployment rate excludes ––––, and this causes the official unemployment rate to ––––– the amount of unemployment in the economy.

(A) part–time workers; understate
(B) unemployed workers; overstate
(C) retired workers; overstate
(D) discouraged workers; understate
(E) underemployed workers; overstate

ANS : (D) When people have searched a long time for a job but haven't found only, they might come to the conclusion that no job exists for their skill sets. If these people drop out of the labor force, they are classified by the Bureau of Labor Statistics as discouraged workers. They are no longer in the labor force and no longer in the ranks of the unemployed, so this causes the official unemployment rate to fall. Because this official measure falls, it understates the true state of the unemployment in the scenario.

116. Which of the following is typically true in recessions?

(A) Employment increases.
(B) Unemployment increases.

(C) Unemployment decreases.
(D) Wages rise.
(E) There is no change in employment.

ANS : (B) One of the most common economic indicators of a recession is a rising unemployment rate. To understand how this happens, we just need to visualize the circular−flow model. A recession is caused by weak household spending on goods and service in the product markets. As firms see their product sales decline, they need to hire fewer inputs from the factor markets. And as fewer units of labor are hired, the level of employment falls, and thus the unemployment rate rises.

117. Which of the following is typically true in expansions?
(A) Employment decreases.
(B) Unemployment increases.
(C) Employment increases.
(D) Labor force participation decreases.
(E) There is no change in unemployment.

ANS : (C) An economic expansion is the opposite of a recession. An expansion boosts household spending on goods and services in the product markets. As firms see product sales rise, they must hire more inputs from the factor markets. As more units of labor are hired, the level of employment rises, and the unemployment rate falls. In general, our macroeconomic indicators tend to move in the same direction: when GPD increases, employment tends to increase as well; and when GPD decreases, employment tends to decrease as well.

118. Which of the following is an example of an unemployed worker?
(A) Alex is an artist who sells paintings at his own gallery.
(B) Eli is in high school and doesn't have time to hold down a job.
(C) Eric quit his job at the movie theatre and has since applied for a job opening at the ballpark.
(D) Melanie is a retired cheese−maker who now enjoys gardening.
(E) Max is an aspiring author of children's books but hasn't yet finished his first book.

ANS : (C) Because Eric is actively seeking another job, he is unemployed. Alex and Max are considered employed. Even if Max has not finished his book, he is a writer employed in the production of the book. Eli and Melanie are out of the labor force for different reasons. Eli is a full−time student, and Melanie has retired. At this time, neither wants to seek a job, so they are not unemployed.

119. Oscar recently quit his job at the city sanitation office and is applying for openings in the park departments. Oscar is currently
(A) Structurally unemployed
(B) Seasonally unemployed
(C) Cyclically unemployed
(D) Frictionally unemployed
(E) Out of the labor force

ANS : (D) One way to think about frictional unemployment is that it occurs when the worker (Oscar in this case) or the employer finds that there is not a good match between the job and the employee. Oscar had a job but wants one that will suit him better, so he is an example of this form of frictional unemployment.

120. Grover was released from his sales job at the auto dealership when the economy slipped into a recession. Grover is classified as

(A) Structurally unemployed
(B) Seasonally unemployed
(C) Out of the labor force
(D) Frictionally unemployed
(E) Cyclically unemployed

ANS : (E) Cyclical unemployment occurs as a result of the economic business cycle. When the economy is expanding, jobs are easy to find and unemployment falls. On the other hand, when the economy goes into recession, employers start trimming the payroll and people like Grover lose their jobs. Car sales as a skill set has not disappeared; there has just been a decrease in demand for car salespeople at the moment. When the economy rebounds, more cars will be demanded, and more salespersons will be demanded.

121. Ros is a ski instructor during the winter but finds herself without a job when the ski resort closes for the summer. Ros is currently

(A) Structurally unemployed
(B) Seasonally unemployed
(C) Cyclically unemployed
(D) Frictionally unemployed
(E) Out of the labor force

ANS : (B) Some occupations see a rise and fall in employment at different times of the year. For example, the employment of construction workers increases in the summer and decreases in the winter. When a ski resort closes due to the end of winter, people like Ros become seasonally unemployed. This form of unemployment is expected and not terribly damaging to the greater labor market or national economy.

122. When employed workers are seeking positions that are a better fit for the skills of those workers, it is called ---- unemployment

(A) Frictional
(B) Seasonal
(C) Structural
(D) Operational
(E) Cyclical

ANS : (A) When a worker quits a job to find a better one, or when an employer fires a poor worker to find a better one, this is an example of the nature of frictional unemployment. It is common for a worker and a job to be poorly matched, and this can often end in unemployment. It is not the result of a downturn in the economy, a fundamental change in the labor market, or a change in the calendar seasons, it is just the natural process of the labor market trying to operate more efficiently.

123. When workers lose their jobs because there is no longer a demand for their particular skills, it is called ---- unemployment.

(A) Frictional
(B) Seasonal
(C) Structural
(D) Operational
(E) Cyclical

ANS : (C) Structural unemployment can occur in a couple of different ways, but they all boil down to a permanent decrease in the demand for a particular skill set. For example, when technology makes a certain occupation obsolete (e.g., phonograph production) or when laws create a wedge that prevents the market from reaching equilibrium (a minimum wage), workers are displaced and unemployed. Unlike cyclical unemployment, these jobs won't come back when the economy improves. And unlike seasonal unemployment, a change of seasons won't bring back these jobs.

124. When workers lose their jobs because the economy is experiencing a recession, it is called ––––– unemployment.

(A) Seasonal
(B) Frictional
(C) Structural
(D) Cyclical
(E) Political

ANS : (D) Changes in the business cycle are the source of cyclical unemployment. As the economy gets stronger (an expansion in the business cycle), more workers are hired and cyclical unemployment falls. As the economy worsens (a recession), fewer workers are needed and cyclical unemployment rises. This form of unemployment is largely the target of fiscal and monetary policy.

125. Burgin worked at the Tennessee textile mill for 20 years, but when the mill moved its production to Mexico, he lost his job. Burgin is currently

(A) Structurally unemployed
(B) Seasonally unemployed
(C) Cyclically unemployed
(D) Frictionally unemployed
(E) Out of the labor force

ANS : (A) The job at the textile mill is not coming back, so this is structural unemployment. While there is still demand for the skill set that Burgin possesses, there is not enough of that demand in Tennessee where he lives. These sorts of fundamental changes in local and national labor markets are almost impossible for government policies to alleviate. Fortunately when some jobs become structurally obsolete, others are becoming structurally demanded.

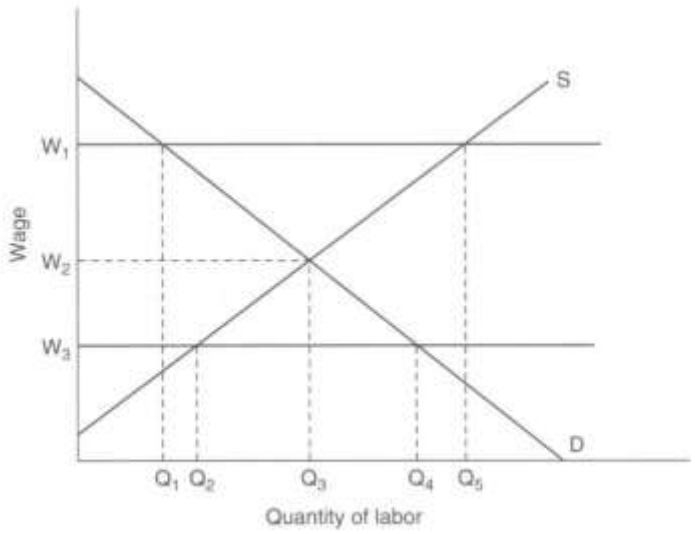


Figure 6.1

126. Figure 6.1 shows a competitive labor market in equilibrium. If a binding minimum wage was instituted, the quantity of labor supplied would

(A) Increase from Q_3 to Q_5
(B) Increase from Q_3 to Q_5
(C) Decrease from Q_3 to Q_2
(D) Increase from Q_1 to Q_5
(E) Decrease from Q_3 to Q_1

ANS : (B) If the market is in equilibrium, the quantity of labor demanded and supplied would be equal to Q_3. A binding minimum wage must lie above the equilibrium wage of W_2; otherwise, the market will just revert to equilibrium wage of W_2. Once the minimum wage is in place, the quantity of labor supplied increases to Q_5 along the upward−sloping labor supply curve.

127. Figure 6.1 shows a competitive labor market in equilibrium. If a binding minimum wage was instituted, the quantity of labor demanded would

(A) Increase from Q_3 to Q_4
(B) Increase from Q_3 to Q_5
(C) Decrease from Q_3 to Q_2
(D) Increase from Q_1 to Q_5
(E) Decrease from Q_3 to Q_1

ANS : (E) Because the binding wage must lie above W_2, employers will respond to the higher W_1 by reducing the quantity of labor demanded along the downward−sloping labor demand curve. Since the market quantity of labor hired begins at Q_3, this movement along the labor demand curve will be form Q_3 to Q_1.

128. Figure 6.1 shows a competitive labor market in equilibrium. If a binding minimum wage was instituted, how many units of labor would be

(A) $Q_5 - Q_3$
(B) $Q_4 - Q_2$
(C) $Q_5 \div Q_1$

(D) $\boldsymbol{Q_5 - Q_1}$
(E) $\boldsymbol{Q_5}$

ANS : (D) A minimum wage, by design, raises the wage in a labor market above equilibrium. The only binding minimum wage in this graph is W_1. Employers will reduce the quantity of labor demanded to Q_1, and people will increase the quantity of labor supplied to Q_5. Because more units of labor are supplied than demanded, there is a surplus of labor. This surplus of $(Q_5 - Q_1)$ represents the unemployed in this market.

129. Figure 6.1 shows a competitive labor market in equilibrium. If a binding minimum wage was instituted, what is the unemployment rate in this market?
(A) $\boldsymbol{(Q_5 - Q_1) \div Q_5}$
(B) $\boldsymbol{Q_4 - Q_2}$
(C) $\boldsymbol{Q_5 \div Q_3}$
(D) $\boldsymbol{(Q_5 - Q_1) \div Q_3}$
(E) $\boldsymbol{Q_5}$

ANS : (A) A binding minimum wage creates a surplus of labor in the market by raising the wage above equilibrium. When the market is in equilibrium, the quantity of labor demanded equals the quantity of labor supplied, so there is no unemployment. A surplus of labor represents unemployed workers, so to find the unemployment rate, we just need to divide the size of the surplus by the size of the labor force. The labor force is Q_5, the quantity of labor being supplied, but only Q_1 units of labor are employed. This allows us to determine that the unemployment rate is the surplus $(Q_5 - Q_1)$ divided by Q_5.

130. A firm might pay an efficiency wage if it
(A) Wanted to lower worker productivity
(B) Wanted to decrease absenteeism and turnover
(C) Wanted to decrease hours worked
(D) Wanted to increase waste and inefficiency
(E) Wanted workers to seek alternative jobs

ANS : (B) An efficiency wage is a wage that exceeds equilibrium and is deliberately paid by an employer to accomplish higher levels of productivity. A higher wage should reduce absenteeism because the wage is the opportunity cost of missing work. Because the wage is higher than what the market might provide, the efficiency wage should reduce turnover, as a current worker is less likely to quit for another job. Absenteeism and turnover are costly to a firm because they lose productivity and have to retrain a new worker. So an efficiency wage can actually save the firm money.

131. The natural rate of employment is the level of unemployment
(A) At the trough of a recession
(B) Where structurally unemployment is zero
(C) When the unemployment rate is zero
(D) Where cyclical unemployment is zero
(E) Where frictional unemployment is zero

ANS : (D) The economy naturally goes through the business cycle with peaks and valleys, in the level of unemployment. When the economy is at full employment, cyclical unemployment is zero, but there still exists frictional and structural forms of unemployment. The point where cyclical unemployment is zero is believed to be

where the level of unemployment is at its long−run natural rate. This means that even in a well−functioning labor market, we can expect the unemployment rate to be greater than 0%.

132.The natural rate of unemployment is equal to

(A) Zero unemployment
(B) Frictional unemployment plus structural unemployment plus cyclical unemployment
(C) Frictional unemployment
(D) Structural unemployment
(E) Frictional unemployment plus structural unemployment

ANS : (E) There will always be some level of unemployment in the economy. The natural rate of unemployment is the rate that would exist if the economy was operating at full employment. No matter the level of national output (GDP), there will always be frictional and structural forms of unemployment in the economy, but the cyclical unemployment rises and falls with the strength of the economy. At full employment, cyclical unemployment is zero; so all that is left is frictional and structural unemployment.

133.When the economy is operating at full employment, the unemployment rate is

(A) Equal to the rate of cyclical unemployment
(B) Zero
(C) Equal to the rate of frictional plus structural unemployment
(D) Equal to the rate of frictional unemployment
(E) Equal to the rate of structural unemployment

ANS : (C) National output rises and falls with the business cycle. If the economy is going through a recession, cyclical unemployment will rise, and if the economy is in an expansion, cyclical unemployment will fall. Only at full employment output is the cyclical unemployment equal to zero. At this level of output, the natural rate of unemployment is the collective frictional and structural unemployment.

134.A binding minimum wage can lead to

(A) Cyclical unemployment
(B) Structural unemployment
(C) Full employment
(D) Frictional unemployment
(E) Zero unemployment

ANS : (B) A minimum wage is an artificial source of unemployment because it interferes with the market equilibrium wage and equilibrium quantity of employment. If the market is in equilibrium, there is no unemployment at all, as the quantity of labor demanded is exactly equal to the quantity supplied. The minimum wage creates a wedge between the quantity supplied and quantity demanded, thus it is a structural form of unemployment.

135.Suppose a labor union successfully negotiates a wage that exceeds the market equilibrium wage. This contract may −−−− the level of −−−− unemployment.

(A) Increase; structural
(B) Decrease; frictional
(C) Increase; cyclical
(D) Decrease; natural rate of
(E) Decrease; cyclical

ANS : (A) A labor union is another source of structural unemployment because the union, if successful, will negotiate a wage that exceeds market equilibrium. Once this occurs, the quantity of labor demanded will be reduced below the quantity of labor supplied. A union offers the membership higher wages, better benefits, and better work conditions, but at the cost of fewer jobs once the wage is increased. Like the minimum wage, this is a form of structural unemployment.

CHAPTER 5

Aggregate Demand

136.In the United States, the largest component of aggregate demand is

- **(A) Government spending**
- **(B) Consumption spending**
- **(C) Investment spending**
- **(D) Export spending**
- **(E) Import spending**

ANS : (B) In the United States, consumption spending is about 70% of all spending that goes into aggregate demand. This spending consists of all goods (durable and nondurable) and services purchased by domestic households. Durable goods are items that are expected to last for at least 3 years, and nondurable goods are expected to last fewer than 3 years. For example, a car is a durable good, but the gasoline to power the car is a nondurable good. Services are intangible benefits that are also purchased by consumers. Examples of services would include a car wash, a massage, a medical checkup, or legal advice.

137.A nation's aggregate demand is

- **(A) S + I**
- **(B) DI + Transfers – Taxes**
- **(C) Wages + Interest + Profit**
- **(D) C + I + G + (X – M)**
- **(E) G – Taxes**

ANS : (D) Aggregate demand is the total sum of all spending in the domestic economy. Since domestic spending comes from households (C), firms (I), and government (G), we must add these three components. However, spending in the domestic economy can also come from foreign sources, so we must also add export spending (X) and subtract domestic spending on imported foreign goods (M). When we subtract imports from exports, we get net exports (X – M).

138.The component of aggregate demand that is the most sensitive to changes in the interest rate is

- **(A) Investment spending**
- **(B) Consumption spending**
- **(C) Government spending**
- **(D) Export spending**
- **(E) Import spending**

ANS : (A) Investment spending (I) captures the spending on physical capital (like machines) and new construction done by firms. These large (and expensive) projects often require the firm to borrow the funds from the banking

sector. Naturally, the banking sector charges an interest rate to lend to these firms, so firms can be quite sensitive to changes in the interest rate before investment spending is planned.

139. If Congress approved billions of dollars to improve public education in the United States, this would directly affect the ---- component of aggregate demand.

(A) Investment spending
(B) Consumption spending
(C) Government spending
(D) Export spending
(E) Import spending

ANS : (C) Government spending captures virtually any good or service purchased by all levels of government (local, state, or federal). Government also engages in spending on broad programs such as public education. Government spending in the educational programs can include small items (textbooks), large items (school buses), or services (teacher salaries).

140. A more open trade agreement between the United States and the European Union will directly affect the ---- component of aggregate demand.

(A) Investment spending
(B) Consumption spending
(C) Government spending
(D) Financial spending
(E) Net export spending

ANS : (E) Total spending in the US economy must also include the spending that comes from and goes to foreign countries. If there is more open trade between the United States and the European Union (EU), it is likely that consumers in Europe will buy more products made in America. These transactions will increase exports in the US economy. It is also likely that American consumers will buy more products made in Europe. These transactions will increase imports in the US economy. Since net exports is the difference between export spending and import spending, more open trade directly affects, upward or downward, net exports in both the United States and the European Union.

141. A nation's private sector ---- component of aggregate demand comes from domestic individuals and households, rather than firms and the public sector.

(A) Import spending
(B) Financial spending
(C) Government spending
(D) Consumption spending
(E) Net export spending

ANS : (D) If we focus on the domestic components of spending, there are three sources. Firms engage in investment spending on new equipment and construction, the government purchases both goods and services, and individuals and households engage in consumption spending of goods and services. In the United States, consumption spending is the largest component of aggregate demand.

142. As the aggregate price level falls, the real value of assets rises, and consumers increase consumption spending along the aggregate demand curve. This ---- effect partially explains why the aggregate demand curve is downward sloping.

(A) Wealth
(B) Interest rate
(C) Crowding out
(D) Substitution
(E) Foreign exchange

ANS : (A) Households hold assets, including money, which amounts to the total wealth available for consumption. When the price level falls, the value of such wealth increases and consumers increase spending on goods and services. Economists refer to this relationship as the "wealth effect", and it partly explains why the aggregate demand curve is downward sloping.

143. Inflation reduces the real value of assets, including money checking accounts and retirement savings accounts. Because of this, when inflation is high, consumers and firms reduce spending. This ---- effect helps explain why the ---- is downward sloping.
(A) Crowding out; aggregate demand curve
(B) Interest rate; short−run aggregate supply curve
(C) Wealth; aggregate demand curve
(D) Income; long−run aggregate supply curve
(E) Foreign exchange; aggregate demand curve

ANS : (C) Households sell their labor to labor markets and earn income that is used to consume goods and services. When some of that income is saved in the bank or in the form of other assets (i.e., stocks, bonds, property), the household accumulates wealth. The value of this wealth an also influence the household's level of spending. When the price level rises (inflation), this wealth is reduced in value and this prompts less spending. The inverse relationship between the price level and spending helps explain the downward−sloping aggregate demand curve.

144. Which of the following statements accurately describes why aggregate demand curves slope downward?
I. When income levels rise, all else equal, consumers increase spending at all price levels.
II. When interest rates fall, all else equal, firms increase investment spending at any price level.
III. When the price level falls , all else equal, the value of saved assets rises and consumers increase spending.
(A) I only
(B) II only
(C) III only
(D) I and II only
(E) II and III only

ANS : (C) The downward−sloping aggregate demand curve describes an inverse relationship between the aggregate price level and total spending (real GDP) in the economy. When total spending changes at all price levels, it means something has happened to shift the aggregate demand curve. Statements I and II are both accurate, but they describe outward shifts in the aggregate demand curve, not the negative slope of the curve.

145. A rising price level causes consumers to reduce money savings in banks. This begins a chain reaction that eventually reduces investment spending by firms. This explanation for why aggregate demand is downward sloping is referred to as the ---- effect.
(A) Wealth
(B) Interest rate
(C) Crowding out

(D) Substitution
(E) Foreign exchange

ANS : (B) A rising price level makes it more expensive to consumer goods and services so households will reduce their savings to buy these more expensive items. A reduction in savings cause banks to decrease the level of excess cash reserves, reducing the funds available to lend, and this causes interest rates to rise, reducing investment spending by firms. The chain of events from a higher price level to higher interest rates is called the "interest rate effect", and this partly explains why aggregate demand slopes downward.

146. Economists explain the downward−sloping aggregate demand curve with the interest rate effect. The idea is that lower price levels induce more savings, lower interest rates, and
(A) Lower levels of consumption spending
(B) Lower levels of government spending
(C) Higher levels of import spending
(D) Higher levels of investment spending
(E) Lower levels of export spending

ANS: (D) The interest rate effect describes the connection between price levels and investment spending. A lower price level means that households need less money for consumption of goods and services. Households respond by saving more money in the banking sector, and as more money is saved, the interest rates begin to fall, prompting more investment spending.

147. Aggregate demand curves slope downward because, all else equal,
(A) Higher levels of government spending increase real output at all price levels
(B) Weaker consumer confidence reduces real output at all price levels
(C) More expert spending increases real output at all price levels
(D) Lower net export spending decreases real output at all price levels
(E) Higher price levels reduce savings, increase interest rates, and reduce investment spending

ANS : (E) This choice describes what economists call the "interest rate effect". A higher price level reduces the ability of consumers to buy goods and services with the same amount of money, so consumers must reduce their savings. As savings leave the banks, interest rates rise and investment spending falls. This relationship between higher prices and reduced spending describes a downward−sloping aggregate demand curve. The other choices describe either outward or inward shifts in the entire curve because spending has either risen or fallen at all price levels.

148. When the aggregate price level falls in the US economy, net exports tend to rise and aggregate spending rises with it. The inverse relationship between price level and net exports is referred to as the
(A) Wealth effect
(B) Interest rate effect
(C) Crowding out effect
(D) Substitution effect
(E) Foreign exchange effect

ANS : (E) The foreign exchange effect recognizes that a lower price level in a nation cause an increase in net exports in that nation's economy. If prices are lower in nation X relative to nation Y, consumers in nation Y will increase their imports from nation X. Consumers in nation X will reduce their imports from nation Y. The nation

with the lower price level (nation X) sees an increase in exports and a decrease in imports, thus increasing real GDP along the aggregate demand curve.

149. Suppose that a higher price level in the United States cause interest rates on US Treasury bonds to rise. The Mexican government invests more pesos in US Treasury bonds, appreciating the dollar and depreciating the peso. This chain of events eventually leads to lower ---- in the United States and is known as the ----.

(A) Net exports; foreign exchange effect
(B) Net exports; interest rate effect
(C) Investment; borrowing out effect
(D) Consumption; substitution effect
(E) Consumption; wealth effect

ANS: (A) The higher interest rates on financial assets like US Treasuries attract investors and their currencies from other nations, like Mexico and the peso. An increase in the demand for the US dollar causes it to appreciate against the peso. This means that the dollar can buy more pesos in global currency markets. With a "stronger" dollar, Americans will import more goods from Mexico. The "weaker" peso means that American firms will export fewer goods to Mexico. The higher price level thus reduces net exports in the United States, and this is seen as an upward movement along the aggregate demand curve.

150. All else equal, a lower price level in Canada causes the Canadian dollar to ---- against other currencies and a(n) ---- in Canadian gross domestic product (GDP).

(A) Depreciate; decrease
(B) Depreciate; increase
(C) Appreciate; increase
(D) Stay unchanged; increase
(E) Appreciate; decrease

ANS : (B) A lower price level in Canada will lower interest rates on Canadian financial assets, like government bonds. Lower interest rates on bonds reduce foreign investment in these financial asets and decreases the demand for the Canadian dollar in currency markets. When the value of the Canadian dollar falls, it means that imports into Canada will fall and exports out of Canada will rise. This increase in net exports, due to the lower price level, is seen as an increase in real GDP along the aggregate demand curve in Canada.

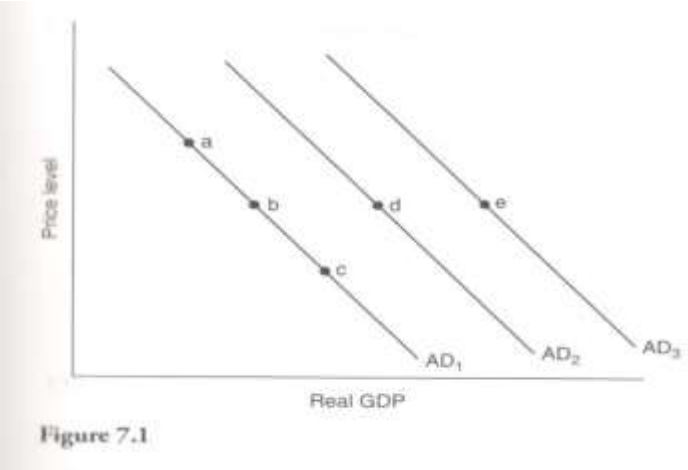


Figure 7.1

151. In Figure 7.1 the movement from point b to point d is described as

(A) An upward movement along the aggregate demand curve
(B) A decrease in aggregate demand
(C) An increase in aggregate demand
(D) A decrease in real gross domestic product (GDP)
(E) A downward movement along the aggregate demand curve

ANS : (C) When there has been an increase in real GDP at a constant price level, it is said that there has been an increase in aggregate demand, or that there has been a rightward or outward shift in the entire aggregate demand curve. A change in the price level will not cause the curve to shift; some other external factor must have changed to increase total spending in the economy.

152.In Figure 7.1 a movement from point a to point b would be caused by
(A) A decrease in government spending
(B) An increase in net exports
(C) A decrease in the price level
(D) A reduction in personal income taxes
(E) An increase in interest rates

ANS : (C) A movement along a fixed aggregate demand curve is caused by a change in the price level. In this case, the price level must have fallen, so all else equal, the total spending on goods and services has increased in the nation's economy. If an external factor (not the price level) changes, the entire curve will shift inward or outward. For example, a boost of consumer confidence would increase household spending at all price levels; an outward shift would occur.

153.In Figure 7.1, what would cause a movement from point e to point b?
(A) A decrease in the price level
(B) An increase in export spending
(C) An increase in investment spending
(D) A reduction in consumption spending
(E) An increase in the price level

ANS : (D) A movement to from point e to point b is a leftward demand curve. This is telling us that, at any price level, total spending in the economy has fallen. A so−called decrease in aggregate demand is the result of a decrease in any of the four categories of spending n the nation's economy. A decrease in consumption spending would certainly cause such a leftward shift.

154.In Figure 7.1, what would cause a movement from point b to point d?
(A) A decrease in the price level
(B) An increase in import spending
(C) An increase in government spending
(D) A reduction in consumption spending
(E) An increase in the price level

ANS : (C) A movement to from point b to point d is a rightward shift of the aggregate demand curve. This is telling us that at any price level, total spending in the economy has increased. An increase in aggregate demand happens whenever there is an increase in any of the four categories of spending in the nation's economy. An increase in government spending would cause a rightward shift.

