MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : BS-B401/BSC 401/BSC-401/BSCA01 Biology

UPID : 004408

Time Allotted : 3 Hours *Full Marks :70*

The Figures in the margin indicate full marks.
Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer *any ten* of the following : [1 x 10 = 10]
   (i) The portion of the growth curve where rapid growth of bacteria is observed is known as _____
   (ii) The human eye can focus objects at different distances by