155. In Figure 7.1 a movement from point c to point b would be caused by

(A) A decrease in government spending
(B) An increase in net exports
(C) A decrease in the price level
(D) A reduction in personal income taxes
(E) An increase in the price level

ANS : (E) A movement along any aggregate demand (AD) curve is caused by a change in the price level. In this case, the price level has risen, so all else equal, the total spending on goods and services has decreased in the nation's economy. If an external factor (other than the price level) changes, the entire curve will shift inward or outward. If the firms were pessimistic about the economic outlook, they may reduce investment spending across the board; this would be seen as an inward shift of the AD curve.

156. Suppose that consumers are more optimistic about the job market and future incomes. All else held constant, this will

(A) Shift the aggregate demand curve to the right
(B) Have no impact on aggregate demand
(C) Cause a movement downward along the aggregate demand curve
(D) Cause a movement upward along the aggregate demand curve
(E) Shift the aggregate demand curve to the left

ANS : (A) Consumers are the largest component of total aggregate demand. If households are more optimistic about the economy, their job prospects, and future incomes, they will typically increase consumption spending at any price level. This boost of consumer optimism results in an increase, or rightward shift, in the aggregate demand curve.

157. Which of the following will shift the aggregate demand curve to the left?

(A) Investment spending rises.
(B) Import spending falls.
(C) Consumer spending rises.
(D) Export spending falls.
(E) Government spending rises.

ANS : (D) Aggregate demand is the sum of consumption spending (C), investment spending (I), government spending (G), and net exports (X – M). Any decrease in one of these components of spending will shift the aggregate demand curve to the left. Net exports can decrease in one of two ways: exports can fall or imports can rise.

158. Which of the following would cause a nation's real gross domestic product (GDP) to increase at any price level?

(A) Interest rates are rising.
(B) The stock market gets stronger, increasing the value of wealth.
(C) Government spending falls.
(D) Net exports fall.
(E) The nation's currency appreciates.

ANS : (B) If we are told that real GDP has risen at any price level, this is an indication that aggregate demand has shifted to the right. Whenever consumer wealth increases, in this case due to a strong stock market, it allows

households to increase their consumption of goods and services. Wealth and income are different, but they both have a direct relationship with consumption spending.

159. Suppose that firms in the country of Melaniestan are producing products that have seen increased international popularity. This should cause

(A) Investment spending to decrease, shifting aggregate demand in Melaniestan to the left
(B) Investment spending to increase, shifting aggregate demand in Melaniestan to the left
(C) Net export spending to increase, shifting aggregate demand in Melaniestan to the right
(D) Government spending to decrease, shifting aggregate demand in Melaniestan to the right
(E) Net export spending to decrease, shifting aggregate demand in Melaniestan to the left

ANS : (C) The nation of Melaniestan is producing products that have become more popular with consumers in other countries. This should allow firms in Melaniestan to export more products to those foreign consumers. All else equal, this boost to export spending (X) will increase net exports (X – M) and shift aggregate demand (AD) to the right.

160. When the labor market in the United States is strong, unemployment is low, and incomes are rising, we expect to see

(A) No change in the aggregate demand (AD) curve
(B) A downward movement along the AD curve
(C) An upward movement along the AD curve
(D) A decrease in the AD curve
(E) An increase in the AD curve

ANS : (E) A strong economy with low unemployment and rising incomes will cause the aggregate demand (AD) curve to shift to the right. This shift is often the indication that an economy is in the expansion stage of the business cycle as real GDP is rising, no matter the price level. When the economy is weakening, or contracting, the AD curve is drawn as shifting to the left.

161. Suppose that market forces in the financial sector cause interest rates to rise. All else equal, this would cause

(A) No change in the aggregate demand (AD) curve
(B) A downward movement along the AD curve
(C) An upward movement along the AD curve
(D) A decrease in the AD curve
(E) An increase in the AD curve

ANS : (D) Interest rates are determined by the financial markets and have an impact on aggregate demand through the effect they have on the costs of borrowing. Most investment projects (physical capital or construction) require firms to borrow, and thus higher interest rates reduce investment spending (I). There is some big−ticket consumption spending (C), like cars and trucks, that also is sensitive to higher interest rates.

162. Suppose the government lowers income taxes for households. How does this affect the aggregate demand (AD) curve?

(A) By increasing disposable income, consumption spending rises and AD shifts to the right.
(B) By increasing disposable income, investment spending rises and AD shifts to the right.
(C) By decreasing disposable income, consumption spending falls and AD shifts to the right.
(D) By decreasing disposable income, consumption spending falls and AD shits to the right.

(E) By increasing disposable income, consumption spending rises and AD shifts to the left.

ANS: (A) When taxes are subtracted from household income and government transfer payments are added, what is left over is called disposable income. Households can then choose to consume or save this disposable income. When disposable income rises due to the tax cuts, consumption rises and shifts aggregate demand to the right.

163. Suppose the government eliminated some social programs like food stamps for the poor and social security payments. All else equal, this reduction in ---- would ---- disposable income and ---- aggregate demand.

(A) Transfer payments; reduce; increase
(B) Transfer payments; reduce; decrease
(C) Tax payments; reduce; decrease
(D) Tax payments; increase; decrease
(E) Transfer payments; increase; increase

ANS : (B) For many citizens, transfer payments from the government act to increase disposable income. Social programs like food stamps, medical care for the elderly, veterans' benefits, and others take tax revenue from some segments of society and transfer those dollars to other segments. All else equal, a reduction in transfer payments therefore reduces disposable income and causes aggregate demand to fall.

164. The government of Dodgetopia passes a large public works bill that increases government spending on road and rail construction, and the expansion of several air and sea ports. This kind of government spending is intended to

(A) Decrease aggregate demand and real GDP
(B) Increase aggregate demand and decrease real GDP
(C) Increase aggregate demand and real GDP
(D) Increase aggregate demand and the unemployment rate
(E) Decrease aggregate demand and the unemployment rate

ANS : (C) Government spending (G) programs 9or "fiscal policy"), such as infrastructure improvements, are designed to shift the aggregate demand (AD) curve to the right. Such increases in government spending have the same impact as any other increase in consumption, investment, or net exports. As the AD curve shifts to the right, real GDP also increases at any price level.

165. The central bank of Dodgetopia decides that the nation would be better served if interest rates were increased. This decision is intended to

(A) Decrease aggregate demand and real gross domestic product (GDP)
(B) Increase aggregate demand and decrease real GDP
(C) Increase aggregate demand and real GDP
(D) Increase aggregate demand and the unemployment rate
(E) Decrease aggregate demand and the unemployment rate

ANS : (A) The central bank of a nation can influence interest rates by changing the supply of money circulating through the banking sector. By affecting interest rates, this monetary policy also affects some spending components in the economy. Higher interest rates make it more costly for firms to borrow, and this reduces investment (I), shifting aggregate demand (AD) to the left and reducing real GDP.

166. The central bank of Dodgetopia decides that interest rates in the nation are above the target levels, and the banks acts to lower them. How will this decision affect aggregate demand in the country?

(A) Investment spending increases, net exports decrease, and aggregate demand rises.
(B) Investment spending increases, consumption spending increases, and aggregate demand falls.
(C) Investment pending decreases, net exports decrease, and aggregate demand falls.
(D) Consumption spending increases, net exports decrease, and aggregate demand rises.
(E) Investment spending increases, net exports increase, and aggregate demand rises.

ANS : (E) When a central bank uses monetary policy to reduce interest rates, investment, consumption, and net exports all increase. Investment spending (I) rises because firms can now borrow large sums of money at lower interest rates, thus making large projects more profitable. Consumption spending (C) also rises for items like cars and appliances when interest rates are low. Finally, net exports (X – M) also rise with lower interest rates because of the depreciation of the nation's currency. This depreciation increases exports out of Dodgetopia and decrease imports into the country.

167. If a central bank decides that total spending in the economy is too high, they should act to ---- interest rates so that ----
(A) Increase; investment; interest–sensitive consumption, and net exports all rise
(B) Increase; investment; interest–sensitive consumption; and net exports all fall
(C) Decrease; investment rises, but interest–sensitive consumption and net exports both fall
(D) Decrease; investment; interest–sensitive consumption, and net exports all rise
(E) Decrease; investment; interest–sensitive consumption, and net exports all fall

ANS : (B) Total spending in a nation can get too high and eventually cause inflation. To curtail this, central banks can rein in some of that spending if the interest rates are increased. A higher interest rate makes it more costly for firms to borrow so investment falls. Any kind of consumer spending that is sensitive to interest rates (borrowing for a college degree) would also be reduced with this policy. Finally, a higher interest rate causes the nation's currency to appreciate against other currencies. An appreciating currency makes it cheaper to buy from other nations, so imports rise. On the other hand, it makes that nation's exports more expensive to foreigners so exports fall.

CHAPTER 6

Aggregate Supply

168. The short–run aggregate supply curve is ----, while the long–run aggregate supply curve is ----.
(A) Upward sloping; vertical
(B) Upward sloping; downward sloping
(C) Downward sloping; vertical
(D) Vertical; upward sloping
(E) Upward sloping; horizontal

ANS : (A) Unlike aggregate demand, which is downward sloping in both the long run and the short run, the aggregate supply relationship between price and real GDP depends upon the time period involved. In the short run, it is believed that suppliers will respond to a higher price level by increasing output, and therefore, and the short run aggregate supply is upward sloping. In the long run, however, it is though that the economy will naturally return to full employment output no matter the price level, because all prices can adjust in the long run. This implies that the long run relationship between real GDP and the price level is vertical.

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169.Which of the following is true of the long−run aggregate supply (LRAS) curve?

(A) The LRAS curve is upward sloping because at any level of real gross domestic product (GDP) the price level is constant.
(B) The LRAS curve is upward sloping because higher levels of real GDP are associated with higher price levels.
(C) The LRAS curve is vertical because higher levels of real GDP are associated with higher price levels.
(D) The LRAS is vertical because at any price level the level of real GDP is constant.
(E) The LRAS curve is vertical because higher levels of real GDP are associated with a constant price level.

ANS : (D) The LRAS curve is consistent with the assumptions of classical economics. The long run implication of classical economics is that the economy has a tendency to always return to the level of real GDP that is associated with the economy's full potential output. If this is the case, then a rising price level is not associated with rising real GDP in the long run, and the only way to illustrate such a relationship is with a vertical LRAS curve.

170.Given a short−run aggregate supply curve, an increase in the price level will cause

(A) A downward movement along the curve
(B) An outward shift of the curve
(C) An upward movement along the curve
(D) The curve to become vertical
(E) An inward shift of the curve

ANS : (C) The short run aggregate supply (SRAS) curve is upward sloping, which describes a positive relationship between the aggregate price level and aggregate output (or real GDP). If the price level were to rise, this would simply be seen as a movement upward along a fixed SRAS curve. While there are other factors that are believed to shift the SRAS curve to the left or to the right, a change in the price level does not cause such a shift but rather a movement along the curve.

171.Suppose the short−run aggregate supply curve shifts to the right. This means that

(A) At any price level less real gross domestic product (GDP) will be supplied
(B) At any level of real GDP a higher price level will exist
(C) Higher price levels will be associated with higher levels of real GDP on the new curve only
(D) Lower price levels will be associated with lower levels of real GDP
(E) At any price level more real GDP will be supplied

ANS : (E) An outward (or rightward) shift in the short run aggregate supply (SRAS) curve describes an economy where firms are willing and able to supply more output no matter the price level. An alternative way to think of an increase in SRAS is that firms will supply the same level of output at a lower price level.

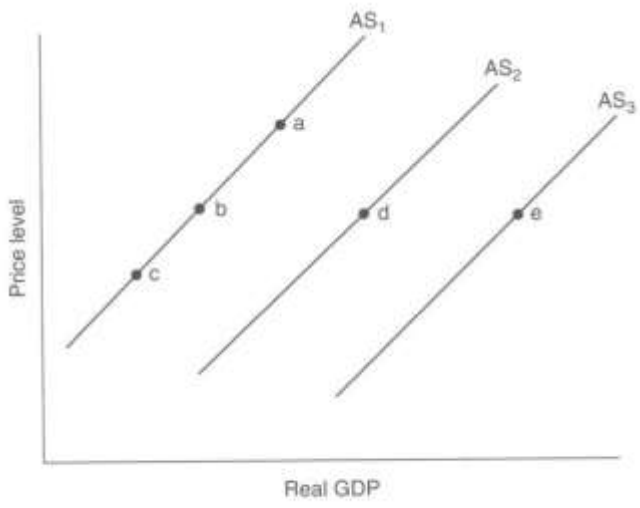


Figure 8.1

172. In Figure 8.1 the movement from point d to point e is described as

- **(A) An upward movement along the aggregate supply curve**
- **(B) A decrease in aggregate supply**
- **(C) An increase in aggregate supply**
- **(D) A decreased in real gross domestic product (GDP)**
- **(E) A downward movement along the aggregate supply curve**

ANS : (C) A movement from point d to point e indicates that the short run aggregate supply curve has increased, or shifted to the right. At the same price level, firms are willing and able to supply more units of their goods and services, so real GDP rises. Such a shift might occur due to lower factor prices or tax policy targeted to supply rather than demand.

173. In Figure 8.1 a movement from point a to point b would be caused by

- **(A) A decrease in production technology**
- **(B) An increase in net exports**
- **(C) A decrease in the price level**
- **(D) A reduction in corporate income taxes**
- **(E) An increase in interest rates**

ANS : (C) Point a and point b are both on the same short run aggregate supply curve, so this movement had to be caused by a change in the price level. Since point b lies below point a, the price level must have fallen and firms responded by reducing their production; collectively this reduces the nation's GDP.

174. In Figure 8.1, the movement from point e to point b is described as

- **(A) An upward movement along the aggregate supply curve**
- **(B) A decrease in aggregate supply**
- **(C) An increase in aggregate supply**
- **(D) A decrease in real gross domestic product (GDP)**
- **(E) A downward movement along the aggregate supply curve**

ANS : (B) A movement from point e to point b indicates that the short run aggregate supply curve has decreased, or shifted to the left. At the same price level, firms are willing and able to supply fewer units of their goods and services, so real GDP falls. Such a shift might occur due to higher factor prices across the economy.

175. The short−run aggregate supply curve is −−−− because it is believed that −−−− do not change quickly in the short run.

(A) Upward sloping; real output levels
(B) Upward sloping; wages
(C) Vertical; wages and prices
(D) Upward sloping; interest rates
(E) Vertical; interest rates

ANS : (B) One of the explanations for why short run aggregate supply curves are upward sloping is that wages (as well as other factor prices) rise more slowly than the aggregate price level. If the price of output rises and wage increases lag behind, a firm can increase their short run profits by increasing output.

176. Some economists theorize that when the price level increases, firms will increase production because wages do not rise as quickly as output prices. The implication of this theory, known as −−−− theory, is an upward−sloping short run aggregate supply curve.

(A) Sticky wage
(B) Misperceptions
(C) Sticky output
(D) Sticky interest rates
(E) Crowding out

ANS : (A) If a firm notices that output prices are rising, they would not be able to increase output if the factor prices are rising at the same rate. However, if wage increases are delayed relative to the price increases, a firm can profit by increasing output in the short run. The theory that wages are unable to rise quickly is known as the sticky wage theory, and it explains why the short run aggregate supply curve is upward sloping.

177. One explanation for an upward−sloping SRAS curve is that individual producers mistakenly perceive an increase in the aggregate price level as an increase in the individual goods those producers make. This explanation is known as the −−−− theory.

(A) Sticky wage
(B) Crowding out
(C) Sticky output
(D) Misperceptions
(E) Rational expectations

ANS : (D) The misperceptions theory asserts that producers see an increase in the overall price level and assume that the price is increasing only for their product. This misperception causes the firm to increase output in an attempt to increase profit. Because of this economy−wide behavior, there is positive relationship between the price level and real GDP, and the SRAS curve is upward sloping.

178. Which of the following theories are used to explain the upward−sloping short−run aggregate supply curve?

I. Rational expectations theory
II. Sticky wage theory
III. Misperceptions theory

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) II and III only

ANS : (E) The two most common theories used to explain the upward sloping short run aggregate supply curve are the sticky wage theory and the misperceptions theory. The first theory assumes that firms will respond to a higher price level by producing more output because wages rise slower than prices. The second assumes that firms mistakenly assume that economy−wide inflation is increasing the price of only their products, and output rises accordingly.

179. Suppose that energy prices increase across the economy. How will this affect the short−run aggregate supply (SRAS) curve and the long−run aggregate supply (LRAS) curve?

SRAS	LRAS
(A) Decreases	**No change**
(B) Decreases	**Decreases**
(C) No change	**No change**
(D) Increases	**Decreases**
(E) Decreases	**Increases**

ANS : (A) Energy sources (i.e., crude oil, natural gas, coal) are very important in the production process, and changes in prices for these energy sources can shift the SRAS curve. Higher energy prices make it more expensive to produce, so when energy prices increase, the SRAS curve decreases (or shifts to the left). However, energy prices will not cause the long run aggregate supply curve to shift, as they do not fundamentally alter the economy's production potential.

180. Suppose that the prices of key manufacturing commodities (i.e., steel, copper, aluminum) decrease across the economy. How will this affect the short−run aggregate supply curve (SRAS) and the long−run aggregate supply (LRAS) curve?

SRAS	LRAS
(A) Decreases	**Increases**
(B) Increases	**Decreases**
(C) No change	**No change**
(D) Increases	**No change**
(E) Increases	**Increases**

ANS : (D) Commodities such as steel and copper are very important in manufacturing many goods. Therefore, changes in commodity prices can shift the SRAS curve. Lower commodity prices make it less costly to produce, so the SRAS curve increases (shifts to the right). However, changes in commodity prices will not cause the LRAS curve to shift, as they do not fundamentally alter the economy's ability to produce.

181. Texomabourg is a small island nation. Suppose that producers in Texomabourg experience a permanent increase in labor productivity. How will this affect the short−run aggregate supply (SRAS) curve and the long−run aggregate supply (LRAS) curve?

SRAS	LRAS
(A) Decreases	**Increases**
(B) Increases	**Decreases**
(C) No change	**No change**
(D) Increases	**No change**
(E) Increases	**Increases**

ANS: (E) Labor productivity improvements allow the nation to produce more real GDP both in the short run and in the long run. Higher productivity means that more output can be produced with the same amount of labor and capital, so both the SRAS and LRAS curves increase –shift to the right. In other words, higher productivity is both a temporary boost to output (SRAS increases) and a permanent increase in the nation's fundamental ability to produce (LRAS increases).

182. Texomabourg is a small island nation. Suppose that producers in Texomabourg experience a devastating earthquake, tsunami, drought, and plague of locusts that decrease productivity for many years. How will this affect the short–run aggregate supply (SRAS) curve and the long–run aggregate supply (LRAS) curve?

SRAS	LRAS
(A) No change	**Decreases**
(B) Increases	**Decreases**
(C) Decreases	**Decreases**
(D) Decreases	**No change**
(E) Increases	**Increases**

ANS: (C) Devastating natural disasters can greatly reduce a nation's ability to produce both in the short run and in the long run. When Texomabourg is afflicted with several disasters, we would see the SRAS curve decrease and the LRAS curve decrease. The decrease in LRAS tells us that the nation's potential output has permanently, or at least for a very long time, been diminished.

183. Suppose that nominal wages decrease across the economy. How will this affect the short–run aggregate supply (SRAS) curve and the long–run aggregate supply (LRAS) curve?

SRAS	LRAS
(A) Decreases	**Increases**
(B) Increases	**No change**
(C) No change	**No change**
(D) Increases	**Increases**
(E) Increases	**Decreases**

ANS : (B) Nearly every firm uses amount of labor to produce their goods and services. Lower nominal wages will cause firms to be more willing and able to produce output at any price level; so SRAS increases. This will not cause the LRAS curve to increase, however, as the nation's potential output has not increased.

184. Suppose that nominal wages increase across the economy. How will this affect the short–run aggregate supply (SRAS) curve and the long–run aggregate (LRAS) supply curve?

SRAS	LRAS
(A) Decreases	No change
(B) Decreases	Decreases
(C) No change	No change
(D) Increases	No change
(E) Decreases	Increases

ANS : (A) Labor is a critical input in the production of goods and services. Higher nominal wages will cause firms to be less willing and able to produce output at any price level, and so SRAS decreases. This will not cause the LRAS curve to decrease, however, as the nation's potential output has not decreased.

185. We are told that the nation's potential output has increased. In a graph this means that

(A) Aggregate demand has increased
(B) short−run aggregate supply has decreased
(C) long−run aggregate supply has increased
(D) short−run aggregate supply has increased
(E) long−run aggregate supply has decreased

ANS : (C) The long−run aggregate supply curve (LRAS) is vertical at the level of real GDP that corresponds to the nation's potential; output. This level of real GDP is also called full employment output, or the amount of GDP that can be produced when there exists no cyclical unemployment. If the LRAS has increased, the nation has experienced growth in the ability to produce goods and services.

186. Which of the following would cause a nation's potential real gross domestic product (GDP) to increase?

(A) A decrease in energy prices
(B) A decrease in personal income taxes
(C) A decrease in nominal wages
(D) A tax credit given to firms that invest in new technology
(E) An increase in commodity prices

ANS : (D) A nation can see an increase in the long−run aggregate supply if something has caused the nation to become permanently more productive. Government tax credits for investment in new technology will allow firms to increase productivity; in other words, more output is possible for the same quantities of labor and capital.

187. Which of the following would cause a nation's potential gross domestic product (GDP) to decrease?

(A) A decrease in energy prices
(B) An increase in personal income taxes
(C) A decrease in high school graduation rates
(D) An increase in nominal wages
(E) An increase in labor productivity

ANS : (C) One of the key factors that allow a nation's productive potential to keep moving outward is the level of human capital (education and training) in the labor force. When a nation achieves more human capital, potential output rises. However, if a nation's students are graduating from high school at lower rates, this will actually decrease long−run productivity and reduce potential real GDP.

188. If a nation's level of potential real gross domestic product (GDP) has decreased, it must be the case that

(A) Aggregate demand has decreased

(B) short−run aggregate supply has decreased
(C) long−run aggregate supply has increased
(D) short−run aggregate supply has increased
(E) long−run aggregate supply has decreased

ANS : (E) The key words in this statement to pay attention to are "potential output". The vertical long−run aggregate supply curve marks the level of real GDP that equates to the nation's potential output. This level of output is sometimes referred to as "full−employment GDP" or the "non−accelerating inflation rate of unemployment" (NAIRU). This level of GDP corresponds to the natural rate of unemployment or the situation that would exist when cyclical unemployment was zero. If output were to increases further, and the unemployment rate were to fall further, inflation would accelerate. In this problem, potential; output has decreased, so the LRAS curve must have shifted to the left.

189.one of the main difference between the Keynesian and classical view of aggregate supply is

(A) Keynesian economists believe that output can be increased with a significant decrease in the price level, and classical economists believe that output cannot increase and efforts to do so will only increase the price level
(B) Keynesian economists believe that output can be increased without a significant increase in the price level, and classical economists believe that output cannot increase and efforts to do so will only increase the price level
(C) Keynesian economists believe that output can be increased with a significant increase in the price level, and classical economists believe that output cannot increase and efforts to do so will only increase the price level
(D) Keynesian economists believe that output can be increased without a significant increase in the price level, and classical economists believe that output cannot increase and efforts to do so will only decrease the price level
(E) Classical economists believe that output can be increased without a significant increase in the price level, and Keynesian economists believe that output cannot increase and efforts to do so will only increase the price level

ANS : (B) This difference in Keynesian and classical theory is why classical economists draw the aggregate supply curve as vertical and Keynesian draw it as horizontal. The classical belief is that the economy always returns to full employment at the vertical aggregate supply curve. If there is a recession, prices will quickly adjust downward and the economy returns to full employment. Keynesians, on the other hand, believe that a recession will not reduce prices, because they are sticky; the only thing that will happen is a large reduction in output.

190.The classical aggregate supply curve is viewed as −−−−, while the Keynesian aggregate supply curve is viewed as −−−−.

(A) Always vertical; horizontal at low levels of output but upward sloping as output increases toward full employment
(B) Always vertical; always horizontal
(C) Always horizontal; horizontal at low levels of output, but upward sloping as output increases toward full employment
(D) Always horizontal; always vertical
(E) Always vertical; always upward sloping as output increases toward full employment

ANS : (A) Classical economists see the aggregate supply curve as always vertical at full employment. This is consistent with the notion that free markets will quickly come back to equilibrium at full employment. Citing the Great Depression as evidence to the contrary, Keynesians believe that when output is very low, there is huge surplus of labor in labor markets, and unemployment is rampant. If output begins to rise, wages and prices will not increase because of the surplus of labor. However, as output gets closer and closer to full employment, the surplus in the labor market is eliminated, and wages and prices must begin to rise. The Keynesian view therefore implies that the aggregate supply is horizontal at first but eventually becomes upward sloping as output approaches full employment.

191. Which of the following statements is typical of a classical view of aggregate supply?

I. Any attempts at increasing real GDP will only succeed at raising the price level.

II. The economy will always revert to potential real GDP at the vertical aggregate supply curve.

III. At low levels of output aggregate supply is nearly horizontal.

(A) I only

(B) II only

(C) III only

(D) I and II only

(E) I, II and III

ANS : (D) These statements are really hallmarks of classical economics. Product markets and the labor market will quickly adjust to equilibrium, and this implies that the macroeconomy will quickly adjust to the level of real GDP that is associated with full employment. If the government attempts to manipulate the economy to further lower the unemployment rate, the only outcome will be inflation. This implies a vertical aggregate supply curve and no role for the government in economic policy.

192. The aggregate supply curve is often drawn with three ranges as real gross domestic product (GDP) increases. These are

(A) The Keynesian, the Laffer, and the classical ranges

(B) The Keynesian, the Monetarist, and the classical ranges

(C) The Keynesian, the intermediate, and the classical ranges

(D) The Keynesian, the Randian, and the classical ranges

(E) The Friedman, the intermediate, and the Smithian ranges

ANS : (C) As time has passed, most economists have merged the Keynesian and the classical views of aggregate supply. At very low levels of output, the Keynesian view of aggregate supply is that it is essentially horizontal; output can rise without inflation. As output approaches potential GDP, some inflation will occur because labor markets are becoming tighter; this intermediate stage of aggregate supply is upward sloping. However, at full employment, output can no longer rise and the only outcome of attempts to raise output will be inflation; the classical view is a vertical aggregate supply.

CHAPTER 7

Macroeconomic Equilibrium

193. Which of the following best represents the actual output produced within an economy?

(A) The full employment output
(B) The point at which the aggregate demand curve intersects the long run aggregate supply curve
(C) The point at which the short run aggregate supply curve intersects the long run aggregate supply curve
(D) The point at which the short run aggregate supply curve intersects the aggregate demand curve
(E) The point at which the aggregate demand curve is vertical

ANS : (D) The short run macroeconomic equilibrium in an economy is the point at which the quantity of aggregate output supplied is equal to the quantity of aggregate output demanded. This intersection represents the quantity of goods and services that are actually produced and sold within an economy, and it is represented in the AD–AS model as the intersection of the short run aggregate supply curve and the aggregate demand curve.

194. If the short run aggregate supply curve increases, the price level will ––––– and the amount of output will ––––– in the short run.

(A) Increase; increase
(B) Decrease; increase
(C) Decrease; remain unchanged
(D) Remain unchanged; increase
(E) Decrease; decrease

ANS : (B) When the short run aggregate supply (SRAS) curve increases, or shifts to the right, at any given price level more aggregate output is supplied. Conversely, an ultimate way of saying this is that for any given aggregate output level, the price level will be lower. When this occurs, the aggregate price level decreases and the aggregate output increases.

195. All else equal, if there is an increase in the nominal wage rate, the price level will ––––– and the amount of aggregate output will ––––– in the short run.

(A) Increase; decrease
(B) Increase; increase
(C) Increase; remain unchanged
(D) Remain unchanged; increase
(E) Decrease; decrease

ANS : (A) An increase in the nominal wage rate would be an increase in the price of one of the factors of production. When this occurs, the short run aggregate supply (SRAS) curve decreases (or shifts to the left). When SRAS decreases, this leads to an increase in the price level and a decrease in the aggregate output that is actually produced and sold in the economy in the short run.

196. Fredonia has experienced an increase in the exports that they sell to their neighbor Thereading. In the short run, the real gross domestic product (GDP) of Fredonia will ––––– and the price level of Fredonia will –––––.

(A) Increase; decrease
(B) Decrease; decrease
(C) Increase; increase
(D) Increase; remain unchanged

(E) Decrease; increase

ANS : (C) Exports are a component of aggregate demand, and when exports increase, the aggregate demand curve increases (or shifts to the right). This means that at any given price level more aggregate demanded will be purchased. An increase in aggregate demand will therefore result in an increase in the real GDP (the output produced) and an increase in the price level.

197.Texomabourg has experienced a decline in real income of households. Therefore, the ---- curve will ----, and aggregate output will ----.

(A) Aggregate demand; decrease; decrease
(B) Short run aggregate supply; increase; decrease
(C) Aggregate demand; increase; decrease
(D) Long run aggregate supply; increase; increase
(E) **Long run aggregate supply; increase; increase**

ANS : (A) A decline in household income will lead to a decline in consumption, one of the components of aggregate demand. This will cause a leftward shift (or decrease) in the aggregate demand curve in the short run. As a result the amount of aggregate output demanded in the economy will decrease, which would additionally cause the price level to decrease.

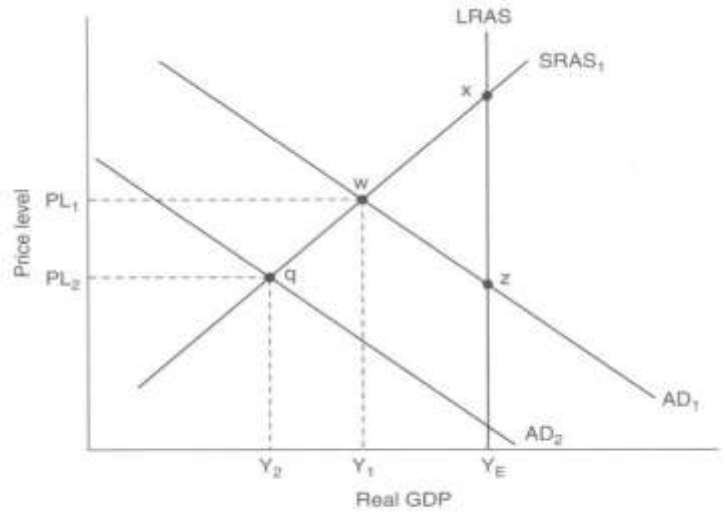


Figure 9.1

198.Refer to Figure 9.1. Which of the point represents a short run macroeconomic equilibrium?

(A) Only x
(B) Only w
(C) Only q
(D) w and q
(E) w, q, and x

ANS : (D) A short run macroeconomic equilibrium is the point where the aggregate output supplied is equal to the aggregate output demanded. This occurs where the short run aggregate supply curve intersects the aggregate

demand curve. In this graph, there are two different short run macroeconomic equilibria, point q and point w. note that neither point z nor point x represents any form of equilibrium.

199. Refer to Figure 9.1. Which output represents an actual, rather than potential level of output that occurs in the economy during either of the two time periods?

I. Y_1
II. Y_2
III. Y_E
(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II and III

ANS : (D) A short run economic equilibrium represents the actual amount of output in an economy. Therefore an intersection of the short run aggregate supply curve represents an actual amount of output. The full employment output, however, represents a potential amount of output that the economy would be producing if it were at full employment. Therefore, Y_E represents hypothetical amount of amount.

200. The economy exhibited in Figure 9.1 has experienced a decline in investment levels. Because of this, aggregate output has ---- and the price level ----

(A) increased; decreased
(B) decreased; decreased
(C) increased; increased
(D) increased; remains unchanged
(E) decreased; increased

ANS : (B) A decrease in investment will lead to a decrease in the aggregate demand curve. In Figure 9.1 this is represented by AD_1 shifting AD_2. The short run equilibrium changes from point w to point q. as a result the price level decreases from PL_1 to PL_2 and the aggregate output decreases from Y_1 to Y_2.

201. Refer to Figure 9.1. Which of the following represents the output gap in the second time period?

(A) $Y_E + Y_2$
(B) $Y_2 - Y_1$
(C) $Y_E - Y_2$
(D) $Y_E - Y_1$
(E) $Y_1 - Y_E$

ANS : (C) The output gap refers to the difference between what an economy is actually producing and what it would be producing if it were producing at the full employment level of output. To find any output gap, first determine whether or not the amount that an economy is currently producing, let's call it Y^*, is above or below full employment output, let's call it Y_E. If the economy is producing above full employment output the output gap is

$Y^* - Y_E$, and if the economy is operating below full employment output, the output gap is $Y_E - Y^*$. In the second period, the economy is producing an aggregate output of Y_2. However, full employment output is Y_E. Therefore, $Y_E - Y_2$ represents the output gap.

202.Refer to Figure 9.1. The shift from AD_1 to AD_2 is called a

(A) Positive demand shock
(B) Negative demand shock
(C) Negative supply shock
(D) Negative quantity shock
(E) Negative price level shock

ANS : (B) A *negative demand shock* is the term used to refer to when aggregate demand (AD) decreases, or shifts to the left, as is shown in Figure 9.1. A positive demand shock refers to when aggregate demand increases (or shifts to the right). A negative supply shock refers to when the short run aggregate supply (SRAS) curve decreases (or shifts to the left), and a positive supply shock refers to when the SRAS increases (or shifts to the right).

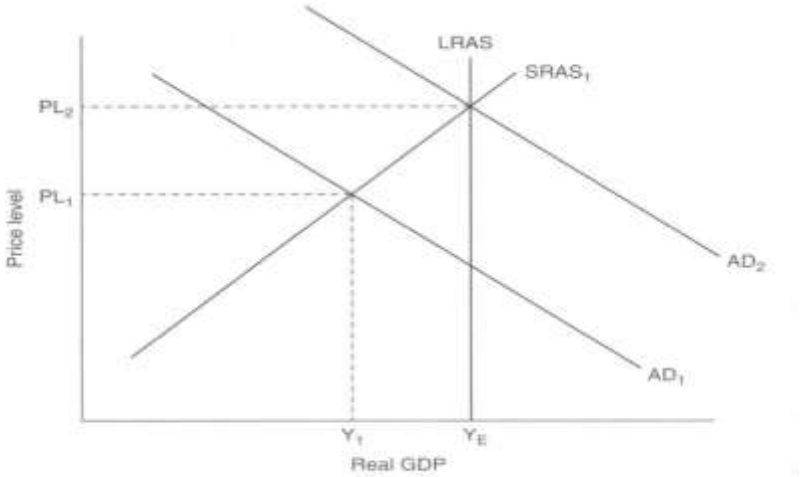


Figure 9.2

203.Refer to Figure 9.2. Which of the following is true of the shift shown?

I. Inflation results due to the increase in aggregate demand (AD).
II. The economy has experienced economic growth.
III. The economy has an unemployment rate below the natural rate of unemployment.

(A) I only
(B) II only
(C) III only
(D) I, II and III
(E) I and II only

ANS : (A) When aggregate demand increases, this results in an increase in the price level. As a result of this increase in aggregate demand, the aggregate output in this economy has returned to the full employment aggregate output, which means the unemployment rate will be equal to the natural rate of unemployment. Note, however, that this economy has not experienced economic growth. Economic growth is the ability to produce more goods and services, which would be reflected by a shift in the long run aggregate supply curve, which has not occurred here.

204.Refer to Figure 9.2. What existed before the shift shown?

(A) Inflationary output gap
(B) Expansionary output gap

(C) Full employment
(D) Recessionary output gap
(E) Excess employment

ANS : (D) Figure 9.2 shows an initial short run equilibrium where the economy is producing below the full employment. The difference between what the economy was producing (Y_1) and what the economy should be producing (Y_E) is an output gap. Since the economy is producing less than the optimal level of output, the economy is in recession and therefore, a gap such as this ($Y_E - Y_1$) is sometimes called a recessionary output gap.

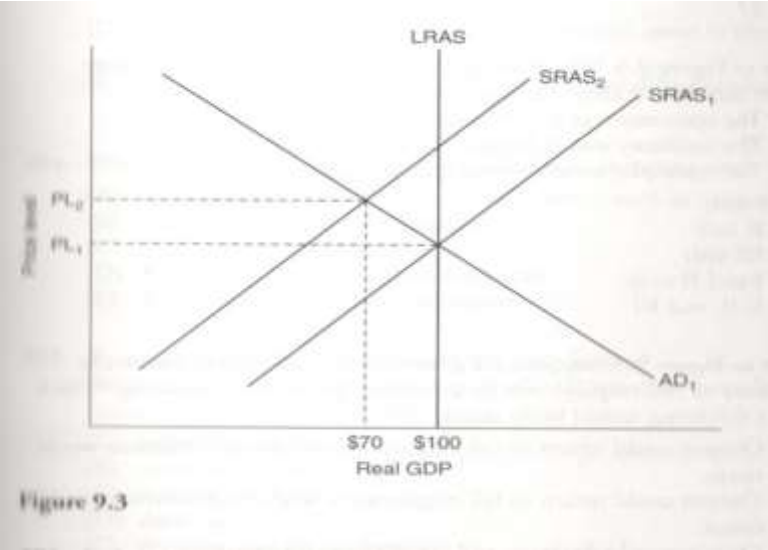


Figure 9.3

205. Refer to Figure 9.3. As a result in the shift from $SRAS_1$ to $SRAS_2$, aggregate output ––––, the price level ––––, and the natural rate of unemployment ––––.
(A) increased; decreased; increased
(B) Decreased; increased; did not change
(C) Increased; increased; did not change
(D) Decreased; decreased; decreased
(E) Did not change; increased; decreased

ANS : (B) When the short run aggregate supply curve decreases, as is shown in Figure 9.3 the aggregate output decreases and the price level increases. The natural rate of unemployment is associated with the long run aggregate supply (LRAS) curve. When the LRAS curve shifts, the natural rate of unemployment will change. Since the LRAS curve has not shifted, there is no change in the natural rate of unemployment.

206. Refer to Figure 9.3. What is the value of the output gap that occurs as a result of the shift from $SRAS_1$ to $SRAS_2$?
(A) $100
(B) $70
(C) $30
(D) –$30
(E) $7

ANS : (C) To find the amount of the output gap, you subtract the current level of aggregate output from the full employment output. As a result of the decrease in SRAS shown, the actual current level of aggregate output is $70,

but the full employment level of output is $100. Therefore, $100 − $70 = $30. This means that the economy would need to increase output by $30 to return to the natural rate of unemployment.

207. Refer to Figure 9.3. Which of the following was true of the economy before the shift in short run aggregate supply shown?

I. The economy was in short run equilibrium.
II. The economy was in long run equilibrium.
III. The unemployment rate was greater than 0.

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II and III

ANS: (E) A short run equilibrium is where an aggregate demand (AD) curve intersects a short run aggregate supply (SRAS) curve, which occurred at an aggregate output level of $100 before the shift in SRAS, so I is definitely true. A long run equilibrium occurs when the current aggregate output is equal to the full employment level of output. Graphically, this is where AD intersects both SRAS and the long run supply (LRAS) curve at the same point. Therefore, II is definitely true. Note that when an economy is producing the full employment of output, the economy will be at the natural rate of unemployment, not zero unemployment, so III is also correct.

208. Refer to Figure 9.3. Suppose the government attempted to return the economy to full employment by increasing government spending. Which of the following would likely occur?

(A) Output could return to full employment levels, and deflation would occur.
(B) Output could return to full employment levels, and inflation would occur.
(C) Output would decrease; and inflation would occur.
(D) Output could return to full employment levels with no impact on inflation.
(E) Output would be unchanged, and deflation would occur.

ANS : (B) If government increased government spending, aggregate demand would increase (or shift to the right). This could create a new short run equilibrium at the full employment level of output. However, aggregate demand increases, the price level increase. Therefore, any attempt to correct the negative supply shock shown will result in a worsening of the inflation that has already occurred.

209. Refer to Figure 9.3. What is the term for what has occurred in Figure 9.3?

(A) Stagflation
(B) Immolation
(C) Demand push inflation
(D) Negative demand shock
(E) Positive supply shock

ANS : (A) Stagflation is the term for a very special short run macroeconomic outcome: the combination of inflation and stagnation. That is when the aggregate output of an economy decreases and the economy experiences a simultaneous increase in the price level. Stagflation is always caused by a negative supply shock, as shown in Figure 9.3.

210.When an economy experiences a supply shock,

(A) Output and the price level move in the same direction, but unemployment moves in the opposite direction

(B) Output and unemployment move in the same direction, but the price level moves in the opposite direction

(C) The price level and unemployment move in the same direction, but output moves in the opposite direction

(D) Output, unemployment, and the price level all move in the same direction

(E) Output and unemployment move in the same direction, but the price level is unaffected

ANS : (C) When there is a negative supply shock (i.e., short−run aggregate supply decreases), output decreases, which means that unemployment increases, and prices increase as well. When there is a positive supply shock, output increases, which means that unemployment decreases and the prices decrease as well. Therefore, the price level and the unemployment rate move in the same direction, and output moves in the opposite direction whenever there is a supply shock.

211.Which of the following could cause inflation in the short run?

(A) An increase in the price of an energy source such as natural gas

(B) A decrease in consumer incomes

(C) A decrease in the wage rate

(D) An increase in the amount of imports

(E) A decrease in the amount of exports

ANS : (A) When the price of an energy source such as natural gas increases, this cause the short run aggregate supply curve to decrease (or shift to the left). When there is a negative supply shock, such as this, inflation occurs. Each of the other options would lead to decrease in the price level rather than an increase in the price level.

212.A positive demand shock will cause the price level to ––––– in the short run, and a negative supply shock will cause the price level to ––––– in the short run.

(A) Increase; increase

(B) Decrease; decrease

(C) Increase; decrease

(D) Decrease; increase

(E) Decrease; remain unchanged

ANS : (A) Negative supply shocks and positive demand shocks are both sources of inflation. If there is a positive demand shock, the aggregate demand curve shifts to the right and the price level increases. On the other hand, a negative supply shock will cause the short run aggregate supply curve to shift to the left; however, this will also cause an increase in the price level.

213.If an economy is initially in long run macroeconomic equilibrium and then experiences a positive demand shock, then in the short run, unemployment will ––––– and in the long run, unemployment will –––––.

(A) Remain unchanged; increase

(B) Remain unchanged; decrease

(C) Decrease; return to the natural rate

(D) Increase; return to the natural rate

(E) Decrease; decrease

ANS : (C) When an economy is in long run equilibrium, the short run aggregate supply curve and the aggregate demand curve intersect at a short run equilibrium, and this short run equilibrium is also at the full employment level of output. If there is a positive demand shock, the aggregate demand curve will shift to the right and aggregate output will be higher than the full employment level of output. This will drive the unemployment rate lower than the natural rate of unemployment in the short run. However, the fundamental ability of the nation to produce has not changed, so the long run natural rate of unemployment will not change.

214.If an economy is initially in the long run macroeconomic equilibrium and then experiences a negative demand shock, then in the short run, what will happen to output, unemployment, and the price level?

Output	Unemployment	Price Level
(A) Will be lower than the output before the shock	Will return to the natural rate of unemployment	Will be lower than the initial price level before the shock
(B) Will return to the full employment level of output	Will be higher than the initial unemployment rate before the shock	Will be higher than the price level before the shock
(C) Will return to the full employment level of output	Will return to the natural rate of unemployment	Will be lower than the initial price level before the shock
(D) Will be lower than the initial output before the shock	Will be higher than the output before the shock	Will be lower than the initial price level before the shock
(E) Will be higher than the output before the shock	Will return to the natural rate of unemployment	Will return to the natural price level

ANS : (D) When an economy is in long run equilibrium, the short run aggregate supply curve and the aggregate demand curve intersects at a short run equilibrium, and this short run equilibrium is also at the full employment level of output. If there is a negative demand shock, the aggregate demand curve will shift to the left. This will create a new short run equilibrium at a lower level of output than the full employment rate, and as a result the unemployment rate will become higher than the natural rate of unemployment. The price level will also decrease as a result of the leftward shift in the aggregate demand.

215.If an economy is initially in long run macroeconomic equilibrium and then experiences a negative demand shock, then in the long run, what will happen to output, unemployment and the price level?

Output	Unemployment	Price Level
(A) Will be higher than the output before the shock	Will return to the natural rate of unemployment	Will be lower than the initial price level before the shock
(B) Will return to the full employment level of output	Will be higher than the initial unemployment rate before the shock	Will be higher than the price level before the shock
(C) Will return to the full employment level of output	Will return to the natural rate of unemployment	Will be lower than the initial price level before the shock
(D) Will be lower than the initial output before the shock	Will be higher than the output before the shock	Will be lower than the initial price level before the shock
(E) Will be higher than the output before the shock	Will return to the natural rate of unemployment	Will return to the natural price level

ANS: (C) At a long−run equilibrium, output is at the full employment rate of output. When there is a negative demand shock, aggregate demand will shift to the left and the result will initially be a decrease in output, an increase in the unemployment rate, and a decrease in the price level. However, the higher rate of unemployment will lead to a lower wage rate, lowering the price of labor. This will cause the short run aggregate supply curve to increase, returning the output to the full employment level of output, which returns the unemployment rate to the natural rate of unemployment. The only change in the long run is that the price level will decrease compared to the price level at the initial long run equilibrium.

216. If an economy is in long run macroeconomic equilibrium and experiences a negative supply shock, then in the long run, what will happen to output, unemployment, and the price level if prices are able to fully adjust?

Output	Unemployment	Price Level
(A) Will be higher than the output before the shock	Will return to the natural rate of unemployment	Will be lower than the initial price level before the shock
(B) Will return to the full employment level of output	Will return to the natural rate of unemployment	Will return to the price level before the shock
(C) Will return to the full employment level of output	Will return to the natural rate of unemployment	Will be lower than the initial price level before the shock
(D) Will be lower than the initial output before the shock	Will be lower than the output before the shock	Will be lower than the initial price level before the shock
(E) Will be higher than the output before the shock	Will be lower than the output before the shock	Will return to the natural price level

ANS : (B) If there is a negative supply shock, the short run aggregate supply curve will decrease (shift to the left). This will initially cause the output to decrease, the unemployment rate to increase, and the price level to increase. However, over the long run, the prices of the factors of production will adjust and short run aggregate supply will return to its initial point.

217. Which of the following variables will change in the long run in response to a demand shock if prices are able to fully adjust?

I. Unemployment
II. Output
III. Price level

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II and III

ANS : (C) In the long run, demand shocks can change only the price level, not the natural rate of unemployment or the full employment level of output. The full employment level of output depends on the stock of the factors of production, and whenever there is a demand shock (whether positive or negative), the prices of the factors of production will change, but the stock of those factors will not.

218.A positive demand shock will cause, in the short run,

I. Economic growth
II. Inflation
III. Increased employment
(A) I only
(B) II only
(C) III only
(D) II and III only
(E) I, II and III

ANS : (D) A critical distinction is the difference between an increase in output and economic growth. An increase in output can be temporary; economic growth is a permanent and sustained increase in output. Economic growth, therefore, is not reflected in an aggregate demand shock, but is represented only by an outward shift in the long run aggregate supply curve.

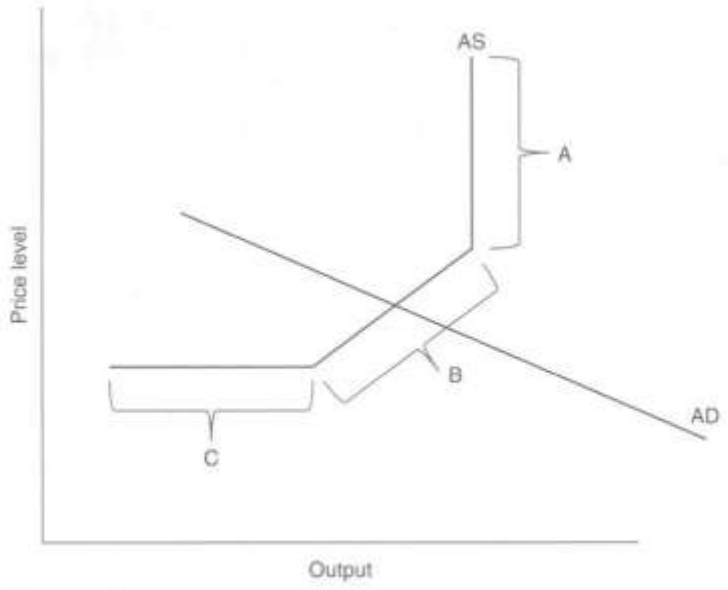


Figure 9.4

219.Refer to Figure 9.4. In which of the ranges of aggregate supply will inflation occur if aggregate demand increases?

(A) A only
(B) B only
(C) C only
(D) B and C
(E) A and B

ANS : (E) Figure 9.4 shows the segmented aggregate supply (AS) curve that appears in some textbooks. If aggregate demand (AD) increases in the C area of the curve, it will cause output to increase, but the price level will not increase. If AD increases in the B region, both output and the price level will increase. However, if AD increase in the A portion of the AS curve, then output will not change but there will be inflation.

220.Refer to Figure 9.4. The portion of the aggregate supply curve labeled A is called the

(A) Keynesian range
(B) Classical range
(C) Intermediate range
(D) Inflammatory range
(E) free–enterprise range

ANS : (B) The segmented aggregate supply curve is sometimes used to represent the different macroeconomic theories in a single model. It incorporates the classical assumption that prices fully adjust in the long run, but output does not, and so the classical range is represented by the A region of the AS curve in Figure 9.4. The horizontal portion of the AS curve, labeled C, is called the Keynesian range. In this region of the aggregate supply curve, output is so low that increases in aggregate demand have no inflationary pressures. Region B on the curve is called the intermediate range, which is a hybrid of the two approaches.

221.Refer to Figure 9.4. In which of the regions of aggregate supply are prices said to be "sticky"?

(A) A only
(B) B only
(C) C only
(D) A and B only
(E) C and B only

ANS : (C) "Sticky prices" is a phrase that refers to the fact that prices, and wages in particular, tend to resist decreasing. This means that the aggregate supply curve is horizontal and the level of production is below the full employment level of production. Sticky wages are a feature of Keynesian theory. This means that even if output declines in this region, the price level will not be likely to decrease.

222.The economy is currently operating at the natural rate of unemployment. If wages and prices are fully flexible, how would an increase in aggregate demand affect gross domestic product (GDP) and the price level in the short run, and GDP and price level in the long run?

Price Level in the Short Run	GDP in the Short Run	Price Level in the Long Run	GDP in the Long Run
(A) Decreases	Unchanged	Unchanged	Decreases
(B) Increases	Unchanged	Increases	Decreases
(C) Increases	Increases	Unchanged	Decreases
(D) Increases	Increases	Unchanged	Increases
(E) Increases	Increases	Unchanged	Unchanged

ANS: (D) If aggregate demand increases, the short run impact is that the aggregate demand curve (AD) shifts to the right. This will cause an increase in output and an increase in the price level in the short run. However, in the long run, the increase in output will put inflationary pressures on the factors of production, in particular on wages. As a result, in the long run, the short run aggregate supply curve will decrease. This will return the economy to the full employment output, but will place even further inflationary pressures on the price level.

223.Which of the following would be most like an increase in the long run aggregate supply curve?

I. A shift out of a curved production possibilities frontier
II. A shift out of a linear production possibilities frontier
III. A movement along a production possibilities frontier

(A) I only
(B) II and III only
(C) I and II only
(D) II only
(E) I, II and III

ANS : (C) A shift of the production possibilities frontier (PPF), whether it is curved or linear, represents an increase in the ability to produce goods and services. A movement along a PPF represents only a change in the allocation of the factors of production, rather than an increase in technology or in the stock of the factors of production that are available. Therefore, a shift out of the production possibilities curve is akin to an increase in long−run aggregate supply: both are ways of illustrating economic growth.

224.The current price level is $120, current gross domestic product (GDP) is $200, and the full employment level of GDP is $240. Currently there is a(n) ____ of ____.
(A) Inflationary gap; $80
(B) Inflationary gap; $40
(C) Recessionary gap; $40
(D) Recessionary gap; $80
(E) Recessionary gap; $120

ANS : (C) To find an output gap, first determine whether it is an inflationary gap or a recessionary gap. If the current level of output is less than the full employment level of output, then the gap is recessionary. To find a recessionary gap, solve: recessionary gap = full employment GDP – current GDP. Here, this is $240 − $200 = $40.

CHAPTER 8

Money and Financial Institutions

225.In general, money can be considered anything that
(A) Is in the form of paper currency
(B) Is in the form of gold, silver, or other precious metals
(C) Can perform all functions of money
(D) Never loss any value over long periods of time
(E) Is decreed legal tender by a government

ANS : (C) Money is generally anything that is used to facilitate the transfer of goods and services between buyers and sellers. In general, anything that performs the three functions of money consistently can be considered money. While it is true that in many economies paper currency is a dominant form of money, this definition of money is too narrow. Similarly, a definition based on being made of (or even backed by) precious metals is not appropriate, as a number of economies have used moneys that do not fit this definition. Finally although choice E is a tempting answer, it is not accurate. Indeed, in times of runaway inflation, even legal tender currencies will fail at the three functions of money and ultimately collapse regardless of government decree.

226.Liquidity is best defined as
(A) The ability to convert a financial asset into profits
(B) The ability to convert a financial asset into goods and services

(C) The ability to minimize risk
(D) The ability to maintain value
(E) The ability to raise capital

ANS : (B) Liquidity is the ability to convert an asset into goods and services, or cash, which can then be easily converted into goods and services. There are a wide variety of financial assets in an economy with varying degrees of liquidity. Cash is generally the most liquid asset, as it is effortlessly converted into goods and services. An asset such as a mutual fund, however, may need to go through several steps to convert its value into goods and services.

227.A ____ is a financial instrument that is promise to repay principal on a given date and a fixed amount of interest each year for its duration, and has the advantage that is relatively easy to sell compared to ____.
(A) Bond; loans
(B) Mutual fund; loans
(C) Bond; financial intermediaries
(D) Loan; bonds
(E) Loan; mutual funds

ANS : (A) A bond is a promised to repay, similarly to a IOU, issued by a borrower of money. It is an agreement that the borrower will repay, at the end of the term of the agreement, the principal amount. Until that date the agreement requires the borrower to also pay the holder of the bond a fixed amount of interest. Although they are both forms of borrowing, bonds as an asset have the advantage over loans in that loans are not standardized nor rated as easily as bonds are.

228.The primary goal of a financial system is to ____ risk, ____ liquidity, and ____ transactions costs.
(A) Increase; increase; increase
(B) Decrease; decrease; decrease
(C) Increase; decrease; increase
(D) Increase; decrease; decrease
(E) Decrease; increase; decrease

ANS : (E) The purpose of a financial system is to bring borrowers and lenders together in an efficient and effective way. To do this, a financial system must do three things well. First, it must reduce transactions costs, such as enabling borrowers and lenders to have accurate information about risks. Second, a financial system must help individuals and in situations minimized their risks. Finally, it must ensure that the people are able to balance the need to hold illiquid assets and the need to have liquid assets as well.

229.One type of financial intermediary is an institution that uses the liquid assets of many depositors to finance the illiquid needs, such as loans, of borrowers. This kind of financial intermediary is a
(A) Bank
(B) Mortgage backed security
(C) Mutual fund
(D) Stock market
(E) Life insurance company

ANS : (A) A bank is financial intermediary that takes the liquid assets (cash and similar assets) and keeps them in the form of a bank deposit. The lenders of these liquid assets are able to access these funds to cover purchases of goods and services. The bank then uses these assets to finance investment spending needs of borrowers.

230. Which of the following is both a financial asset and the least liquid?

(A) Cash
(B) Bonds
(C) Bank deposits
(D) Life insurance company
(E) Loans

ANS : (E) Cash is the most liquid of financial assets. Bank deposits are also very liquid financial assets, as the holder of the bank deposit can generally access these funds and convert them to cash very easily. Bonds are less liquid than bank deposits or cash but the nature of bonds make them easily tradable and thus, fairly liquid compared to other forms of financial assets. A life insurance company is a financial intermediary, but is not itself considered a financial asset. Loans, however, are a financial instrument that are, by their nature, very illiquid.

231. Eric is able to take a paycheck from his employer and use it to buy flowers for Melanie. This illustrates the ____ role of money.

(A) Store of value
(B) Commodity
(C) Medium of exchange
(D) Unit of account
(E) Fiat

ANS : (C) Anything that performs al three roles of money can be considered money. One of these roles as a medium of exchange meaning it must be an asset that can be used to trade for goods and services. Note that both commodity and fiat money can serve as a medium of exchange. By buying Melanie flowers, Eric is engaging in exchange, and the money he uses to buy them is simply a means by which to do this.

232. Margaret is able to take her paycheck from her employer and put it her savings account until she decides how to spend it. This illustrates the ____ role of money.

(A) Store of value
(B) Commodity
(C) Medium of exchange
(D) Unit of account
(E) Fiat

ANS : (A) Margaret's pay is able to maintain its value. If it did not, Margaret would not be able to save it –she would immediately have to spend all of her money before its value disappeared. This is one of the reasons that some things such as ice, would poorly serve as money. Even if it worked as a unit of account and a medium of exchange, it would be difficult for it to maintain its value.

233. In the nation of Maxistan, people are paid wages in the form of bars of chocolate which they can either eat or use to trade. Therefore, in Maxistan chocolate is considered

I. An asset
II. Fiat money
III. Commodity money

(A) I only
(B) II only
(C) III only
(D) I and III only

(E) I and II only

ANS : (B) In Maxistan people are paid in an asset that they can either consume or use to perform the roles of money. This is the very definition of commodity money: a form of money that serves the roles of money as well as has intrinsic value. Other commodity monies that have existed in history have been things such as gold and cigarettes.

234. In 2008, Zimbabwe experienced extreme hyperinflation, which ultimately caused the collapse of its currency. This is an example of money failing first at which function of money?

(A) Store of value
(B) Commodity
(C) Medium of exchange
(D) Unit of account
(E) Fiat

ANS : (A) When there is hyperinflation money loses its function as a store of value: goods and services may cost $100 dollars in the morning, but the same goods and services may cost $100,000 by that afternoon. In such a situation you would have to immediately spend any money you received before it became worthless.

235. Gary offers you 6 pounds of cheese if you mow his lawn, but Patrick offers you 4 hours at his sauna if you mow his lawn. You cannot figure out which is a better deal. Which role of money would be useful in this situation?

(A) Store of value
(B) Commodity
(C) Medium of exchange
(D) Unit of account
(E) Fiat

ANS : (D) Comparing cheese to saunas is not easy. If you knew how much each of these things was worth, however, the decision would be very easy. For instance, if you knew that Gary was offering you $200 worth of goods, but Patrick was offering $250 worth of services, these comparisons would be simple because we have no unit of account for the goods, however, it is difficult to assess their worth and make a transaction.

236. A ____ is a claim that entitles its holder to future income, whereas a ____ is a claim on a tangible item.

(A) Mortgage backed security; financial asset
(B) Financial asset; physical asset
(C) Physical asset; financial asset
(D) Financial asset; money
(E) Money; financial asset

ANS : (B) A financial asset is an asset that gives the holder of the asset a claim on future income. For instance, a bond is a financial asset because a bond holder receives an income from the issuer of the bond. A physical asset is a claim to an item with an actual physical presence. For instance, a title to a car is a physical asset: the holder of the title can use the object of value, the car as the holder wishes.

237. The best description of a financial system is that it is a means by which

(A) Buyers of goods and sellers of goods are matched
(B) Buyers of services and sellers of goods are matched

(C) Buyers of savings and governments are matched
(D) Banks loan money
(E) Borrowers and savers are matched

ANS : (E) A financial system matches households, individuals, firms, and governments that have excess funds with households, individuals, firms and governments who would like to use those funds to some investment end. In other words, a financial system is a type of market that matches savers with excess funds and borrowers with productive uses of those funds.

238. Which of the following would not be considered a financial asset?
(A) Money
(B) Stocks
(C) Bonds
(D) Loans
(E) Mortgage−backed securities

ANS : (A) The key of understanding why money is not, strictly speaking, a financial asset is to recall the definition of a financial asset: a claim to future income. Money is an asset because it functions as a store of value but not a financial asset because it does not entail a claim to future income.

239.In the nation of Ile, one may go to any bank and exchange the paper currency of Ile for silevr. The currency of Ile is therefore a
(A) Fiat money
(B) Commodity−backed money
(C) Near money
(D) Far money
(E) Commodity money

ANS : (B) Commodity−backed money is money that itself has no intrinsic value, but whose value is guaranteed with some commodity. In this case, since one may exchange the paper currency of Ile on demand for a commodity, silver, it would be considered commodity−backed money. If one could not exchange this paper currency for something of value on demand, it would be considered fiat money.

240.A checkable deposit is considered money because
I. The government requires that people consider it money
II. It can serve all three functions of money
III. It is commodity money
(A) I only
(B) II only
(C) III only
(D) I and II only
(E) II and III only

ANS : (B) Some people find it counterintuitive that money in checking accounts, and not just currency; are considered money. The reason that non currency items are counted as being part of the money supply is because they are money; that is, they are able to perform all three functions of money. Consider these in terms of a checking account. When you deposit a check into the account, the money you deposit stores its value until you use it. You can easily check your balance at any time and a firm amount of value is there (i.e., your balance is $200).

Finally, you can write a check or use a debit card against the balance in your checking account to purchase goods and services.

241. Jack has a checking account and a savings account. He can withdraw money from his checking account without limitations, but his bank allows him to withdraw funds only three times per month from his savings account. Which of the following statements is true?

(A) The money in Jack's savings account is less liquid than the money in his checking account.
(B) The money in Jack's savings account is not considered money.
(C) The money in Jack's checking account is not considered money because it fails as a store of value.
(D) The money in Jack's checking account is considered money because his checking account is not a financial asset.
(E) Neither the money in Jack's savings account nor that in his checking account is considered money, because he cannot hold it physically until he withdraws it.

ANS : (A) The money in Jack's checking account is counted as money. Note that for the first few transactions, both perform all three functions of money identically. However, eventually the savings account becomes less liquid. Because checking and savings accounts differ in terms of their liquidity, they are counted differently in the money supply. The money supply consists of two broad monetary aggregates, M1 and M2, where M1 is more liquid than M2. Jack's checking account would be counted in M1 , and his less savings account is counted in M2.

242. Which of the following is not counted as part of the official money supply in the United States?

(A) M1
(B) M2
(C) Small time deposits
(D) Large time deposits
(E) Cash

ANS : (D) The money supply in the United States comprises two monetary aggregates, that is, two categories of things that are counted as money, called M1 and M2. Small time deposits (less than $100,000) are similar to savings accounts, but have restrictions requiring them to be held at the bank for some period of time (these are sometimes called certificates of deposits, or CDs). Large time deposits are those over $100,000 in value. Prior to 2006, large time deposits were counted in a monetary aggregate called M3; however, not only has this monetary aggregate not been included in the official money supply, it isn't even tracked anymore.

243. As the category of a monetary aggregate increases, for instance going from M1 to M2 to M3, the definition of money in each one is progressively

(A) More liquid
(B) Less liquid
(C) More profitable
(D) Less profitable
(E) More commodity based

ANS : (B) As the category of a monetary aggregate has a higher number, that aggregate is less liquid than the category that precedes it. M1 is therefore, more liquid than M2, and M2 is more liquid than M3, and so on. Another way of thinking about this is that as the number gets higher, the definition of what exactly counts as money gets broader: M1 is a more narrow definition of money than M2.

244.Which of the following equations represents the present value of $Y loaned at an interest rate of i for t years?

(A) PV ($Y) = $Y × (1 + i)
(B) PV ($Y) = $Y × (1 + i)^t
(C) PV ($Y) = $Y × i^t
(D) PV ($Y) = $Y/(1 + i)^t
(E) PV($Y) = $Y/(i)^t

ANS : (D) The present value of $Y reflects the amount of money that you would need to have today to be equivalent of receiving $Y at some point in time t years in the future if the interest rate is i. for instance, suppose you were offered $100 in 1 year from now and the interest rate is 10%. The current value of $100 in 1 year in the future is PV($100) = $100/ $(1 + 0.1)^1$ = $90.91. The intuition behind this is simple: if you put $91 in the bank, and the bank paid 10% interest, it would be worth $100 in 1 year.

245.The interest rate in Ile is 10%. What is the present value of $500 that will be paid in 1 year?

(A) $500.00
(B) $510.00
(C) $550.00
(D) $490.00
(E) $454.55

ANS : (E) To find the present value of a given dollar amount after a given amount of time at a given interest rate, you simply plug these values into the formula to find present value. Here, PV ($500) = $500/$(1 + 0.10)^1$ = $500/1.1 = $454.55. Part of the intuition behind present value is that we prefer to have things in the present rather than the future. For instance, if you were offered the choice of $454.55 today or $454.55 in 1 year, getting the money today would be the obvious choice. We are willing to defer using money because we get interest to make up for this loss of immediate use. But if you were asked to choose between $454.55 today or $500 in 1 year from today, you would be indifferent between the two.

246.The interest rate in Maxistan is 20%. Eli lends Eric $1000. The amount that Eli receives in 1year as result of lending him the money is

(A) $1,002
(B) $1,020
(C) $1,200
(D) $2,100
(E) $1,000

ANS : (C) This question is asking for the future value of a dollar amount. To find the future value of $Y, 1 year in the future, at an interest rate of I, use the formula FV($Y) = $Y(1 + i). Here, $1,000 is loaned at a 20% rate of interest, so FV($1,000) = $1,000 × (1 + 0.2) = $1,000 × 1.2 = $1,200. This means that in 1year, Eric will pay Eli back the $1,000 principal (the amount that he borrowed) plus $200 in interest.

247.Jane wants to lend $100 and would like to receive $130 one year from now. What interest rate would she need to lend at to receive this?

(A) 13%
(B) 30%
(C) 3%
(D) 31%

(E) 0.03%

ANS : (B) Jane is essentially interested in obtaining a particular future value with her money, so to solve for the rate of interest she would need to get, we use the future value of money formula and plug in the information we are given: $130 = $100(1 + i). Now we simply solve for I to find the rate of interest that will give her $130 in 1 year from now if she deposits $100 in her bank: $130 = $100 + $100i, which becomes $30 = $100i, or i = 0.30, so she would need to get an interest rate of 30% to get $130 in 1 year.

248. During which decade was the Federal Reserve created?

(A) 1910s
(B) 1920s
(C) 1930s
(D) 1940s
(E) 1970s

ANS : (A) A common misperception is that the Federal Reserve System was created in response to the Great Depression when in fact it predates the Great Depression of the 1930s. In fact, the Federal Reserve System was created in response to a number of bank panics and crises that occurred just after the turn of the century (and the one that occurred in 1907 in particular).

249. Which of the following is a function of the Federal Reserve System?

(A) Providing financial services to individuals and businesses
(B) Printing currency
(C) Maintaining the stability of the financial system
(D) Overseeing the operations of the US Treasury department
(E) Insuring individual checking deposits up to $250,000

ANS : (C) The Federal Reserve System was designed to have several key functions: maintain the stability of the financial system, oversee and regulate banks, provide financial services to depository institutions, and conduct monetary policy. Contrary to popular belief, it does not print money. Rather, the Treasury Department prints currency, and the Federal Reserve System distributes that money.

250. Within the Federal Reserve System, the Board of Governors is responsible for ____, and the 12 Regional Federal Reserve banks are responsible for ____.

(A) Overseeing the entire Federal Reserve System; providing banking and supervisory services
(B) Overseeing the entire Federal Reserve System ; printing currency
(C) Providing banking and supervisory services; overseeing the entire Federal Reserve System
(D) Printing currency; overseeing the entire Federal Reserve System
(E) Providing banking and supervisory services; overseeing the Board of Governors

ANS : (A) The Board of Governors comprises seven members who are appointed by the US President and approved by the Senate, and is responsible for overseeing the entire system including the Federal reserve District banks. The 12 Federal Reserve district banks are primarily for providing banking, supervision and regulatory services in their region. Additionally district banks may have additional special tasks that they are responsible for.

251. The primary role of the Federal Open Market Committee is to

(A) Oversee bank regulation
(B) Print currency

(C) Respond to the requests of the President of the United States
(D) Conduct monetary policy
(E) Respond to the requests of the legislative branch of government

ANS : (D) The Federal Open Market Committee (FOMC) is primarily charged with conducting monetary policy which can be used to prevent, mitigate or address macroeconomic fluctuations in the economy. The FOMC has a number of tools at its disposable to use the money supply to dampen macroeconomic fluctuations. Note, however, that this does not mean that the FOMC prints currency.

252. Which of the following is not a policy tool that the Federal Reserve Bank has used?
(A) Changing tax rates
(B) Purchasing securities
(C) Changing the reserve requirement
(D) Changing the discount rate
(E) Conducting open market operations

ANS : (A) Traditionally, the Federal Reserve has used three tools in the conduct of monetary policy: the reserve ratio, the discount rate and most commonly open market operations. More recently, the Federal Reserve has purchased securities more directly through a program called Quantitative Easing. Tax rates, however, are not an element of monetary policy but rather fiscal policy.

253. Which of the following best describes a bank run?
(A) A massive drop in the stock market
(B) A massive increase in unemployment
(C) A massive number of people depositing money into banks
(D) A massive number of people withdrawing money from banks
(E) A massive number of people running through banks

ANS : (D) Banks operate on what is known as fractional reserve system. This means that banks do not keep every dollar deposited into accounts on hand, but rather some proportions of these. This means that if a large number of people suddenly start withdrawing all of their money, the bank may not have enough money on hand to meet those demands and may collapse. Such an event is called a bank run.

254. A ____ is a bank regulation designed to reduce the risk of bank runs that dictate how much of its deposits it must keep on hand.
(A) Required reserve ratio
(B) Discount rate of reserves
(C) Discount rate
(D) Required discount ratio
(E) Regulation Q

ANS : (A) Banks that operate on a fractional reserve system must have enough money on hand to meet the day−to−day requirements of depositors. As part of the banking regulatory system, the Federal Reserve sets a minimum proportion of money that banks must keep on deposit to meet those demands, known as the required reserve ratio.

255. Which of the following would not be counted in M1 or M2?
(A) Checking accounts

(B) Savings accounts
(C) Traveler's checks
(D) Reserves held in bank vaults
(E) Coins in circulation

ANS : (D) Not all money in a bank is counted as part of the money supply. In particular, money is held as part of reserves is not included in the money supply. The intuition behind this is clear: the money supply includes things that can serve as all three functions of money. Reserves, however, must keep on hand, meaning they cannot be used as a medium of exchange. Therefore, they are not counted in the money supply.

256. Which of the following comprises the largest proportion of MI?

(A) Comprising accounts
(B) Savings accounts
(C) Currency in circulation
(D) Traveler's checks
(E) Coins in circulation

ANS : (C) A little more than half of M1 comprises currently in circulation. The next largest category of M1 is checkable deposits (such as checking accounts), which is close to half of M1. The remaining categories of M1 make up very tiny proportion of the narrowest definition of money.

257. What are "near money" counted in?

I. M1
II. The monetary base
III. M2
(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II and III

ANS : (C)The monetary base refers to a subset of moneys that are the most liquid. Near moneys refer to things that are basically almost money, but not quite. That is to say, they can't directly be used as a medium of exchange, but can be fairly easily converted to cash or a cash checking account deposit. Near moneys are, therefore, counted in M1.

258. Which of the following is the best explanation for why members of the Board of Governors of the Federal Reserve System serve 14−year terms?

(A) Because it takes 4 years to learn the job, and the governors should serve 10 years after that point
(B) Because this is the same length as the electron cycle
(C) Because this is the same amount of time that fiscal policy is conducted over
(D) Because it is the same length of appointment as Supreme Court judges
(E) Because it helps insulate members from short−term political concerns

ANS : (E) One of the goals of the design of the Federal Reserve System is to try to insulate members against short−term political concerns, which could destabilize the system. The presidential election cycle is 4 years, which means that even though members of the Board of Governors are chosen by the president and then confirmed by the Senate, a 14−year term helps insulate them from political pressures.

259.Which of the following entities are part of the Federal Open Market Committee?

I. The Federal Reserve Bank of New York
II. All of the regional bank presidents
III. All of the Board of Governors
(A) I only
(B) II only
(C) III only
(D) I and III only
(E) I, II and III

ANS : (D) The Federal Open Market Committee (FOMC) is designed to straddle the two main bodies of the Federal Reserve System : the Board of Governors and the Federal Reserve District Banks. The FOMC comprises all of the members of the Board of Governors and five of the presidents of the district banks. Of those five slots, one is always held by the president of the Federal reserve Bank of New York, and the other slots rotate among the remaining 11 banks.

260.The purpose of ____ in the United States was to separate banks into two categories, commercial banks and investment banks.

(A) Regulation Q
(B) The Glass–Steagall Act
(C) The Sherman Antitrust Act
(D) The Dodd–Frank Act
(E) The Federal Reserve Act

ANS : (B) The Glass–Steagall Act of 1993 was one of the regulatory responses to the Great Depression. It is designed to reduce the amount of risk that certain kinds of financial institutions can take to help prevent future banking failures like those that occurred during the Great Depression. It separates banks into commercial banks, whose deposits were covered by deposit insurance, and investment banks, which were not insured and engaged in riskier behavior.

261.Which of the following would be considered fiat money?

(A) Gold
(B) Silver
(C) Metal coins
(D) Cigarettes in prisoner of war camps
(E) Salt

ANS : (C) Salt, gold, silver, and cigarettes are all forms of commodity money (salt was used as payment during the Roman Empire and is where the term salary comes from). Metal coins (like American quarters), however, are not commodity money. While coins do contain metals with intrinsic value, the value of the metal contained in a coin is far less than the face value of that coin.

262.Which monetary aggregates are included in each other?

(A) None are included in each other: they are entirely independent of each other.
(B) M1 is included in M2.
(C) M2 is included in M1.
(D) M1 is included in M2, and M2 is included in M1.
(E) M2 and M1 are the same measures

ANS : (B) As the number of the monetary aggregate increases, the measure is not only less liquid than the previous aggregate but also includes the previous aggregate. This means that M2 is less liquid than M1, and M2 contains M1. When it was tracked, M3 was less liquid than M2 and also contained M2 (which means M3 also contained M1).

263.The present value of $X in 1 year is $400 when the interest rate is 10%. What is $X?

(A) $440
(B) $360
(C) $364
(D) $490
(E) $410

ANS : (A) To solve this problem, we apply the present value formula: PV($x) $= \$x/(1+i)^t$. We are told that the present value is $400 in 1 year, and the interest rate is 10%, so this formula becomes $400 = $x/(1 + 0.1). Now we merely need to solve for $x to find the amount of money 1 year from now that would be equivalent to having $400 today. The result of solving this equation for $x is $440.

264.The Federal Reserve lends $400,000 to a commercial bank. Which of the following statements is true?

(A) The commercial bank will pay the market interest rate.
(B) The commercial bank will pay no interest.
(C) The commercial bank will pay the federal funds are.
(D) The commercial bank will pay the Treasury bill (T–bill) rate.
(E) The commercial bank will pay the discount rate.

ANS : (E) When Commercial banks borrow from the Federal Reserve, they pay the discount rate. The discount rate is a rate set by the Federal Reserve, usually about 1% higher than the federal funds rate, the rate that banks charge each other for vey short term loans. The Federal reserve sets the discount rate slightly higher than the federal funds rate to discourage banks from seeking loans from the Federal Reserve and instead seek them from other banks.

CHAPTER 9

Monetary policy

265.Monetary policy is the use of ____ to affect macroeconomic variables.

(A) Taxes
(B) Government spending
(C) Real estate
(D) The money supply
(E) The labor market

ANS : (D) Monetary policy is the use of the money supply to affect macroeconomic variables such as aggregate output, unemployment, and the price level. The money supply is used to affect interest rates, which in turn affect the investment component of aggregate demand. Understanding monetary policy therefore requires an understanding of the money market and how interest rates are determined.

266.The institution that is primarily responsible for conducting monetary policy in the United States is

(A) Congress
(B) The Senate
(C) The Department of the Treasury
(D) The Congressional Budget Office
(E) The Federal Reserve

ANS : (E) In most economies, some form of central bank is generally the agency responsible for conducting monetary policy. In the United States, the Federal Reserve bank is the agency responsible for a number of tasks, among which is determining when, how, and if the monetary policy should be used to affect macroeconomic variables.

267.A T−account is a balance sheet that compares the ____ and ____ of commercial banks.

(A) Profits; losses
(B) Assets; liabilities
(C) Deposits; income
(D) Income; losses
(E) Liabilities; profits

ANS : (B) A T−account is a way of representing the assets and liabilities of a bank. On one side of the "T" are the liabilities of a bank: the amount of money that can be demanded from the bank (such as checkable deposits). On the other side are the assets of the bank: the financial instruments of value such as cash or loans that the bank holds.

268.First Bank of Fredonia has $100,000 in checkable deposits and $100,000 in cash in its value. The required reserve ratio in Fredonia is 20%. What is the maximum amount of money that First Bank of Fredonia can lend?

(A) $80,000
(B) $20,000
(C) $0
(D) $100,000
(E) $120,000

ANS : (A) Under a fractional banking system, a bank is required to keep only a certain percentage of any checkable deposits on hand. In this cash, there is $100,000 of which they must keep 20% on hand. Therefore, the bank must hold onto only $0.20 \times \$100{,}000 = \$20{,}000$ in cash in their vault on reserve. The bank is free to do a number of things with the remaining $80,000. It can keep it in the bank vault as well, or it can lend the money out and earn interest from the loan. It cannot, however, lend out more than $80,000, since it must keep at least $20,000 in reserve.

Refer to Table 11.1 for questions 342 and 343.

Table 11.1

Assets	Liabilities
$50,000 Reserves **$150,000 Loans**	**+ $200,000 Checkable deposit**

269. Refer to Table 11.1. If Bank of Fredonia has no excess reserves, what is the reserve ratio of Fredonia based on Table 11.1?

(A) 15%
(B) 50%
(C) 100%
(D) 20%
(E) 25%

ANS : (E) When a bank has excess reserves, this means that it is keeping more than the reserves that it is required to keep on hand. We are told, however, that this bank has no excess reserves, so it is holding on reserve only the amount it is required to. The dollar amount that they must keep on hand is the reserve ratio (RR) multiplied by the amount of checkable deposits, in this case, $\$50{,}000 = \$200{,}000 \times \text{RR}$. To find the required reserves, we simply solve for RR, which yields 0.25, or 25%.

270. Refer to Table 11.1. Suppose the required reserve ratio in Fredonia is 10%. How much in excess reserve doest the First Bank of Fredonia have on hand?

(A) $10,000
(B) $20,000
(C) $30,000
(D) $40,000
(E) $50,000

ANS : (C)If the required reserve ratio is 10%, then the Bank of Fredonia must keep $10\% \times \$200{,}000 = \$20{,}000$ on hand. However, the bank has $50,000 on hand, which is $30,000 more than it is required to keep to meet the day−to−day needs of depositors. The bank can continue to hang on to these excess reserves, or it can make up to $30,000 in additional loans.

271. The term multiple expansion deposits refer to the fact that

(A) When there is government spending, the final impact of that spending on aggregate demand may be greater than the dollar amount of the government spending.
(B) When there is government spending, the final impact of government spending may be offset by the effect of deficit spending on the market for loanable funds
(C) An increase in the amount of excess reserves that a bank is holding will lead to an increase in the money supply larger than the amount of the excess reserves
(D) Deposit accounts accrue interest on an ongoing basis, and interest is compounded
(E) Loans accrue interest on an ongoing basis, and interest is compounded

ANS : (C) When cash deposits are made into the banks, those deposits actually cause the money supply to expand. The money supply includes cash that is being circulated throughout the economy and also the money that is deposited in the checking accounts at the nation's banks. Because banks are required to keep only a fraction of checking accounts in reserve, the majority of checking deposits (the excess reserves) can be lent to borrowers who need money to pay for homes, cars, or other expensive items. The process of cash deposits, loans to borrowers, and the redeposit of those funds into new checking deposits creates a multiplier effect that expands the money supply.

272. At what point in the process of the multiple expansion of deposits is money created?

(A) When a bank receives a deposit
(B) When a bank determines it has excess reserves

(C) When a bank lends money out
(D) When a loan recipient uses that loan to purchase goods or services
(E) When a loan recipient deposits the loan in another bank

ANS : (C) The money supply comprises cash not held in reserves, cash in circulation, and checkable deposits. Consider an economy with only $10,000 in cash in it; so the money supply (MS) is $10,000. Now consider that is $10,000 is deposited in a bank, the MS is still equal to $10,000 (cash in circulation = 0 and checkable deposits = $10,000). If the bank is required to keep 20% in reserve, it must keep only $2,000 in the vault and now has $8,000 in excess reserves. If it lends that money out to someone, the bank's assets go down by the amount of cash that is lend ($8000) and increase by the value of the loan ($8,000), so there is no change to the assets side of the bank's T−account. Note, however, that now cash in circulation is $8,000 and there are still $10,000 in checkable deposits, so MS = $18,000 as a result of the loan.

273.The required reserve ratio in Fredonia is 20%. What is the money multiplier in Fredonia?
(A) 20
(B) 2
(C) 5
(D) 5
(E) 0

ANS : (D) The money multiplier (MM) is the maximum amount that a money supply will increases by as a result of an increase in the amount of excess reserves available, and it is dependable on the reserve ratio (RR). The MM is found using the equation MM = 1/RR. So for Fredonia, MM = 1/20% = 1/0.2 = 5. This means that if there are suddenly $100 in excess reserves, the money supply will increase by up to five times that amount (5 × $100 = $500).

274.Jacksonia has a required reserve ratio of 10%. Amandania has required reserve ratio of 20%. Which of the following statements is definitely true?
(A) Jackson has a higher dollar amount of reserves on hand than Amandania.
(B) Amandania has a higher dollar amount of reserves on hand than Jacksonia.
(C) Jacksonia has fewer excess reserves than Amandania.
(D) Amandania has a larger money multiplier than Jacksonia.
(E) Jacksonia has a largermoney multiplier than Amandania.

ANS : (E) We cannot tell from the statement the dollar amount of reserves in either country, as we would need to knowthe dolar amount of checkable deposits in each country to determine this. Likewise, we cannot tell which country has a higher amount of excess reserves. We can, however, determine the money multiplier (MM) for each country. In Jacksonia the money multiplier is MM = 1/0.10 =10, and in Amandania the money multiplier is MM = 1/0.2 = 5.Therefore, Jacksonia has a large money multiplier.

275.The Central Bank of Maxistan wants to increase the money supply by $100,000. The required reserve ratio in Maxistan is 25%. How much of an injection of money is required?
(A) Less than $25,000
(B) At least $25,000
(C) Exactly $25,000
(D) At least $100,000
(E) More than $50,000

ANS : (B) To determine the maximum amount that a money supply (MS) will increase, we multiply the amount of the injection of money by the money multiplier (MM), or (maximum increase in MS = $ injected × MM).Note that this reflects an upper limit on the amount that the money supply will increase. The MM of Maxistan is MM = 1/0.25 = 4, so for a $100,000 increase, $100,000 = injection × 4 means that if $25,000 is injected, the money supply will increase by up to $100,000. Therefore, there needs to be an injection of at least $25,000 to obtain this increase in the money supply.

276.If the required reserve ratio is 40% and the Federal Reserve injects $100,000 into banks reserves, what is the most likely result?

(A) The money supply will increase by exactly $250,000.
(B) The money supply will increase by $40,000.
(C) The money supply will increase by more than $250,000.
(D) The money supply will increase by $400,000.
(E) The money supply will increase by less than $250,000.

ANS : (E) When the money multiplier is multiplied by the amount of the monetary injection, the resulting number represents the maximum potential increase. It is not possible for the money supply to increase by more than that amount. It is also not likely that the money supply will increase by exactly that amount due to leakage: banks may choose to keep some excess reserves, and people may choose to not deposit all of their money.

277.Which of the following would cause an increase in the demand for money?

(A) An increase in the interest rate
(B) Making ATM machines and debit cards illegal
(C) A decrease in the interest rate
(D) A decrease in the aggregate price level
(E) A decrease in real GDP

ANS : (B) Technological innovations that enable people to have ready access to cash, like ATMs (or at least use deposits for transactions, like debit cards), mean that people need to keep less cash on hand to carry out purchases of goods and services and can keep more in checkable deposits and other accounts. Note that the demand for money does not change in response to changes in their interest rate, but rather the quantity of money demanded responds to changes in the interest rate.

278.Which of the following would cause an increase in the money supply?

I. An increase in the discount rate
II. An decrease in the reserve ratio
III. The Federal Reserve buying bonds

(A) I only
(B) II only
(C) III only
(D) II and III only
(E) I and III only

ANS : (D) If the reserve ratio is decreased, then a bank would suddenly have excess reserves that it could loan out, which would then increase the money supply. An increase in the reserve ratio, however, would result in a decrease in the money supply. Another way the money supply can be increased is if the Federal Reserve buys bonds, which injects money into the economy and starts the process of the multiple expansion of deposits.

279. Which of the following would, all else equal, cause a decrease in the interest rate?

(A) The reserve ratio is increased.
(B) The Federal Reserve sells bonds.
(C) Real GDP increases.
(D) The price level increases.
(E) The Federal Reserve buys bonds.

ANS : (D) If real GDP increases, more money is necessary to conduct transactions and the demand for money will increase, which would increase the interest rate. An increase in the price level also increases the demand for money. If the Reserve ratio is increased, this would decrease the money supply, which would raise interest rates. If the Federal Reserve buys bonds, however, the money supply will increase and the equilibrium interest rate will decrease.

280. What would cause a sudden stop in the multiple expansion of deposits process?

I. People stop depositing money in banks.
II. Banks stop making loans.
III. The reserve requirement is increased.
(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II and III

ANS : (E) If any of these events occur, the process of the multiple expansion of deposits will stop. If people stop depositing money, banks will not have excess reserves to lend. If banks do not lend to borrowers, the expansion stops immediately. Finally, if the reserve requirement is raised, banks may even have insufficient reserves and will stop lending.

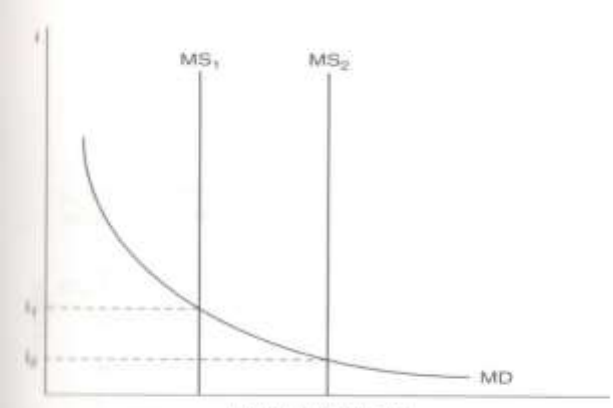


Figure 11.1

281. Refer to Figure 11.1, on the previous page. As a result of the change in the money supply shown, what is now true about the quantity of money demanded at the initial equilibrium interest rate and how interest rates will respond?

At the Initial Equilibrium Interest Rate	The Interest Rate Will Respond By
(A) The quantity of money supplied exceeds the quantity of money demanded.	Decreasing
(B) The quantity of money demanded exceeds the quantity of money demanded.	Decreasing
(C) The quantity of money supplied exceeds the quantity of money demanded.	Increasing
(D) The quantity of money demanded exceeds the quantity of money supplied.	Increasing
(E) The quantity of money supplied exceeds the quantity of money demanded.	Not changing

ANS : (A) With the initial money supply curve and the money demand curve given, the money market is in equilibrium when the interest rate is i_1. As banks seek to lend excess funds, this will lower interest rates to attract more borrowers until the surplus of excess reserves clears.

282. How does the Federal Open Market Committee usually increase the money supply?

(A) By raising the required reserve ratio
(B) By lowering the required reserve ratio
(C) By buying bonds
(D) By selling bonds
(E) By increasing the discount rate

ANS : (C) The Federal Reserve has traditionally had three main tools of monetary policy: open market operations (buying or selling bonds), raising or lowering the reserve ratio, and raising or lowering the discount rate. The Federal Reserve has almost exclusively used open market operations to conduct monetary policy. If the Federal Reserve wants to increase the money supply, it buys bonds, and if the Federal Reserve wants to decrease the money supply, it sells bonds.

283. Suppose the Federal Reserve announces that it will "lower the interest rate by 50 basis points". Which of the following best describes the chain of events that will occur and the result?

(A) The Federal Reserve will buy bonds, which increases the money supply, to lower the interest rate by 50%.
(B) The Federal Reserve will buy bonds, which increases the money supply, to lower the interest rate by 0.5%.
(C) The Federal Reserve will buy bonds, which increases the money supply, to lower the interest rate by 5%.
(D) The Federal Reserve will sell bonds, which increases the money supply, to lower the interest rate by 50%.
(E) The Federal Reserve will sell bonds, which decreases the money supply, to lower the interest rate by 0.5%.

ANS : (B) When the Federal Reserve announces changes in the interest rate, it announces the changes in terms of "basis points", which are 100ths of a percentage point. Therefore, a decrease in interest rates of 50 basis points is 0.5% (or one−half of a percentage point). To decrease the interest rate, the Federal Reserve will buy bonds, which increases the money supply. This causes the equilibrium interest rate in the money market to decrease.

284.Which part of aggregate demand is monetary policy primarily intended to target?

(A) Consumption
(B) Investment
(C) Government spending
(D) Exports
(E) Imports

ANS : (B) When monetary policy is used to affect macroeconomic aggregates, the primary target is the investment component of aggregate demand. Investment (I) is the creation of capital and other productive goods, and it is typically done by firms that borrow money to do so. Therefore, if the cost of borrowing money is lower, firms will be more likely to invest, which will increase aggregate output and decrease the unemployment rate.

285.Suppose the Federal Reserve is concerned about rising inflation and notes that the unemployment rate is very low. What will it be likely to do, and why?

(A) Sell bonds, which will decrease the interest rate and increase aggregate demand
(B) Sell bonds, which will increase the interest rate and increase aggregate demand
(C) Buy bonds, which will increase the interest rate and increase aggregate demand
(D) Sell bonds, which will increase the interest rate and decrease aggregate demand
(E) Buy bonds, which will decrease the interest rate and increase aggregate demand

ANS : (D) If the Federal Reserve sees a combination of low unemployment and high inflation, it may use monetary policy to decrease aggregate demand to alleviate inflationary pressures on the economy. To do this, it will sell bonds, which will lower the money supply. This results in an increase in the interest rate, which will cause investment to decrease. As a result, aggregate demand will decrease, aggregate output will decrease, the price level will fall, and the unemployment rate will increase.

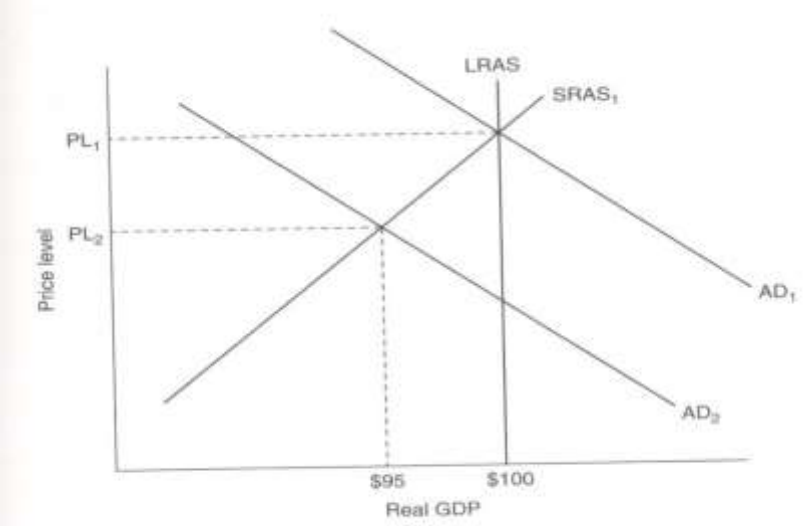


Figure 11.2

286.Refer to Figure 11.2, on the previous page. Suppose that aggregate demand has recently shifted from AD_1 to AD_2. What action will the Federal Open Market Committee take if it wants to use monetary policy to correct the situation shown?

(A) Set money market interest rates lower.

(B) Sell bonds.
(C) Buy bonds.
(D) Set money market interest rates higher.
(E) Increase the demand for money.

AND : (C) A common misperception is that the Federal Reserve sets interest rates, and in fact the phrase "The Federal Reserve set interest rates today" incorrectly appears in many media reports. The Federal Reserve use open market operations to affect macroeconomic variables, which means it buys and sells bonds. To increase investment, the Federal Reserve will need to buy bonds to lower interest rates, making investment more affordable for firms.

287. Refer to Figure 11.2. Suppose that aggregate demand has recently shifted from AD_1 to AD_2. Which of the following describes the chain of events involved to correct the level of output shown with monetary policy?
(A) Sell bonds → money supply increases → interest rates decrease → investment increases → aggregate demand increases
(B) Buy bonds → money supply increases→ interest rates decrease → investment increases → aggregate demand increases
(C) Sell bonds → money supply decreases → interest rates decrease → investment increases → aggregate demand increases
(D) Buy bonds → money supply increases → interest rates decrease → investment increases → aggregate demand decreases
(E) Sell bonds → money supply increases → interest rates decrease → investment decreases → aggregate demand increases

ANS : (B) Figure 11.2 shows an economy that has experienced a decrease in aggregate demand from full employment to a level of output below full employment. When the economy is producing below full employment level of output, the Federal Reserve may act to increase aggregate demand and bring output back to the full employment level. To do this, it will buy bonds, which will increase the money supply. This will lower the interest rate and increase investment, which shifts aggregate demand to the right.

288. Refer to Figure 11.2. According to the Taylor rule, if inflation is 10%, what interest rate should the Federal Open Market Committee target to correct what is seen in Figure 11.2?
(A) 18.5%
(B) 10.5%
(C) 13.5%
(D) 10%
(E) 5%

ANS : (C) The Taylor rule for monetary policy is that the federal funds should have a target that takes inflation and the percentage of the output gap into considerations: federal funds rate $= 1 + 1.5 \times$ inflation rate $+ 0.5 \times$ output gap. In Figure 11.2, the output gap is $(100 - 95)/100 = 5\%$, or -5% because the economy is operating below full employment (a recession). If inflation is 10%, then according to the Taylor rule, federal funds rate $= 1 + 1.5 \times 10\% + 0.5 \times (-5\%) = 13.5\%$.

289. ____ states that monetary policy should not be discretionary, but rather should follow a formula that sets interest rates based on unemployment and output.

(A) Regulation Q
(B) The Glass–Steagall Act
(C) The Dodd–Frank Act
(D) The Sherman Anti–Trust Act
(E) The Taylor rule

ANS : (E) The Taylor rule is a proposed way of using monetary policy to dampen economic swings, but without using the discretion of policy makers. It is a way of setting the federal funds rate (the rate at which bank loan money to each other) in such a way to take into account both inflation (which drives up the federal funds rate in the Taylor rule) and negative output gaps (which would drive down the federal funds rate).

290.A liquidity trap refers to a situation where

(A) The interest rate in the money market cannot be lowered anymore, because the demand for money is too high.
(B) The interest rate in the money market cannot be lowered anymore, because it is already at or near zero percent
(C) The interest rate in the money market is too high because all of the money supply is being restricted by the Federal Reserve.
(D) Banks choose to keep inadequate reserves
(E) The Federal Reserve refuses to take any action

ANS : (B) Traditionally open market operations are the primary toll of monetary policy: if output is too low, the Federal Reserve (or any other central bank) can increase the money supply to lower the interest rate and stimulate investment. However, an interest rate can go only so low – once the interest rate is at or near0 percent open market operations cannot be used to stimulate the economy, because a negative interest rate is impossible. This situation is called a liquidity trap.

291.Which of the following is one of the reasons that the demand for money is downward sloping?

(A) There is an opportunity cost of holding money, the interest rate, and as the interest rate increases, people will respond by holding less money.
(B) People prefer to keep none of their assets in the form of cash.
(C) When new innovations like ATMs are introduced, the demand for money increases.
(D) The amount of money in the economy at any given time is fixed.
(E) The Federal Reserve can buy bonds to lower the interest rate.

ANS : (A)The demand for money is downward sloping based on a concept called liquidity preference. This is simply the idea that people prefer to keep some of their assets in the form of illiquid assets, as these tend to earn interest, but still need some amount of assets in cash to exchange for goods and services. The amount that they keep on hand will depend on their individual preferences, as well as the opportunity cost of holding money (i.e., the forgone interest when you hold an asset in the form of cash instead of another asset).

292.When the interest rate increases, people want to hold less money because the ____ has ____.

(A) Transactions motive; increased
(B) Transactions motive; decreased
(C) Opportunity cost of holding money; decreased
(D) Opportunity cost of holding money; increased
(E) Purpose of money; disappeared

ANS : (D) Suppose you had the choice of keeping $1000 in your checking amount, where you could easily access it to buy goods and services, or in a certificate of deposit, which would make the value of the money more difficult to use but you would get 10% interest on it. By holding onto $1000 in your checking account, you are giving up 10% × $1000 = $100. If the interest rate goes up to 15%, you are giving up even more by holding it as cash.

293.The Federal Open Market committee has sold bonds. Which of the following statements is most likely true?

(A) The Federal Reserve is concerned that the unemployment rate is too high.
(B) The Federal Reserve is concerned that aggregate output is too low.
(C) The Federal Reserve is concerned that people are spending too little.
(D) The Federal Reserve is concerned that inflation is too high.
(E) The Federal Reserve is concerned about the outcome of the next election.

ANS : (D) When the Federal Reserve sell bonds, this will decrease the money supply, which will drive interest rates up. This will have a dampening effect on the economy: lowering investment, which will decrease aggregate demand, decrease aggregate output, and raise unemployment. The Federal Reserve has a dual mandate to have stable prices and maintain employment. So the only reason that the Federal Reserve would increase unemployment is if prices had become unstable and there is high inflation.

294.Which of the following equations describes the quantity theory of money?

(A) Federal funds rate $= 1 + (1.5 \times$ **inflation**$) + (0.5 \times$ **output gap**$)$
(B) MV = PY
(C) PV = MY
(D) Federal funds rate = 1 + (1.5 × output gap) + (0.5 × infaltion)
(E) MR (Q) = MC (Q)

ANS : (B) The quantity theory of money is a way of describing the relationship between output, price level, and the money supply in an economy. In the quantity theory, M represents the money supply, V represents the velocity of money (i.e., how many times currency changes hands), P represents the price level, and Y represents the velocity of money (i.e., how many times currency changes hands), P represents the price level, and Y represents the amount of output in the economy.

295.The nation of Ergo is a tiny country that has only one product: oranges. Oranges currently sell at a price of $2 each, and there is $600 in the money supply in Ergo. If there are a total of 1,200 oranges that are bought and sold in this economy, how many times does each of the of the dollars in Ergo's money supply change hands?

(A) 1,200
(B) 2
(C) 3
(D) 4
(E) 600

ANS : (D) To solve this we can apply, the quantity theory of money. There is $600 in the money supply, so M = $600. There are 1,200 oranges, so Y = 1200. The oranges sell for $2 each, so P = $2. Therefore, MV = PY becomes $600 × V = $2 × 1200, where V is the velocity of money, or how many times the currency changes hands. Solving for V yields V = 4, so each dollar bill in Ergo will change hands an average of four times.

296.According to the classical version of the quantity theory of money, ____ and ____ are ____, which means an increase in the money supply will only ____.

(A) M; V; constant; lower the price level
(B) M; Y; constant; raise the price level
(C) V; Y; variable; decrease the price level
(D) V; Y; variable; increase the price level
(E) V; Y; constant; raise the price level

ANS : (E) The classical school in macroeconomics assumes that output is fixed. The velocity of money does not change either (or only very rarely), as it reflects more the spending habits of a population, the technology of money used, and the other features that tend not to change often. Therefore, in the classical quantity theory of money, MV = PY, but V and Y will not change even if other variables do. This means, according to this school of thought, that if the money supply (M) increases, the only result will be an increase in the price level (P).

297. Suppose there is an increase in the demand for money. If the Federal Reserve wants to keep interest at the same rate, what will it need to do?
(A) Lower the demand for money
(B) Lower the supply of money by buying bonds
(C) Increase the demand for money by buying bonds
(D) Increase the supply of money by buying bonds
(E) Nothing –the Federal Reserve can do nothing to counter this.

ANS : (D) If there is an increase in the demand for money, the demand curve for money will shift to the right. This leads to an increase in the interest rate. If the Federal Reserve wanted to maintain interest rates at the same level, it would have to increase the money supply at the same time, lowering the interest rate. In fact, there are different parts of the year when something very similar to this happens: people want to spend more money than usual (e.g., during holidays), and the Federal Reserve anticipates this and increases the money supply to prevent an increase in interest rates.

298. Suppose there is a financial innovation that allows people to carry less cash, like a debit card. If the Federal Reserve wants to increase interest rates at the same time, what must it do?
(A) Decrease the money supply by a greater amount than the decrease in the demand for money
(B) Decrease the money supply by the same amount as the decrease in the demand for money
(C) Decrease the money supply by a lesser amount than the decrease in the demand for money
(D) Increase the money supply by a greater amount than the decrease in the demand for money
(E) Decrease the money supply by the same amount as the decrease in the demand for money

ANS : (A) If there is a financial innovation that allows people to keep fewer of their assets liquid, such as the invention of ATM machines or debit cards, then the demand for money will decrease. If the demand for money decreases, interest rates will decrease if the Federal Reserve takes no action. If the Federal Reserve wants to increase interest rates above what they already were, it will have to lower the money supply by a larger amount than the decrease in the demand for money.

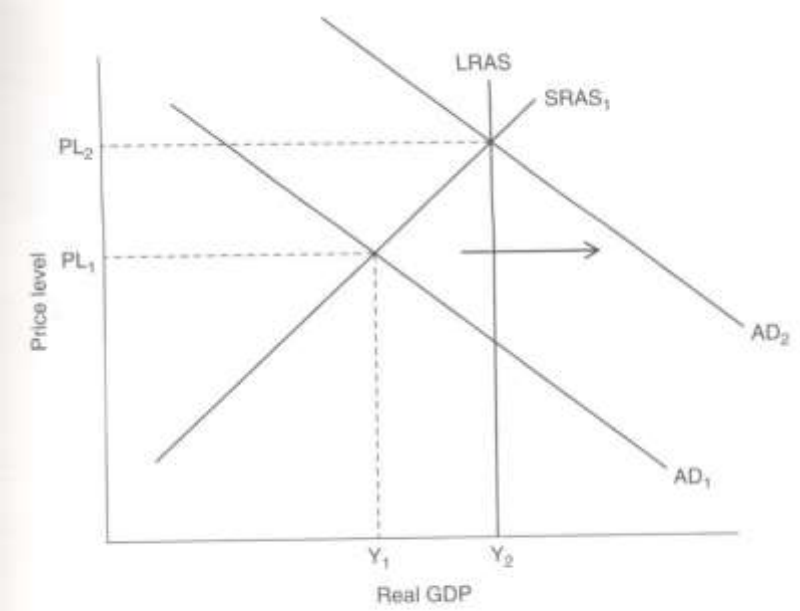


Figure 11.3

299. Refer to Figure 11.3, on the previous page. Which of the following could have caused the shift indicated?

I. The Federal Reserve Selling bonds
II. The Federal Reserve lowering the reserve requirement
III. The Federal Reserve buying bonds
(A) I only
(B) II only
(C) III only
(D) I and III only
(E) II and III only

ANS : (E) Figure 11.3 shows an increase in aggregate demand. This could occur if the investment component of aggregate demand increased. If the Federal Reserve wanted to stimulate investment, it would need to lower the interest rate, which it would do by increasing the money supply. If the Federal Reserve either lowered the reserve ratio or bought bonds, the money supply would increase.

300. Refer to Figure 11.3. Which of the mandates that the Federal Reserve operates under was the main motivation for the action that caused the shift in the graph?

(A) The mandate to have stable prices
(B) The mandate to maintain full employment
(C) The mandate to keep interest rates low
(D) The mandate to keep inflation at 0%
(E) The mandate to keep the unemployment rate at 0%

ANS: (B) The Federal Reserve is said to operate under a dual mandate: maintain price stability and maintain full employment. In Figure 11.3 we see that the economy was experiencing a recessionary gap, so expansionary monetary policy was required to increase employment. Note that this does not mean that the objective of the

Federal Reserve is to maintain an unemployment rate of zero or an inflation rate of zero. Indeed, if the Federal Reserve wanted to lower inflation, it would have to increase the unemployment rate to achieve this.

301. The Bank of Mitchell is fully loaned out and has no excess reserves. One of its depositors withdraws the entire balance of her checking account. Which of the following is not an option for the bank to keep its required reserves?

I. Lower their required reserve ratio
II. Borrow from another bank
III. Borrow from the Federal Reserve

(A) I only
(B) II only
(C) III only
(D) II and III only
(E) I, II and III

ANS : (A) When a bank is fully loaned out, it has exactly the amount of reserves that it is required to have on hand: any less and it would be violating banking regulations. When a customer withdraws money at this point, the bank must increase what it holds in its now depleted reserves. It has a number of options available to it, such as calling in loans, borrowing from other banks, or even as a last resort borrowing from the Federal Reserve. It cannot, however, lower its own required reserve ratio, as this is set by the Federal Reserve.

302. The nation of Cam has had an increase in the amount of exports to other nations. If the Central Bank of Cam wanted to use monetary policy to counteract the effect this has, what would the Central Bank do if it used open market operations similar to the Federal Reserve?

(A) Sell bonds
(B) Increase the rate of interest set by the Central Bank
(C) Decrease the rate of interest set by the Central Bank
(D) Buy bonds
(E) Increase government spending

ANS : (A) If there is an increase in exports, this will increase aggregate demand in Cam, which will increase output, but also cause inflation. If the Central Bank of Cam wants to counteract this, it could take an action that would decrease aggregate demand, such as raising interest rates to discourage investment. If the Central Bank of Cam uses open market operations similar to the Federal Reserve, it would need to sell bonds to decrease the money supply, which would raise interest rates.

303. In Lilistan the required reserve ratio is 20%. If the central bank of Lilistan buys $100 million in bonds from banks in open market operations, what will be the impact on excess reserves and what will be the maximum impact on the money supply?

Excess Reserves Will	Maximum Impact on Money Supply
(A) Increase by $100 million	Impact by $400 million
(B) Increase by $100 million	Increase by $500 million
(C) Increase by $20 million	Increase by $400 million
(D) Increase by $100 million	Decrease by $500 million
(E) Decrease by $80 million	Decrease by $100 million

ANS: (B) When the central bank buys securities, it injects $100 million into the banking system. If this was a deposit from a large firm, the banking system must keep 20% of this (or $20 million) on hand as required reserves. But since this is essentially a deposit from the central bank, the entire $100 million is excess reserves that can be lent to borrowers. The final maximum impact of a $100 million injection will be $100 million × (1/20%) = $100 million × 5 = $50 million.

304. Suppose the central bank of Lilistan buys $100 million in open market operations. What does this tell us about the current level of output and unemployment?

Current Level of Output Is	Current Level of Unemployment Is
(A) Lower than full employment output	Lower than the natural rate of unemployment
(B) Higher than the full employment output	Lower than the natural rate of unemployment
(C) Lower than full employment output	Higher than the natural rate of unemployment
(D) Higher than the natural rate of unemployment	Higher than the natural rate of unemployment
(E) Equal to the full employment output	Higher than the natural rate of unemployment

ANS : (C) If the Central bank is buying securities, it is trying to increase the money supply to lower interest rates to stimulate the investment component of aggregate demand. This means that the economy is currently operating at less than full employment output. When an economy is operating at less than full employment, the unemployment rate is higher than the natural rate of unemployment.

CHAPTER 10

Fiscal Policy

305. In the nation of Xela, if people get $1 in new income, they tend to spend $0.75 and save $0.25. therefore, the ____ is ____.

(A) Multiplier; 25
(B) Marginal propensity to consume; 0.25
(C) Marginal propensity to save; 0.75
(D) Marginal propensity to consume; 0.75
(E) Multiplier; 0.75

ANS : (D)The marginal propensity to consume (MPC) describes the proportion of an additional dollar of income that people will spend. In this case, the MPC = 0.75, meaning that if someone receives an additional dollar of income, he or she will spend $0.75 of that dollar and save $0.25 of that dollar, so that for every additional dollar in income, some of it saved and some of it is spent.

306. Which of the following represents the formula for the government spending multiplier?

I. 1/ (1 –MPC)
II. 1/MPS
III. $\Delta GDP/\Delta G$
(A) I only
(B) II only
(C) III only

(D) I and II only
(E) I, II and III

ANS : (E) Every dollar of additional income can only be saved or spent, so \$1 = (the amount of the dollar spent) + (the amount of the dollar saved). Rephrased in terms of proportions of \$1, 1 = (proportion spent) + (proportion saved). So the marginal propensity to consume (MPC) plus the marginal propensity to save (MPS) must equal one, or 1 = MPC + MPS. The government spending multiplier is the total change in GDP in proportion to the increase in government spending, or M = $\Delta GDP/\Delta G$. To find this amount, the formula for the government spending multiplier (M) is M = $1/(1 - MPC)$. Note, however, that since 1 = MPC + MPS, if we rearrange this we get 1 – $MPC = MPS$, so M = 1/MPS is equivalent to M = $1/(1 - MPC)$.

307. In the nation of Ile the marginal propensity to consume is 0.8. If there is no crowding out effect, what will be the impact on gross domestic product (GDP) of a \$20 million increase in government spending?
(A) \$20 million increase
(B) \$2 million increase
(C) \$80 million increase
(D) \$100 million increase
(E) \$160 million increase

ANS : (D) If the marginal propensity to consume (MPC) is 0.8, then the government spending multiplier M is M = $1/(1 - 0.8) = 1/0.20 = 5$. The multiplier is also represented by M = $\Delta GDP/\Delta G$. Therefore, to find the change in GDP that will result if there is no crowding out effect, we plus in the numbers we have (M = 5 and G =20) to get 5 = ΔGDP/ 20 million. Solving for ΔGDP yields \$100 million. Therefore, if there is no crowding out, an increase in \$2 million dollars of government spending will increase GDP by \$100 million.

308. In the nation of Ile the marginal propensity to consume is 0.8. If Ile increases its taxes by \$20 million, what will be the impact on gross domestic product (GDP) as a result of these taxes?
(A) GDP will increase by 0.8%.
(B) GDP will increase by \$80 million.
(C) GDP will decrease by \$80 million.
(D) GDP will decrease by 0.8%.
(E) An increase in taxes has no effect on GDP.

ANS : (C) Just as there is a government spending multiplier, there is a tax multiplier (Tm). The tax multiplier, however, tends to offset the government spending multiplier (M), which depends on the marginal propensity to consume (MPC). To find the tax multiplier, we use the formula Tm = $-MPC \times$M. In this case, Tm = $-0.8 \times 5 = -4$. This means for every \$1 in higher taxes, GDP will decrease by \$4. So if there is \$20 million in new taxes, GDP will decrease by \$80 million. The tax multiplier is often expressed as a negative value (as in this question) because a change in taxes causes a change in GDP in the opposite direction; higher taxes reduce GDP and lower taxes increase GDP.

309. In the nation of Ile the marginal propensity to consume is 0.8. To pay for \$20 million in new government spending, the government of Ile collects \$20 million in new taxes. What is the final effect of this spending on gross domestic product (GDP)?
(A) \$2 million decrease
(B) \$180 million increase
(C) \$80 million increase

(D) $100 million increase
(E) $20 million increase

ANS : (E) To find the effect on GDP of a change in government spending (G) and new taxes, we need to add these two effects together. The change due to the government spending is the amount of new government spending multiplied by the government spending multiplier; $\Delta GDP = \$20\ million \times 5 = \$100$. The decrease in GDP due to the new taxes is the tax multiplier multiplied by the amount of new taxes, or $\Delta GDP = -4 \times \$20$ million $= -80$ million. Therefore, the total change in GDP is exactly the increase in government spending. Because the budget was balanced, the increase in government spending was paid for by an equivalent increases in taxes. This is known as the balanced budget multiplier: the balanced budget multiplier is always equal to 1, regardless of the MPC or the dollar amount.

310.The government of Xela is considering a number of policy options. Which of the following options would decrease gross domestic product (GDP) by the largest amount?
(A) The government increases spending with no change in the taxes collected.
(B) The government increases spending, which it pays for with an equal amount of new taxes collected.
(C) The government decreases spending and matches this with a decrease in taxes of an equal amount.
(D) The government decreases spending and does not change the amount of taxes collected.
(E) The government decreases spending while increasing the amount of taxes collected.

ANS : (E) Whenever government spending is decreased, GDP will decrease. Whenever taxes are increased, GDP decreases. So if both of these are done simultaneously, it will result in the largest decrease in GDP. If the government increases spending with no changes in taxes collected, this will increase GDP by the largest amount, since there is no offsetting effect of taxes at all. Increasing spending with an increase in taxes by the same amount will also increase GDP.

311.Which of the following are fiscal policy options?
I. Changing tax rates
II. Changing government spending
III. Changing the money supply
(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II and III

ANS : (D) Fiscal policy refers to the use of either government spending or taxes to change macroeconomic variables such as unemployment, output (or GDP), and inflation. Either government spending exclusively, tax policy, or a combination of these two would be considered fiscal policy. Using the money supply, however, to manipulate macroeconomic variables would be considered monetary policy.

312.A ____ is a situation in which a government spends more than it collects in tax revenues in a given time period.
(A) Budget deficit
(B) Fiscal scenario
(C) Liquidity trap
(D) Deflation
(E) National debt

ANS : (A) In any given period of time (but usually considered over a year), a government may have more government spending than it takes in through tax revenues. When this occurs, it is called a budget deficit, and the deficit is the amount of the shortfall during that period. On the other hand, it is also possible for a government to collect more tax revenues than it spends. If it does so, this situation is called a budget surplus.

313. Over the past 20 years, the government of Maxistan has routinely collected $2 million less in tax revenues than it has spent. Over this 20 year time frame, this has led Maxistan to accumulate

(A) A budget deficit
(B) A national debt
(C) A fiscal policy
(D) A monetary policy
(E) A large number of unemployed

ANS : (B) In each of the previous 20 years, Maxistan has collected less in tax revenue than it spent, meaning that in each of the 20 years, it has run a budget deficit. For instance, in year 1 Maxistan overspent by $2 million, and in year 2 Maxistan overspent by another $2 million, thus overspending a total of $4 million over those two years. As deficits are financed using borrowing over time, the government accumulates national debt.

314. Contractionary fiscal policy refers to

(A) Using a decrease in the money supply to lower inflation
(B) Using higher tax rates to lower inflation
(C) Using more government spending to lower unemployment
(D) Using an increase in the money supply to lower unemployment
(E) Using a decrease in the money supply to increase inflation

ANS : (B) Contractionary fiscal policy refers to using either government spending or tax policy to reduce the size of the economy, that is, using lower government spending, higher taxes, or both to lower output and raise unemployment, usually to lower the rate of inflation. Using the money supply to increase or decrease inflation would be different types of monetary policy.

315. Expansionary fiscal policy is intended to

(A) Increase inflation and decrease employment
(B) Decrease inflation and increase unemployment
(C) Increase gross domestic product (GDP) and decrease unemployment
(D) Decrease unemployment and decrease output
(E) Decrease unemployment and keep output unchanged

ANS : (C) Expansionary fiscal policy refers to using higher government spending or lower taxes to increase the size of the economy. That is, expansionary fiscal policy is using fiscal policy tools to increase output and decrease unemployment; as a result, this may lead to an increase in the price level. For instance, if the government increases government spending, this is designed to increase output and decrease unemployment, which may also lead to an increase in the price level. Policy makers in this situation are attempting to reduce the unemployment rate and are willing to trade off some inflation for a stronger labor market.

316. Jacksonia is experiencing a rate of unemployment that is higher than the natural rate of unemployment. Which of the following statements is true?

(A) The government may decrease government spending, which would increase output and decrease unemployment.

(B) The government may increase taxes, which would increase output and decrease unemployment.
(C) The government may increase government spending, which would increase output and decrease unemployment.
(D) The government may decrease taxes, which would decrease output and decrease unemployment.
(E) The government may decrease taxes, which would decrease output and increase unemployment.

ANS : (C) If the unemployment rate is higher than the natural rate of unemployment, GDP is below the full employment output. If the government decides to address this , it would need to engage in expansionary fiscal policy. To engage in expansionary fiscal policy, the government could either increase government spending or decrease taxes. Either will increase output and decrease the unemployment rate.

317.An example of an automatic stabilizer is
(A) A discretionary decrease in taxes when unemployment is high
(B) A nondiscretionary increase in taxes when unemployment is high
(C) A nondiscretionary decrease in government spending when unemployment is high
(D) A nondiscretionary decrease in government spending when unemployment is low
(E) A discretionary decrease in government spending when unemployment is low

ANS : (D) Automatic stabilizers are changes that occur to fiscal policy that do not require any action on the part of the government, that is to say, they happen automatically, and no discretion is needed to determine whether or not something changes. For instance, when unemployment is high, expansionary fiscal policy is appropriate. If the government spending will go up automatically when expansionary fiscal policy is appropriate, this would be an example of an automatic stabilizer.

318.A progressive tax rate acts as ____ when the gross domestic product (GDP) is high and ____ when GDP is low.
(A) Expansionary monetary policy; contractionary fiscal policy
(B) Contrcationary fiscal policy; expansionary fiscal policy
(C) Contractionary fiscal policy; expansionary monetary policy
(D) Contractionary fiscal policy; contractionary fiscal policy
(E) Expansionary fiscal policy; contractionary monetary policy

ANS : (B) A progressive tax is an example of an automatic stabilizer. When incomes increase during an economic expansion, more incomes get pushed into higher marginal tax brackets, effectively acting as contractionary fiscal policy. On the other hand, when incomes decrease, people move into lower tax brackets, effectively acting as expansionary fiscal policy. Both occur without any action form the government.

319.In the market for loanable funds, the supply of loanable funds comes from ____ and the demand for loanable funds comes from ____.
(A) The government; private citizens
(B) Private citizens; the government
(C) Borrowers; savers
(D) Savers; borrowers
(E) The government; savers

ANS : (D) The market for loanable funds describes the market in which savings become investment. The supply of loanable funds comes from those who save and earn interest in exchange for their savings. The demand for loanable funds comes from those who wish to use those savings by borrowing money for either deficit spending by

the government or firms and individuals borrowing money in exchange for paying interest. Thus the interest rate (the price of borrowing) will change to bring the quantity demanded of loanable funds in line with the quantity supplied of loanable funds.

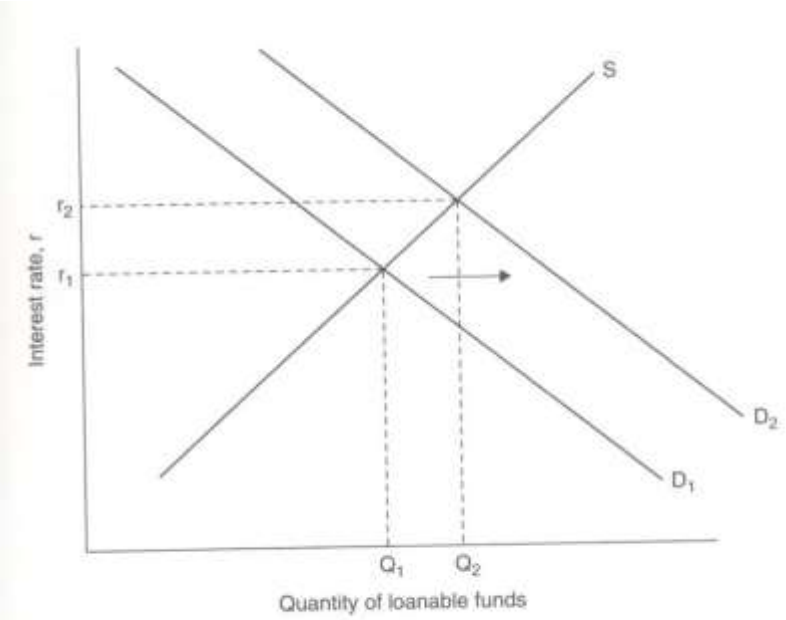


Figure 12.1

320.Refer to Figure 12.1. As a result of the change shown, what would happen if the interest rate was fixed?

(A) Borrowers would want to borrow more money than was available to lend.
(B) Lenders would want to borrow more money than borrowers wanted to lend.
(C) The quantity of loanble funds would increase.
(D) The quantity of loanable funds would decrease.
(E) Borrowers would want to borrow less money than lenders were willing to supply.

ANS : (A) In the market for loanable funds, if demand increases, the equilibrium interest rate will also increase. This occurs because when borrowers want to borrow more money, the borrowers will bid up the interest rate to attract more money to borrow. If this does not occur, lenders will not be willing to supply any more money, and a shortage of loanable funds would exist.

321.Refer to Figure 12.1. Which of the following could have caused the change shown?

(A) A decrease in government deficits
(B) An increase in private savings
(C) A large capital outflow from this economy to another country
(D) An increase in government borrowing
(E) A decrease in perceived business opportunities

ANS : (D) Figure 13.1 shows an increase in the demand for loanable funds. This can come from two possible sources. First, firms may perceive that there will be improved business opportunities in the future. This increases their incentive to invest, and thus the demand for loanable funds will increase as a result of their desire to borrow to fund investment spending. Second, this increase in the demand for loanable funds may be because of an increase in borrowing by the government.

322.The inhabitants of Maxistan notice that interest rates in their financial markets are lower than interest rates available to them in the neighboring nation of Ile. What effect will the actions of the savers of Maxistan have on the market for loanable funds in both countries?

(A) The demand for loanable funds in Maxistan will increase, the supply of loanable funds in Ile will decrease, and the interest rates in both countries will increase.

(B) The demand for loanable funds in Maxistan will increase, the supply of loanable funds in Ile will decrease, and the interest rates in both countries will increase.

(C) The supply of loanable funds in Maxistan will increase, the supply of loanable funds in Ile will decrease, and the interest rates in both countries will increase.

(D) The supply of loanable funds in Maxistan will increase, the supply of loanable funds in Ile will decrease, the interest rates in Maxistan will increase, and the interest rates in Ile will decrease.

(E) The supply of loanable funds in Maxistan will decrease, the supply of loanable funds in Ile will increase, and the interest rates in Maxistan will increase and the interest rate in Ile will decrease.

ANS : (E) This question is asking you how changes in capital inflows and outflows affect the market for loanable funds. If savers in Maxistan see higher interest rates in Ile, they will save their money in Ile, thus increasing the supply of loanable funds in Ile. This will simultaneously decrease the supply of loanable funds in Maxistan. As the interest rate in Ile falls, and the interest rate in Maxistan rises, this flow of financial capital will equilibrate interest rates in both nations.

323.According to the crowding out effect

(A) Deficit government spending decrease the interest rate, making investment more attractive

(B) Deficit government spending increases the interest rate, making investment less attractive

(C) Deficit government spending decreases the interest rate, making investment less attractive

(D) Balanced budget government spending increases the interest rate, making investment less attractive

(E) Balanced budget government spending decreases the interest rate, making investment more attractive

ANS : (B) The idea of the crowding out effect is that when government increases deficit spending, the resulting effect on interest rates will offset increases in aggregate demand. When governments engage in additional government spending, this causes aggregate demand to increase. However, if they engage in deficit spending, the government must borrow to pay for this spending. By borrowing, the government drives up the interest rate, thus crowding out private investment and consumption spending, which will decrease aggregate demand.

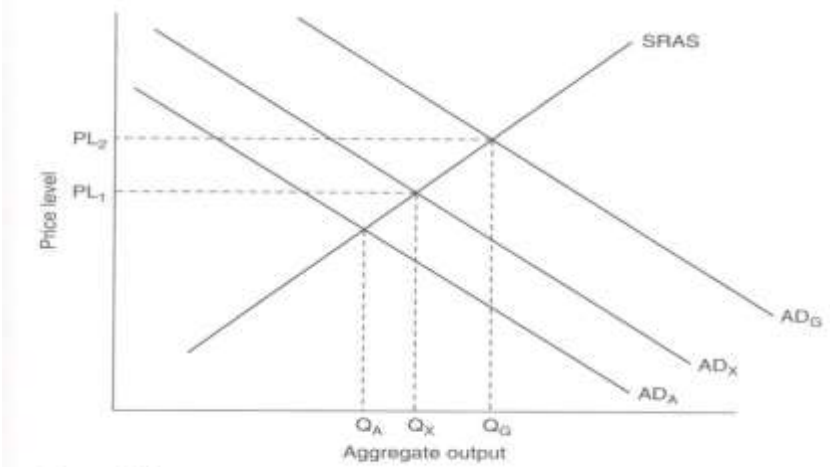


Figure 12.2

324. Refer to Figure 12.2. If an economy was initially producing a gross domestic product (GDP) of Q_A and engages in deficit spending, what happens in the economy?

(A) Aggregate demand initially decreases from AD_G to AD_A, and then increases to AD_X as a result of the crowding out effect.

(B) Aggregate demand initially increases from AD_A to AD_G, and then decreases to AD_X as a result of the crowding out effect.

(C) Aggregate demand initially increases from AD_X to AD_G, and then increases to AD_X as a result of the crowding out effect.

(D) Aggregate demand initially increases from AD_G to AD_X, and then increases to AD_G as a result of the crowding out effect.

(E) Aggregate demand initially decreases from AD_A to AD_X, and then decreases back to AD_A as a result of the crowding out effect.

ANS : (B) If an economy is initially producing at AD_A, an increase in government spending will increase aggregate demand because if an increase in the G component in aggregate demand, as represented by the curve AD_G. However, if this government spending is not paid for out of tax revenues, the government will have to borrow money. This will increase the interest rate in the market for loanable funds. As a result of the increase in the interest rate investment spending (the I component of GDP) falls, and the increase in aggregate demand will be somewhat reduced, as shown by the slight shift to the left of AD to AD_X.

325. Refer to Figure 12.2. Which of the following is an explanation as to why, after increasing from AD_A to AD_G, aggregate demand could shift back down to AD_X?

I. As a result of deficit spending, net exports decreased.

II. As a result of an increase in the supply of loanable funds, investment spending decreased.

III. As a result of deficit spending, the demand for loanable funds increased.

(A) I only

(B) II only

(C) III only

(D) II and III only

(E) I and III only

ANS : (E) The shift from AD_A to AD_G is an expansion, but the subsequent shift back to AD_X is the result of the crowding out effect. Crowding as a result of deficit government spending can come from two sources. First, an increase in interest rates can crowd out private investment. Second, the increase in interest rates will make purchasing securities (which earn that higher interest rate) more attractive to foreign investors. Suppose this represented the United States, and Treasury bills are now more attractive to foreign investors. However, to buy those securities, foreign investors will need to have US dollars. When foreign investors purchase dollars, it drives up the value of the dollar. This will in turn make our exported goods more expensive, and so exports may decrease.

326. According to the Fisher effect, which of the following is true?

(A) An increase in expected future inflation will cause the supply of loanable funds to decrease and the demand for loanable funds to decrease.

(B) An increase in expected future inflation will cause the supply of loanable funds to decrease and the demand for loanable funds to increase.

(C) An increase in expected future inflation will cause the supply of loanable funds to increase and the demand for loanable funds to increase.

(D) An increase in expected future inflation will cause the supply of loanable funds to increase and the demand for loanable funds to decrease.

(E) A decrease in expected future inflation will cause the supply of loanable funds to decrease and the demand for loanable funds to increase.

ANS : (B) The Fisher effect states that an increase in the expected rate of inflation will have no effect on real interest rates. For example, suppose initially there is no expected inflation, so the current real rate is the same as the nominal rate of interest and is equal to 5%. In response to expected inflation of 10%, the demand for loanable funds will increase (shift up) by a 1% increase in the nominal rate for every 1% increase in inflation. The supply of loanable funds will also decrease by a 1% decrease in the nominal rate for every 1% increase in inflation. Therefore, a new equilibrium nominal interest rate will exist at 10% higher than before, or 15%. However, the real rate of interest = nominal rate of interest – inflation, so here $5\% = 15\% - 10\%$, so the real rate of interest has not changed.

327. When the federal government borrows money to finance deficit spending, the increases interest rate will ____ through an effect known as the ____.

(A) Decreased private investment; crowding out effect

(B) Increases private investment; multiplier effect

(C) Increase the money supply; money multiplier effect

(D) Decrease tax rates; tax multiplier effect

(E) Increase the money supply; money neutrality

ANS : (A) The crowding out effect offsets the positive impact of deficit government spending on the GDP. When governments must borrow, this drives up the interest rates, which discourages investment (I) by private firms. As a result, even though the G category of aggregate demand increases, the I category decreases, partially (or even completely) offsetting the increase in GDP due to the expansionary fiscal policy.

328. When economies are in recessions, they tend to experience ____ and when they are in expansions, they are more likely to run ____. For this reason, it may be useful to separate out the effects of discretionary fiscal policy using the ____.

(A) Deficits; surpluses; cyclically balanced budget

(B) Surpluses; deficits; cyclically balanced budget

(C) Deficits; debts; cyclically balanced budget

(D) Inflation; deflation; monetarily balanced budget

(E) Disinflation; deflation; monetarily balanced budget

ANS : (A) When economies are in recession, they tend to automatically run deficits, because automatic stabilizers tend to increase government spending during recessions and decrease tax revenues during recessions. When economies are in expansions, they are more likely to experience surpluses, since government spending decreases during expansions and tax revenues increase during expansions. Therefore, it may be of more interest as to whether an economy has balanced budget on average over the course of the entire business cycle, rather than having a balanced budget regardless of where an economy is in the business cycle.

329. Keynesian theory says that discretionary fiscal policy should ____ to fight recessions, classical macroeconomics says that discretionary policy should ____ to fight recessions, and the modern consensus is that discretionary fiscal policy should ____.

(A) Never be used; always be used; be used only in special circumstances

(B) Always be used; be used only in special circumstances; never be used

(C) Never be used; never be used; be used only in special circumstances
(D) Always be used; never be used; only be used in special circumstances
(E) Always be used; always be used; never be used

ANS : (D) According to Keynesian theory, expansionary fiscal policy is useful to fight recessions because on the Keynesian portion of the segmented aggregate supply curve, this will lead to increases in aggregate demand and no corresponding increase in inflation. According to classical economics, however, no discretionary policy of any kind should ever be used, since prices will always adjust in the long run and output will return to full employment on the vertical long−run aggregate supply (LRAS) curve. The modern consensus says that discretionary fiscal policy to affect the business cycle is probably not a good idea unless circumstances are exceptional (such as particularly severe recessions), as problems such as policy lags may cause more harm than good in the long run.

330. Which combination of fiscal policy and monetary policy might have contradictory effects on inflation?

Fiscal policy	Monetary Policy
(A) Decrease taxes	Increase the money supply
(B) Decrease government spending	Increase the money supply
(C) Decrease government spending	Decrease the money supply
(D) Increase the money supply	Decrease government spending
(E) Increase the money supply	Increase taxes

ANS : (B) The effect of decreasing government spending on the macroeconomy is that aggregate output would decrease, unemployment would increase, and the price level may decrease. However, increasing the money supply would decrease the interest rate, which would increase investment, increase aggregate output, decrease unemployment, and increase the price level. Therefore, these two actions, if they occurred simultaneously, might counteract each other.

331. Which of the following actions would undermine attempts by the Federal Reserve to control inflation?
I. If the government increased taxes
II. If the government decreased government spending
III. If the government used a surplus to pay down debt
(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II and III

ANS : (C) If the Federal Reserve wanted to control inflation, it would act to increase interest rates by decreasing the money supply. If the government decreased government spending, this would also lessen inflationary pressures, perhaps by increasing tax rates. However, if the government paid down debt with a budget surplus, the demand for loanable funds would decrease. This would drive the interest rate down, which would increase the investment component of aggregate demand and put upward pressure on the price level.

332. Which of the following would decrease the size of the tax multiplier?
(A) A higher proportional tax
(B) A lower proportion tax
(C) The more people save from each additional dollar of income

(D) The less people save from each additional dollar of income

(E) The less people spend from each additional dollar of income

ANS : (C)The larger the marginal propensity to consume (MPC) is, the larger both the spending multiplier (M) and the tax multiplier (Tm) will be. The formula for the spending multiplier is $M = 1/(1 – MPC)$, and the formula for the tax multiplier is $Tm = -MPC \times M$. If the MPC is 0.75, then M is 4 and Tm is −3. However, if the MPC is 0.8, then M is 5 and Tm is -0.8×5, or −4. If the people save more money and therefore spend less of each additional dollar of income, the MPC is lower and thus so is Tm.

333. Which of the following fiscal policies would decrease interest rates?

(A) The government increases government spending and increases its borrowing.

(B) The government collects more in tax revenue than it spends and uses it to pay down national debt.

(C) The government increases government spending but does not increase taxes.

(D) The government decreases government spending and decreases taxes by the same amount.

(E) The government places strict limits on saving.

ANS : (B) When governments run a balanced budget, that is, the amount of tax revenue is equal to the amount of government spending, then all else equal, there is no effect on the interest rate. However, if the government runs a deficit, it must borrow money, which drives up interest rates. On the other hand, if the government runs a surplus and uses this to pay down debt, this will decrease interest rates.

334. Most economists believe that discretionary expansionary fiscal policy ____ the rate of unemployment in the ____.

(A) Has no effect on; short run

(B) Increases; long run

(C) Has no effect on; long run

(D) Increases; short run

(E) Has no effect on; short run or long run

ANS : (C) Most economists believe that discretionary fiscal policy can have an effect on unemployment in the short run. However, the long−run rate of unemployment is tied to the full employment level of output, which is tied to a country's stock of the factors of production. Without changing one of these directly, discretionary policy would have no effect on employment in the long run.

335. The gross domestic output of Teragram is $400 million, but the full employment output of Teragram is $500 million. If the marginal propensity to save is 0.2, what is the effect of a $20 million increase in government spending?

(A) Gross domestic product (GDP) will increase by $20 million if the increase in government spending is paid for by raising $20 million in tax revenue, and as a result interest rates will increase.

(B) GDP will increase by $20 million if the increase in government spending is paid for by borrowing, and as a result interest rate will increase.

(C) GDP will increase by $80 million if the increase in government spending is paid for by raising $20 million in tax revenue, and interest rates will remain unchanged.

(D) GDP will initially increase by $100 million if the increase in government spending is not paid for by raising tax revenues, and as a result interest rates will rise, lowering private investment and decreasing GDP.

(E) GDP will initially increase by $100 million if the increase in government spending is not paid for by raising tax revenues, and as a result interest rates will rise, attracting more investment and further increasing GDP.

ANS : (D) If the marginal propensity to save in Teragram is 0.2, then the marginal propensity to consume is 0.8, the spending multiplier is 5, and the tax multiplier is −4. Therefore, if the government pays for spending by raising taxes (i.e., a "balanced budget" policy), this will not increase interest rates and drive down investment, but will only increase GDP by $20 million. On the other hand, the government spending is paid for by borrowing, and the spending multiplier of 5 will magnify this effect to eventually increase gross domestic product by $100 million. However, the crowding out effect (rising interest rates in the market for loanable funds) due to the borrowing will dampen the total impact of the expansionary fiscal policy by reducing investment spending.

336. After the nation of Ile increased government spending by $100 million dollars, the gross domestic product (GDP) of Ile increased by $150. If the marginal propensity to consume in Ile is 0.5, which of the following is possible?

I. Ile ran a deficit to increase spending by $100 million and financed this deficit through borrowing, and the crowding out effect in Ile is larger than the multiplier effect.

II. Ile ran a deficit to increase spending by $100 million, increase taxes by $50 million, and borrowed $50 million.

III. Ile ran a deficit to increase spending by borrowing the full amount, and the crowding out effect is smaller than the multiplier effect.

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) II and III only

ANS : (C) If government spending is $100 million and the marginal propensity to consume is 0.5, this means that the multiplier (M) $= 1/(1 - 0.5) = 2$ and the tax multiplier is $\text{Tm} = -0.5 \times 2 = -1$. Therefore, if this policy is financed solely through deficit spending and borrowing the net effect on GDP will be the difference between the initial $200 million increase in GDP and the crowding out effect. If the crowding out effect were larger than the multiplier, the net effect on GDP would be negative (i.e. GDP would decrease rather than increase). If Ile financed increased taxes by $50 million, the net effect on GDP would be ($100 million $\times$ 2) − (1 $\times$ $50 million) = $150 million, less the impact of the crowding out effect. Therefore, only the third option is possible.

337. Which of the following is an advantage that discretionary monetary policy has over discretionary fiscal policy?

(A) Discretionary monetary policy suffers from serious lags.
(B) Discretionary monetary policy could be subjected to a liquidity trap.
(C) National fiscal policy may be offset by state and local policies.
(D) Discretionary monetary policy takes a long time to implement.
(E) Fiscal policy affects only the government spending component of GDP; while monetary policy affects only the investment component.

ANS : (C) There is no national stature in the United States that requires a balanced budget. Many state and local municipalities, however, do have such legal requirements. This means that while automatic stabilizers can allow the federal budget to run at a deficit, state and local governments with such laws cannot. Therefore, even if the

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federal government cuts taxes to stimulate spending during a recession, local cash−strapped governments may be increasing taxes (or decreasing spending) and offset some of the increase in GDP from government spending.

Use Table 12.1 for questions 411−413.

Table 12.1

Increase in National Income	Additional Consumption Spending
$100	**$75**
$200	**$150**
$300	**$225**
$400	**$300**

338. The marginal propensity to consume in the nation described by Table 12.1 is equal to

(A) 1
(B) 0.75
(C) 3
(D) 0.67
(E) 0.25

ANS : (B) At the national level, the marginal propensity to consume (MPC) is the change in consumption spending divided by the change in national income, or $\Delta C/\Delta NI$. Table 12.1 shows us that for every $100 increase in income, that consumption rises by $75 so the MPC $= \Delta C/\Delta NI = \$75/\$100 = 0.75$.

339. Refer to the data in Table 12.1. Which of the following policies would, all else equal, increase gross domestic product (GDP) in this nation by $2,400?

(A) Increase government spending by $600
(B) Increase government spending by $400
(C) Decrease taxes by $1,200
(D) Increase government spending by $600 and increase taxes by $600
(E) Decrease taxes by $600

ANS: (A) Using Table 12.1, we determine that the marginal propensity to consume (MPC) is equal to 0.75. This allows us to compute spending multiplier (M) of 4 and the tax multiplier (Tm) of −3. An increase in GDP of $2,400 could be the result of three policy options. First, there could be an increase of government spending equal to $2,400 with a corresponding increase in taxes of $2,400. Because the balanced budget multiplier is equal to 1, this would increase GDP by $2,400. Second, because the tax multiplier is −3, we could decrease taxes by $800, which would multiply by a factor of 3 to increase GDP by $2,400. Finally, we could increase government spending by $600, which would multiply by a factor of 4 to increase GDP by $2,400.

340. Refer to Table 12.1. Suppose that the economy is currently experiencing an inflationary gap of $1,800. How could the economy return top fall employment?

(A) Increase government spending by $45 with no change in taxes
(B) Decrease government spending by $1,800 and increase taxes by $1800
(C) Increase taxes by $450 with no change in government spending
(D) Decreases government spending by $450 and decrease taxes by $450
(E) Increase taxes by $600 with no change in government spending

ANS : (E) An inflationary gap means that economy is currently producing $1,800 more than full employment GDP. If government policy makers wish to return the economy to full employment, they must reduce aggregate demand with higher taxes, lower government spending or both. Because the MPC is 0.75, the spending multiplier is 4 and the tax multiplier is −3. A reduction in government spending of $450 would reduce GDP by $1,800 (4 × $450) or an increase in taxes equal to $600 would reduce GDP by $1,800 (3 × $600).

341. It takes several months for government economists to gather enough data to declare that a recession is underway. By this time, discretionary fiscal policy may be ineffective. This problem is referred to as

(A) A developmental lag
(B) An implementation lag
(C) Crowding out
(D) A recognition lag
(E) A legislative lag

ANS : (D) Economic data gathering is always months behind the business cycle, so the beginning of a recession is always dated in hindsight. If the recession has already begun, and economists have not yet recognized it, this recognition lag can hinder the effectiveness of fiscal or monetary policy. By the time the political decisions are made and spending programs are implemented, these further lags reduce policy effectiveness.

CHAPTER 11

The Relationship between Inflation and Unemployment

342. Which of the following is the best description of the short−run Phillips curve?

(A) At high rates of interest people demand less money, and at low rates of interest people demand more money.
(B) As prices and expectations adjust, inflation has no impact on the level of unemployment.
(C) In the short run, high rates of unemployment are associated with low levels of inflation.
(D) As the price of Phillips screwdrivers increases, people will buy less screwdrivers.
(E) The flow of money through an economy can be replicated using water.

ANS : (C) The short run Phillips curve (SRPC) is a downward sloping curve that illustrates the short run relationship between inflation and unemployment. According to the SRPC, as the rate of inflation increases, the unemployment rate decreases, and likewise, as the unemployment rate increases, the inflation rate decreases. The SRPC has its origins in the observations of the apparent relationship between wages and unemployment in several countries. Similar to the difference between short run aggregate supply and the long run aggregate supply curves, you should consider what is actually occurring at the SRPC in relation to what can potentially happen (the LRPC).

343. What would be the short−run effect on the Phillips curve model of a decrease in investment spending?

(A) A movement up (or leftward) along the short−run Phillips curve
(B) A decrease (or leftward) shift of the short−run Phillips curve
(C) An increase (or rightward) shift of the short−run Phillips curve
(D) A movement down (or rightward) along the short−run Philips curve
(E) A movement up along the long−run Phillips curve

ANS : (D) When there is a decrease in investment spending, which is a component of aggregate demand, there is a decrease in output and as a result a decrease in employment. Note that in the aggregate demand/ aggregate supply model, there is also a decrease in the price level when aggregate demand decreases. Therefore, when aggregate demand shifts to the left, there is a decrease along the short run Phillips curve.

344. Which of the following describes the long–run Phillips curve?

(A) An upward sloping curve that intersects the unemployment rate axis at 0% unemployment
(B) A vertical curve that is vertical at the natural rate of unemployment
(C) A horizontal curve that is horizontal at the natural rate of inflation
(D) A downward sloping curve that is slightly to the right of the short–run Phillips curve
(E) A downward sloping curve that is slightly to the left of the short–run Phillips curve

ANS : (B) The long run Phillips curve (LRPC) is derived from the fact that the long run aggregate supply curve is vertical at the natural rate of unemployment, and as a result the LRPC is also vertical at the natural rate of unemployment. This LRPC also represents the rate of unemployment that is associated with a stable rate of inflation.

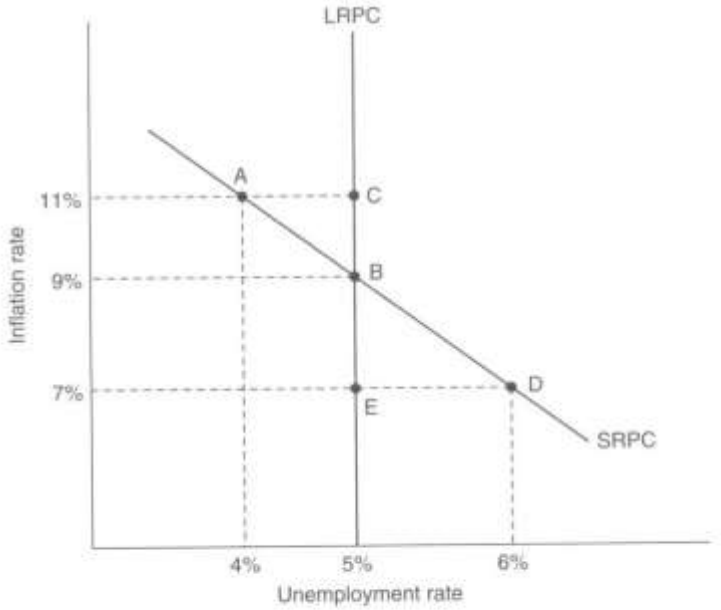


Figure 13.1

345. Refer to Figure 13.1. Which of the following points represents an economy in recession as a result of a decrease in aggregate demand?

(A) A
(B) B
(C) C
(D) D
(E) E

ANS : (D) When an economy is in long run equilibrium, this is represented on a Phillips curve graph as a point that is at the intersection of the long run Phillips curve (LRPC) and the short run Phillips curve (SRPC). When an

economy is in recession, output decreases and as a result, unemployment increases above the natural rate of unemployment. When a recession results from a decrease in aggregate demand, there is also a decline in the price level. Therefore, a point in a Phillips curve graph that represents an economy in recession must be to the right of the long run Phillips curve (so that unemployment is higher than the natural rate of unemployment) and moving along the SRPC to a lower level of inflation

346. Refer to Figure 13.1. According to this graph, what is the NAIRU and what is the natural rate of unemployment?

(A) NAIRU $= 5\%$, natural rate of unemployment $= 5\%$
(B) NAIRU $= 5\%$, natural rate of unemployment $= 7\%$
(C) NAIRU $= 5\%$, natural rate of unemployment $= 4\%$
(D) NAIRU $= 11\%$, natural rate of unemployment $= 6\%$
(E) NAIRU $= 9\%$, natural rate of unemployment $= 5\%$

ANS: (A) The long run Phillips curve (LRPC) is vertical at the natural rate of unemployment. In Figure 13.1, the LRPC is vertical at 5 percent. The acronym NAIRU stands for non−accelerating inflation rate of unemployment, meaning that the rate of unemployment that is consistent with inflation not permanently increasing. The NAIRU, therefore, is the same as the natural rate of unemployment.

347. Refer to Figure 13.1. If the economy was initially at full employment output and then experienced a 1 percent decrease in unemployment, what would happen to the price level?

A) The price level would be unchanged.
B) The price level would increase by 2 percent.
C) The price level would increase by 1 percent.
D) The price level would decrease by 1 percent.
E) The price level would decrease by 2 percent.

ANS : (B) If the economy is at full employment on the graph, then the point that represented the current state of the economy is on the short run Phillips curve (SRPC) as well as on the long run Phillips curve which would be point B in Figure 13.1. If the unemployment rate decreases one percent, we move along the SRPC to a point that is 1 percent lower, which would be point A. Point A is associated with an inflation rate of 11 percent, which is 2 percent higher than at point B.

348. Which of the following could cause the short−run Phillips curve to shift to the right?

(A) A decrease in the price of oil
(B) An increase in the price of oil
(C) An increase in the cost of investment
(D) An increase in consumption spending
(E) An increase in net exports

ANS : (B) Movements along the short run Phillips curve (SRPC) are associated with changes in aggregate demand, and shifts in the SRPC are associated with changes in short−run aggregate supply (SRAS). Recall from the AD−AS model that when SRAS decreases (or shifts to the left), output decreases and the price level increases. This means that when SRAS decreases, unemployment increases and inflation increases. Therefore, a decrease (or leftward shift) in SRAS is associated with an increase (or rightward shift) in the SRPC. An increase in the price of oil would cause a decrease in the SRAS and therefore would cause a rightward shift in the SRPC.

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349.If people expect that inflation is going to be 5% this year, they will try to get an increase in wages of 5% in anticipation of the higher prices. Seeking higher wages in fact will cause the inflation. This is the concept that underlies

(A) Great expectations
(B) Adaptive expectations
(C) Mutual expectations
(D) Production expectations
(E) Rational expectations

ANS : (E) Rational expectations theory says that people anticipate future inflation. That is to say, if people expect there is to be inflation in the future, they will take actions to protect themselves from future inflation. For instance, people may make purchases today instead of next year if they anticipate prices to be higher next year, and they will negotiate higher wages so that their real wage will not decrease. Of course, by taking these actions, the price level is driven up, making these expectations self−fulfilling.

350.Stagflation would cause which change?

(A) A leftward shift of the long−run Phillips curve
(B) A rightward shift of the long−run Phillips curve
(C) A leftward shift of the short−run Phillips curve
(D) A rightward shift of the short−run Phillips curve
(E) A leftward rotation of the short−run Phillips curve

ANS : (D) Stagflation is a term for when output is decreasing and inflation is increasing. In the AD−AS model, this occurs when the short−run aggregate supply shifts leftward. When output is decreasing, but inflation is going up, this can be represented on the Phillips curve model only as a rightward shift in the short run Phillips curve.

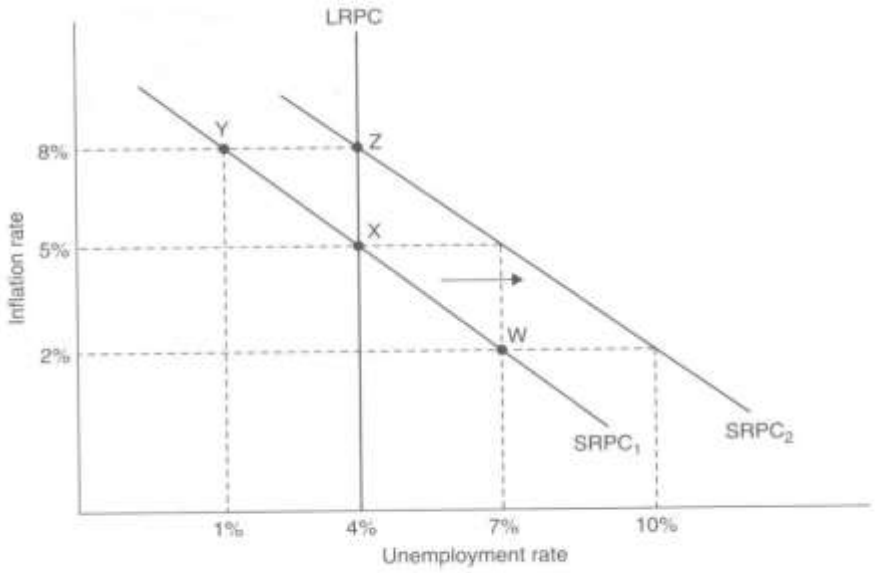


Figure 13.2

351. Refer to Figure 13.2. What could have caused the shift indicated?

(A) A decrease in expectations of inflation
(B) A decrease in the price of energy
(C) A positive supply shock
(D) An increase in the price of factors of production
(E) An increase in investment spending

ANS : (D) Figure 13.2 shows a rightward shift of the short run Phillips curve (SRPC). Consider point Y on the initial SRPC: it is associated with an inflation rate of 8% and an unemployment rate of 1%. However, when the SRPC shifts, point Z represents a point where inflation is still 8%, but unemployment is higher. This means that in the AD−AS model, something must have happened that would be associated with decreased output and an increased price level, which can only happen when SRAS decreases, which occurs when the price of a factor of production increases.

352. Refer to Figure 13.2. What would cause the move from point X to point Y?

(A) Short−run aggregate supply unexpectedly increased.
(B) Short−run aggregate supply unexpectedly decreased.
(C) Aggregate demand suddenly increased.
(D) Aggregate demand suddenly decreased.
(E) Long−run aggregate supply unexpectedly decreased.

ANS : (C) The movement from point X to point Y is a movement along the short run Phillips curve (SRPC), which is associated with an increase in inflation and a decrease in unemployment (and implicitly an increase in output). This would be associated with an increase, or rightward shift, in aggregate demand (AD). Leftward movements up an SRPC curve are associated with positive AD shocks, and rightward movements down an SRPC curve are associated with negative AD shocks.

353. Refer to Figure 13.2. What could cause the move from point Y to point Z?

I. Expectations of inflation adjust to higher levels of inflation.
II. Workers start demanding higher wages as their real wages decrease.
III. Consumption spending decreases.

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II and III

ANS : (D) The move from point Y to point Z in Figure 13.2 is the result of a shift in the short run Philips curve from $SRPC_1$ to $SRPC_2$. Recall that a rightward shift in SRPC is associated with a decrease in short run aggregate supply (SRAS). Decrease in SRAS are associated with an increase in the price of any of the factors of production, or even an expectation of an increase in the price of the factors of production, so either I or II could have caused the change shown.

354. Refer to Figure 13.2. Suppose a government tried to keep the unemployment rate below the non−accelerating inflation rate of unemployment (NAIRU). What would be the effect on the natural rate of unemployment in the long run?

(A) There would be no effect.
(B) Unemployment would increase to 7%.

(C) Unemployment would decrease to 1%.
(D) Unemployment would increase to 10%.
(E) Unemployment would decrease to 0%.

ANS : (A) The non−accelerating rate of unemployment (NAIRU) is the rate of unemployment that will not lead to expectations of future inflation. The NAIRU in Figure 13.2 is 4%. If the government attempted to keep the rate of unemployment below 4%, inflation would increase. As people come to accept this new higher rate of inflation (and thus their expectations have incorporated higher price), the short−run aggregate supply curve will shift to the left. As a result, the short run Phillips curve will shift to the right, returning the unemployment rate back to the NAIRU in the long run and with a permanently higher rate of inflation.

355. Refer to Figure 13.2. Suppose a government tried to keep inflation below 8% after the shift in the short−run Phillips curve (SRPC). What would the resulting effect on the price level be called?
(A) Inflation
(B) Hyperinflation
(C) Disinflation
(D) Deflation
(E) No effect

ANS : (C) It is important to note that the y−axis on a Phillips curve model is a rate of inflation, not a price level. At the new equilibrium after the shift in the short run Phillips curve, the rate of inflation is 8%, meaning that prices are increasing 8% every year. While choice D is tempting, it is incorrect because for there to be deflation, the inflation rate must be negative showing a decrease in prices, rather than a decrease in the rate.

356. Refer to Figure 13.2. What would the unemployment rate need to be for inflation to remain at 5% after the shift in the short−run Phillips curve (SRPC) in the short run?
(A) 1%
(B) 4%
(C) 5%
(D) 8%
(E) 7%

ANS : (E) After the shift in the short−run Phillips curve, the new equilibrium at the natural rate of unemployment is associated with a permanently higher rate of inflation of 8%. If the government wanted to decrease the rate of inflation, in the short run it would have to make policies that would also lead to an increase in the unemployment would be at 7%, rather than 4%.

357. Describe what would happen in the Phillips curve model if a country suddenly experienced an economic expansion due to an increase in net exports.
(A) The unemployment rate will increase along with an accompanying increase in inflation as the economy moves down along the long−run Phillips curve.
(B) The unemployment rate will increase along with an accompanying increase in inflation as the economy moves down along the short−run Phillips curve.
(C) The unemployment rate will decrease along with an accompanying increase in inflation as the economy moves down along the long−run Phillips curve.
(D) The unemployment rate will decrease along with an accompanying increase in inflation as the economy moves up along the short−run Phillips curve.

(E) The unemployment rate will decrease along with an accompanying decrease in inflation as the economy moves down along the long−run Phillips curve.

ANS : (D) If an economy experiences a sudden increase in net exports, this would result in an increase in the aggregate demand (AD) curve in the AD−AS model. This increase in AD would lead to a movement up along the short−run Phillips curve, as an increase in AD will lead to higher output (and thus lower unemployment) but also create inflationary pressure on the price level.

358. An economy is currently experiencing inflation of 6%, and the NAIRU in this economy is known to be 10%. The current rate of unemployment in the economy is equal to the natural rate of unemployment. If people had anticipated inflation of 6%, which will occur?

(A) There will be no change in either the rate of inflation or the rate of unemployment.

(B) There will be a new anticipation of higher inflation in the future, and as a result, there will be a ratcheting up of a long−run Phillips curve.

(C) There will be a new anticipation of higher inflation in the future, and as a result, there will be a ratcheting up of the short−run Phillips curve.

(D) There will be a new anticipation of lower inflation in the future, and as a result, there will be a shifting down of the long−run Phillips curve.

(E) There will be a new anticipation of lower inflation in the future, and as a result, there will be a shifting up of the long−run Phillips curve.

ANS : (A) If the current rate of unemployment is equal to the natural rate of unemployment, then the current rate of unemployment is equal to the NAIRU, or the non−accelerating inflation rate of unemployment. That means that this level of unemployment is not associated with increases or decreases in the rate of inflation. Moreover, if the level of inflation was expected, there would be no reason for people to adjust their expectations and shift the short−run Phillips curve.

359. Which of the following statements, according to the Phillips curve model, is true?

(A) It is possible to have policies that keep unemployment at rates lower than the natural rate of unemployment, but this will lead to deflation.

(B) It is possible to have policies that keep unemployment at rates lower than the natural rate of unemployment; this will lead to deflation in the short run but not the long run.

(C) It is possible to have policies that keep unemployment t rates lower than the natural rate of unemployment, but this will lead to disinflation.

(D) It is possible to have policies that keep unemployment at rates lower than the natural rate of unemployment, but this will lead to decreases in the natural rate of unemployment.

(E) It is possible to have policies that keep unemployment at rates lower than the natural rate of unemployment, but this will lead to constantly increasing rates of inflation.

ANS : (E) Whenever policies are used to keep the unemployment rate below the NAIRU, the result will be unanticipated inflation. As people adjust their expectations of inflation, the short run Phillips curve will shift out. Further attempts to keep an artificially low level of unemployment will only continue this cycle, leading to a "ratcheting" effect as inflation rates continue to increase.

CHAPTER 12

Growth and Productivity

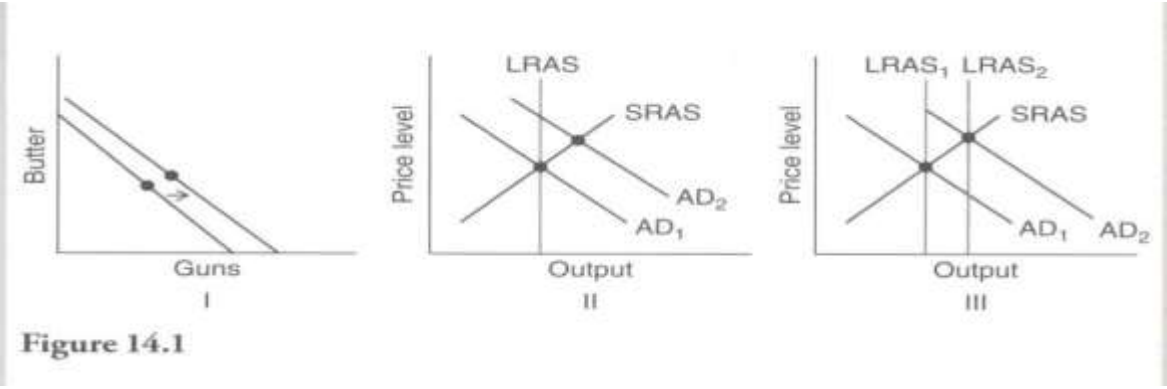


Figure 14.1

360.Refer to Figure 14.1. Which of the following demonstrates economic growth?

(A) I only
(B) II only
(C) III only
(D) I and III only
(E) I, II and III

ANS : (D) Economic growth is defined as the sustained ability to produce more goods and services. Economic growth can be illustrated in both the production possibilities frontier (PPF) model and the AD−AS model. In a PPF model, growth is shown by a shift out of the PPF curve. In an AD−AS model, economic growth is represented by an increase in the long−run aggregate supply curve.

361.Refer to Figure 14.1. Which of the following demonstrates an increase in output?

(A) I only
(B) II only
(C) III only
(D) II and III only
(E) I, II and III

ANS : (E) Note that while all three graph show an increase in output, not all three of the graphs show economic growth. A common misperception is that an increase in output, or GDP, is economic growth: the key here is how sustainable this increase is. In the second graph (II), this shows an economic expansion and increase in output. However, the economy has not had a change in its ability to produce goods and services, and it will eventually return to the initial level of output.

362.An economy has a gross domestic product (GDP) of $100 million and is growing at the rate of 5% per year. In how many years will the GDP of this economy be $200 million?

(A) 20 years
(B) 7 years
(C) 14 years
(D) 100 years
(E) 25 years

ANS : (C) One could go through the tedious process of calculating growth year by year: after 1 year, the GDP would be \$100 million + (\$100 million $\times$ 0.05) = \$105 million: then after 2 years, the GDP would be \$105 million + (\$105 million $\times$ 0.05) = \$110.25 million and so on. However, there is a handy shortcut called the "rule of 70" that can be used instead. This rule says that if you divide the number 70 by the rate of growth, this gives you the doubling time of the economy. Here, the rate of growth is 5% per year, so 70/5 = 14 means that the economy will double in size in 14 years.

363.The economy of Ile went from \$375 billion in 10 years. Therefore, the annual rate of growth in Ile is

(A) 20%
(B) 10%
(C) 7%
(D) 70%
(E) 2%

ANS : (C) This question is another application of the rule of 70. Note that \$375 billion is one half of \$750 billion, so the economy of Ile has doubled. Recall that this rule says that if you divide the rate of growth by 70, you get the annual rate of growth, so if the economy of Ile doubled in 10 years, let x represent the rate of growth: 70/x =10. Solving for x yields $x = 7$; therefore, the annual rate of growth was 7%.

364.All else equal, which of the following would not lead to economic growth?

(A) An increase in consumption
(B) An increase in the number of workers
(C) An increase in the skills of workers
(D) An improvement in technology
(E) An increase in the stock of machinery

ANS : (A) Economic growth is represented by an increase (outward shift) of the long run aggregate supply (LRAS) cure. Recall that the LRAS will increase whenever there is an increase in the stock of the factors of production. Consumption, however, is a component of aggregate demand. While an increase in consumption might lead to an increase in the aggregate demand curve and a short−run increase in output, it would not increase LRAS and therefore would not be growth.

365.A nation is not producing enough capital to replace the capital that is depreciating. What will be the likely effect of this?

(A) The production possibilities curve will increase.
(B) The long aggregate supply curve will increase.
(C) The short run aggregate supply curve will increase.
(D) The long run aggregate supply curve will decrease.
(E) Aggregate demand will increase.

ANS : (D) Capital depreciates over time, meaning that if capital is not replaced, the stock of capital will start decreasing. Maintaining a capital stock, therefore, requires enough investment to maintain the stock of capital. If there is inadequate investment, the stock of capital will eventually decline, and this would cause a decrease in the long run aggregate supply curve.

366.An increase in technology will allow a nation to produce more

(A) Even if it does not have more land, labor, or capital
(B) Only if it has more of all of the factors of production

(C) Only if it has more capital
(D) Only if it has more land
(E) Only if it has more labor

ANS : (A) When economists use the term technology, they are referring to the ability to combine the other factors of production into the goods and services. Therefore, an improvement in technology is an ability to produce more given the same amount of resources. Of course, technology can increase at the same as any (or all) of the other factors of production, but an increase in technology alone can lead to an increase in output.

367. Which of the following has been identified as being a more significant source of growth than the other options over the past 100 years?
(A) An increase in the stock of physical capital
(B) An increase in the stock of human capital
(C) An increase in the energy resources
(D) An increase in the water resources available
(E) An increase in the number of factories

ANS : (B) Growth economists have identifies two key drivers of growth in modern history: improvements in human capital and technological change. Human capital refers to not just the physical stock of labor (i.e., the quantity of labor), but also the effective quantity of labor. That is, human capital doesn't count just people but also the abilities of a workforce, including their health, education, and skills. Most analysis of growth accounting has identified improvements in human capital as one of the major drivers of growth.

368. Which of the following would lead to a decrease in the long run aggregate supply of a country?
(A) A decline in literacy rates
(B) An increase in immigration
(C) Discovery of a new source of energy
(D) A decrease in taxes on investment
(E) An increase in technology

ANS : (A) A decrease in literacy rates would be decreasing the stock of human capital in the country, Decreasing the productivity of the country. All else equal, an increase in immigration would lead to an increase in growth as the stock of labor is larger. The same would be true of an increase in the technology available or the discovery of a new source of energy. A decrease in taxes on investment would stimulate investment in capital, which would increase growth.

369. Which of the following policies would be likely to lead to economic growth?
(A) A tax on higher education
(B) A tax on nondurable consumption goods
(C) A tax on capital expenditures
(D) A tax on basic health care
(E) An additional tax on the income of immigrants

ANS : (B) If there is a tax on consumption of nondurable consumption goods, this will discourage spending on these goods. Since income can be only spent or saved, this will increase savings, which will increase investment and increase the stock of capital. An additional income tax on immigrants would discourage immigration and lead to lower labor supply. A tax on health or education would also decrease the stock of human capital.

370. Which of the following effects would be the most likely to decrease growth?

I. The crowding out effect
II. The government spending multiplier
III. The tax multiplier

(A) I only
(B) II only
(C) III only
(D) I and III only
(E) II and III only

ANS : (A) The crowding out effect is when government spending is increased without a corresponding increase in taxes. The government finances this spending by borrowing, which drives up the interest rate. When the interest rate increases, the incentive to invest decreases and there will be less investment in capital. If capital is not replaced, the stock of capital will decrease, which will decrease the rate of growth.

371. Maxistan has experienced economic growth. As a result of this growth, which of the following statements is most likely to be true?

(A) Maxistan has experienced a decline in immigration.
(B) Maxistan has fewer factories operating and producing less pollution.
(C) Mxistn will have to produce a higher amount of output to fully use its resources.
(D) Maxistan has implemented policies restricting land use.
(E) Maxistan has eliminated free primary education.

ANS : (C) An increase in economic growth means that there is an increased ability to produce goods and services, and it is represented by a shift in the long run aggregate supply curve to the right. Such a shift will increase the full employment rate of output to move to a higher level. This means that if Maxistan has an increased ability to produce more, but does not produce more, it does not employ all of its resources.

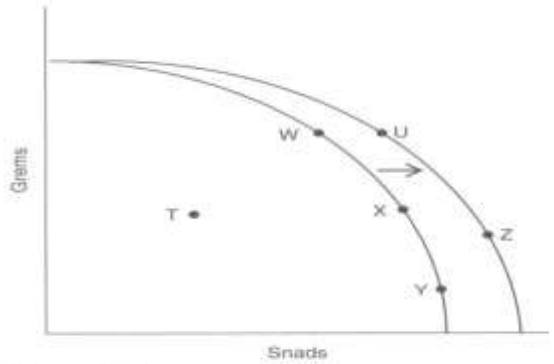


Figure 14.2

372. Refer to Figure 14.2. Suppose this economy is initially at point X. Which of the following points would be consistent with this economy experiencing economic growth?

(A) U only
(B) Z only
(C) Y and Z only
(D) U and Z only

ANS : (E) Figure 14.2 shows a production possibility frontier (PPF) of a country that has experienced economic growth, as evidenced by the shift of the PPF. If the economy is initially at point X, any change to a point on the new PPF would represent economic growth, and therefore a move to either point U or Z would represent economic growth.

373.Refer to Figure 14.2. Which of the following is most likely to cause the shift down?

(A) An improvement in the technology to produce Snads
(B) An improvement in the technology to produce Grems
(C) An increase in the energy resources of the country
(D) An increase in the capital used to produce all goods
(E) An increase in the labor that can be used to produce any good

ANS : (A) The shift in the PPF shows that there has been an improvement in the ability to make one of the goods, Snads. This is evidenced by the rotation out of the production possibilities frontier (PPF) on the Snads axis. If there was an improvement in the ability to produce all goods and services, which would be caused by an increase in land (including energy) and labor that could be used to produce any good, then the PPF would have shifted out on both axes.

374.Refer to Figure 14.2. Which of the following movements would not represents economic growth?

(A) From W to U
(B) From T to W
(C) From W to Z
(D) From Y to U
(E) From X to U

ANS : (B) A change from producing at point T to point W is an increase in output. It is not, however, economic growth. Economic growth is the ability to produce goods and services, and moving from point T to point W is not representative of an increase in ability, but rather representative of moving from unemployment of resources to full employment of resources.

375.Which of the following gives the best indication of economic growth in a nation?

(A) The rate of inflation
(B) The rate of increase of nominal gross domestic product (GDP)
(C) The rate of increase in real GDP
(D) The rate of increase of real GDP per capita
(E) The rate of unemployment

ANS : (D) Gross domestic product (GDP) is generally accepted as being a god measure of a country's standard of living, and sustained increases in GDP reflect economic growth. However, there are different measures of GDP. Nominal GDP does not account for inflation; so an increase in nominal GDP may reflect increases in the price level and not necessarily increases in the production of goods and services. Real GDP does account for price changes; however, if the population of a country is growing faster than real GDP is increasing, the country may experience a decline in the standard of living. Increases in real GDP per capita (per person), however, would capture all of these factors.

376.Which of the following is generally believed to be the primary source of growth that has been experienced worldwide?

(A) An increase in technology

(B) An increase in capital stock
(C) An increase in the stock of money
(D) An increase in the human capital
(E) An increase in arable land mass

ANS : (A) While both human capital and technological change have been identified as more significant contributors to economic growth than changes in the stock of physical capital, stock of labor, or stock of land, growth accounting measures have demonstrated that improvements in technology have been the major driver in economic growth. One of the reasons that growth patterns differ between countries is that some countries have accumulated and, just as important, have applied new technologies to improve their productive capacities, which allows output to expand even with the reality of diminishing marginal returns to capital.

377. If there is no corresponding increase in technology, which of the following will happen as the capital stock of a country increases, all else equal?
I. Production per worker will increase.
II. Economic growth will increase.
III. The rate of economic growth will increase.
(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II and III

ANS : (E) As the capital of nations grows, it will have more capital per worker (if all else equal, the stock of labor does not also grow) which will increase the real GDP per capita of the country. In other words more capital per worker will lead to economic growth. However, because there are diminishing returns to capital, each additional unit of capital will not generate the same increase in output, leading to a lower rate of economic growth.

378. Maxistan is currently experiencing an average growth rate of 15% per year, while Ile is experiencing an average growth rate of 5% per year. Assuming there population is growing at the same rate, which of the following would not be a possible explanation for the difference in the growth rates?
(A) Maxistan currently has a very low of stock of capital, while Ile has a large capital stock.
(B) The capital stock of Ile is depreciating at a faster rate than the capital stock of Maxistan.
(C) Maxistan has less secure property rights than Ile.
(D) Maxistan is making improvements to its primary education, while Ile already has an established primary education system.
(E) Maxistan has a larger increase in total factor productivity than Ile.

ANS : (C) Maxistan is currently experiencing a very rapid rate of growth compared to Ile. One of the reasons that the rate of growth of some less developed nations is very rapid compared to more developed nations is that the more developed nations already have fairly well developed stocks of human and physical capital. As a result, less developed countries will not experience the same magnitude of decreasing returns that more developed countries will face.

379. The government of Maxistan predicts that its population will double in size of 16 years. What rate of growth of real gross domestic product (GDP) will it need to maintain the same standard of living?
(A) The doubling time will depend on the initial GDP of Maxistan.
(B) 10.5%

(C) 5.5%
(D) 4.4%
(E) 8%

ANS : (D) If the population of Maxistan will double in 16 years then real GDP will also need to double in 16 years to maintain the same standard of living. According to the rule of 70, the doubling time of an economy is equal to $70/x$ = doubling time in years, where x = annual rate of growth. Therefore, $70/x = 16$ yields 4375, so Maxistan will have to grow at a rate of 4.4 percent during this period to maintain the same standard of living. Note that this is true regardless of the initial starting point : whether the economy is currently producing $1 million in real GDP or $100 million, the time it takes to double will be the same.

380. In 2009 the real gross domestic product (GDP) per capita of Ile was $200 million, and the in 2010 the real GDP of Ile was $210 million. In 2009 the real GDP per capita of Maxistan was $20 million, and in 2010 the real GDP of Maxistan was $25 million. Which of the following statements is true?

I. Ile is growing at a faster rate than Maxistan.
II. Maxistan will double in size in less time than Ile.
III. Ile has a larger increase in GDP than Maxistan.

(A) I only
(B) III only
(C) I and II only
(D) II and III only
(E) I, II and III

ANS : (D) To solve this problem, we must first determine the growth rate for each country. In Ile, ($210 − $200)/$200 = 5%, and in Maxistan ($25 −$20)/$20 = 25%. Therefore, though Ile grew by a greater amount (Ile grew by $10 million, twice the dollar amount as Maxistan). Maxistan is growing at a faster rate than Ile (Maxstan had 25% rate of growth and is growing 5 times as fast as Ile). According to the rule of 70, the doubling time (the time it will take for Ile to double its GDP from $200 million to $400 million) of Ile is 7 years and doubling time of Maxistan (the time it will take for Maxistan to double its GDP from $20 million to $40 million) is only 2.8 years.

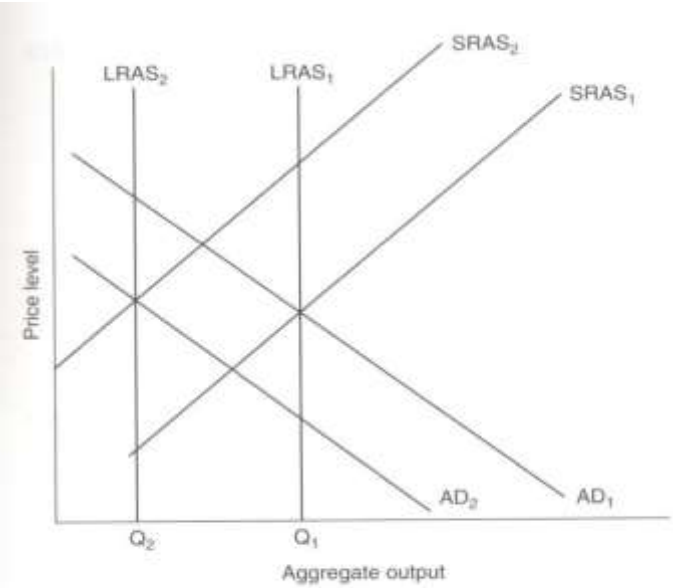


Figure 14.3

381. Refer to Figure 14.3. What could have caused the change shown?

(A) An increase in immigration.
(B) Tax policies to promote investment in capital.
(C) A plague that kills a large number of population.
(D) A country beginning to subsidize education.
(E) A nation removing regulations on pollution

ANS : (C) Figure 14.3 shows a decrease in long run aggregate supply (LRAS). This can occur when the stock of one of the four factors of production has declined. Policies that restricted pollution can lead to decreased output and growth. Policies that encourage education and immigration increase the stock of human capital in a country, and policies encourage investment would lead to increases in physical capital. If a plague devastated a population, however, this would cause a decrease in human capital.

382. Refer to Figure 14.3. Which of the following would be a policy that could likely restore long run aggregate supply to its initial level?

(A) Prohibit foreign workers from entering
(B) Create strong antipollution regulations
(C) Eliminate spending on public health
(D) Create institutions of higher learning
(E) Encourage more consumption spending by households

ANS : (D) Decreasing investment in human capital, creating restrictions on growth, and limiting the workforce would all serve to further damage the productive capacity of this economy. While it is tempting to say that improving consumption would improve this situation, this is not correct. Increasing consumption may lead to a short term increase in output as aggregate demand increases, but it doesn't improve the productive capacity and may in fact, damage it: if people consume more and save less, this may lead to less investment. Creating ways of improving human capital, however, would increase the stock of human capital.

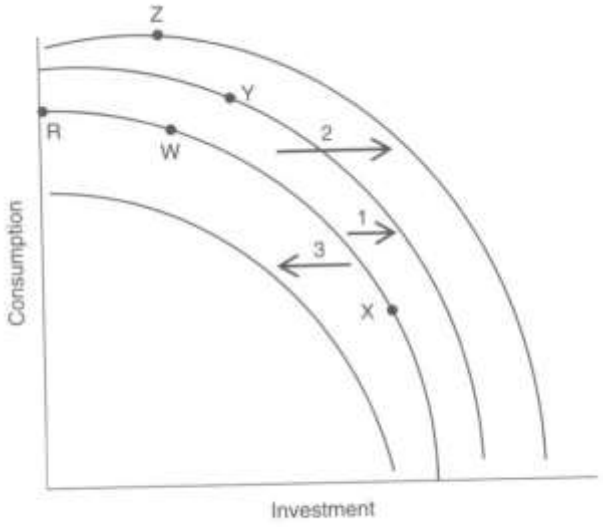


Figure 14.4

383. Figure 14.4 shows three possible shifts in the production possibilities frontier of a country. Which allocation would be the most likely explanation for shift number 3?

(A) R
(B) W
(C) X
(D) Y
(E) Shift number 3 is not possible.

ANS : (A) Shift number 3 shows a decrease in the ability to produce both consumption goods and investment goods. If a country chooses allocation R on its initial production possibilities frontier, it is choosing to produce only consumption goods. Because investment goods depreciate, the stock of its capital will decrease and in future it will be able to produce less of either type of good.

384. Figure 14.4 shows three possible shifts in the production possibilities frontier of a country. Suppose this country would prefer shift number 2. What allocation should they choose?

(A) R
(B) W
(C) X
(D) Y
(E) Z

ANS : (C) Shift number 2 shows the largest increase in growth, as it is the largest shift outward of the production possibilities frontier (PPF). This implies that, all else equal, an initial allocation that produced more investment goods than consumption goods must have been chosen. On the initial PPF, allocation X represents the larger allocation of production to investment goods.

385. Refer to Figure 14.4. Which of the following is plausible reason that a country would choose allocation W instead of allocation X?

I. Consumption bundle X may provide a standard of living below subsistence level.
II. Consumption bundle X may cause political instability.
III. The population is shrinking.

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II and III

ANS : (D) There is a trade off associated with investment and consumption. While a country that would like to grow at a very rapid rate would like to allocate as much production to investment goods as possible, there is a limit to the amount that an economy could divert from consumption to investment. Similarly, one of the reasons for different rates of growth between countries is different institutions and political systems, which includes differences in political stability. If the consumption in a country were cut back too drastically, this could lead to further political instability, which would further undermine growth.

386. The term human capital refers to

(A) The machinery used per worker
(B) The effective amount of labor that exists
(C) The population of a nation
(D) The total amount of population plus machinery
(E) The total amount of population plus machinery natural resources

ANS : (B) Human capital refers to the amount of knowledge, skills, and health status of a population that can be used to do labor. It is a more complete description of the labor of a country than just the labor supply. For instance, if two countries both had a labor supply of 10 people, but in one country all 10 people were literate and in the other all 10 were illiterate, we would expect the labor productivity of the literate country to be higher because it has a greater stock of human capital.

387. All else equal, nation X with ____will have ____ growth rates than nation Z.

(A) Higher investment taxes; faster
(B) Higher literacy rates; slower
(C) Greater environmental pollution; faster
(D) Better technology; slower
(E) Better transportation and communication infrastructure; faster

ANS : (E) An important, but often overlooked, factor that promotes growth is a nation's system of transportation and communications infrastructure. Good roads, bridges, and ports allow goods and services to be moved around the nation more efficiently and for greater international trade. A reliable communications infrastructure facilitates commerce and investment in new technology.

CHAPTER 13

Balance of Payments and Foreign Exchange

388.A country's official record of the payments between themselves and other countries is known as that country's

(A) Trade account
(B) Monetary account
(C) Balance of payments account
(D) Currency account
(E) Tariff account

ANS : (C) A country's balance of payments account tracks the flow of currency from the nation to other nations. The current account tracks short–term payments on goods and services, factor income payments, and other cash transfers. The financial account tracks the long–term payments on physical assets, buildings, stocks, and bonds. The sum of the balance in the current account must equally offset the balance in the financial account.

389.A nation has a trade surplus in goods and services if

(A) The value of exports to other nations exceeds the value of imports from other nations
(B) The number of goods exported to other nations exceeds the number of goods imported from other nations
(C) The value of exports to other nations is less than the value of imports from other nations
(D) The number of goods exported to other nations is less than the number of goods imported from other nations
(E) The value of exports to other nations is equal to the value of imports from other nations

ANS : (A) One of the largest sources of international payments is in the exchange of goods and services. A nation exports goods and services to other nations and receives currency payment in return. A nation also imports goods and services from other nations and sends currency in return. If the value of a nation's exports exceeds the value of the nation's imports, it is said to have a trade surplus. It is important to distinguish between the value 9measured in currency) of imports and exports and the simple quantity (measured in cars, computers, shirts, etc) of imports and exports. A nation's balance of trade considers the value of the goods being traded. For example, if the United States exports 1,000 cars to Europe and each car is worth $20,000, then the United States has exported $20 million worth of cars.

390.When a nation is said to have a negative trade balance, it means that the nation has

(A) A budget deficit
(B) A trade deficit
(C) Exported more goods and services than they have imported
(D) Exported the same quantity of goods and services as they have imported
(E) A trade surplus

ANS : (B) A nation exports goods and services to other nations and receives currency payment in return. A nation also imports goods and services from other nations and sends currency in return. A nation also imports goods and services from other nations and sends currency in return. If the value of a nation's imports exceeds the value of the nation's exports, it is said to have a trade deficit, or a negative trade balance. Similar to the computation of GDP, it

is important to keep in mind that trade balances are computed using the value of the goods and services, not just the quantity of goods and services.

391. Which of the following transactions would be recorded as a positive entry into Canada's current account?

(A) A Canadian resident buys a coat made in Honduras.
(B) A bank in New York City buys real estate in Toronto.
(C) A Canadian publisher pays an author in London for her book of short stories.
(D) A Canadian firm sells a coat to a consumer in Europe.
(E) The Canadian government sells bonds to a bank in Japan.

ANS : (D) The Canadian current account records the inflow (additions) and outflow (subtractions) of currency for the purchase of goods and services or factor payments to and from other countries. If a firm in Canada sells a product to a consumer in foreign countries, like any nation in Europe, currency will flow from Europe to Canada. The key difference between the current account and the financial account is that the financial account records the inflow and outflow of financial transactions (like the sale of shares in a mutual fund) and capital asset sales (like the sale of a corporation or building) between nations.

392. Jerry sells his Texas beef to a restaurant in Mexico. In the US balance of payments, in which account is this transaction recorded, and is an additions or a subtraction?

US Balance of Payment?	Addition or Subtraction?
(A) Current account	Subtraction
(B) Domestic account	Subtraction
(C) Financial account	Addition
(D) Financial account	Subtraction
(E) Current account	Addition

ANS : (E) When a firm in Texas sells products (like beef) to consumers outside the United States, the value of the exported beef will be recorded as an addition to the current account in the United States because currency from Mexico will flow into the US and the product will eventually reach Mexico. In the Mexican current account, this will be recorded as an imported good and would be subtracted from the value of all exported goods.

393. Sherman sells his chain of Texas Beefhouse restaurants to a corporation in Mexico. In the US balance of payments, in which account is this transaction recorded, and is it an addition or a subtraction?

US Balance of Payment?	Addition or Subtraction?
(A) Current account	Subtraction
(B) Factor income account	Subtraction
(C) Financial account	Addition
(D) Financial account	Subtraction
(E) Current account	Addition

ANS : (C) When a physical or financial asset like a corporation is sold to a foreign firm, the entry appears in the financial accounts of both nations. The ownership of the assets (chain of restaurants) is going to Mexico, but the currency is coming into the United States, so this will be an addition to the financial account in the US and a subtraction from the financial account in Mexico.

394. Which of the following transactions would be recorded as a negative entry into Japan's financial account?

(A) A Canadian resident buys a car made in Japan.
(B) A bank in New York City buys real estate in Tokyo.
(C) A Japanese filmmaker pays a writer in the United States for her screenplay.
(D) A Canadian firm sells a book to a consumer in Japan.
(E) The Canadian government sells bonds to a bank in Japan.

ANS : (E) Government bonds are frequently bought and sold between nations as financial assets. If the Canadian government needs to borrow money, it will issue government bonds, and investors in other countries (like Japan) will buy them, lending Canada money in the process. This is recorded as an inflow of currency to Canada's financial account and a subtraction from Japan's financial account.

395. Suppose that the interest rate in the United States market for loanable funds is 5% and the interest rate in Britain's market for loanable funds is 7%. What do we expect to happen to the flow of financial capital?

(A) Financial capital will flow out of Britain and into the United States raising interest rates in Britain and lowering interest rates in the US.
(B) Financial capital will flow out into Britain and into the US, raising interest rates in the US and lowering interest rates in Britain.
(C) Financial capital will flow out of the United States and into Britain, raising interest rates in Britain and lowering interest rates in the United States.
(D) Financial capital will flow out of the United States and into Britain, lowering interest rates in Britain and raising interest rates in the US.
(E) Financial capital will flow out of Britain and into the US, raising interest rates in Britain and raising interest rates in the US.

ANS : (D) When interest rates are higher in Britain than they are in the US, Investment (or savers) will withdraw money from the US markets and invest (or save) them in the British financial markets. This creates an inflow of funds into Britain and puts downward pressure on interest rates. The outflow of funds from the United States allows the interest rates in the US to rise. This flow of financial capital will cease when interest rates are equal in both nations.

396. Suppose that the interest rate in the US market for loanable funds is 6% and the interest rate in Japan's market for loanable funds is 4%. What do we expect to happen to the flow of financial capital in US financial markets, Japanese financial markets, and the interest rate in each market?

Flow of Financial Capital in the United States	Effect on Interest Rates in the United States	Flow of Financial Capital in Japan	Effect on Interest Rates in Japan
(A) Outflow	Decrease	Inflow	Decrease
(B) Outflow	Decrease	Inflow	Increase
(C) Inflow	Increase	Inflow	Decrease
(D) Inflow	Decrease	Outflow	Increase
(E) Outflow	Increase	Inflow	Increase

ANS : (D) When interest rates are higher in the US than they are in Japan, investors seeking higher returns will withdraw money from the Japanese markets and invest them in the American financial markets. This creates an inflow of funds into The United States and puts downward pressure on interest rates. The outflow of funds from

Japan causes the interest rates to rise. This flow of financial capital between nations ceases when interest rates are equal in both nations and equilibrium is reached.

397.Which of the following would cause an increase in the demand for US dollars?

(A) Interest rates in the United States are low relative to other countries.
(B) The United States raises tariffs on improved products.
(C) Trading partners raise tariffs on the US–made products.
(D) The inflation rate in the United States is low relative to other countries.
(E) Products made in the United States become less popular and trendy.

ANS : (D) Foreign consumers need US dollars to purchase goods made in the US. All else equal, if inflation in the United States is low relative to other countries, foreign consumers will find US–made products to be relative bargains, thus increasing the demand for those goods. When there is stronger demand for the US goods, there will be stronger demand for the US dollar.

398.If the demand for Japanese products becomes more popular and fashionable outside of Japan, this causes ____ in the ____ curve for the Japanese yen.

(A) A decrease; demand
(B) A decrease; supply
(C) An increase; demand
(D) No impact on; demand
(E) An increase; supply

ANS : (C) When consumers outside of Japan acquire a stronger preference for Japanese products, they will need to also acquire more Japanese currency, the yen, to make those purchases. A stronger demand for Japanese products causes a stronger demand for the yen and the demand curve for the yen will shift to the right.

399.The _____ market is where currencies from different nation are traded.

(A) Bond
(B) Real estate
(C) Foreign exchange
(D) Stock
(E) Investment

ANS : (C) Foreign currencies, like US dollars, European euros, are exchanged just as any other commodity can be exchanged in a market. These transactions occur in the foreign exchange markets.

400.The next soccer World Cup is being held in Brazil, and thousands of tourists will travel to Brazil to see the soccer matches. How will this huge event affect the Brazilian currency, and Brazilian real?

(A) The demand increases and the supply decreases.
(B) The demand increases.
(C) The supply increases.
(D) The demand decreases.
(E) The supply decreases.

ANS : (B) A huge influx of foreign tourists for an event like the Olympics or World Cup tournament will require foreign visitors to exchange their domestic currencies for the host nation's currency. In this case, there will be an increase in the demand for the Brazilian real, shifting the demand curve to the right. One way to think about this is that when a nation receives tourists, that nation also receives the currency of those tourists.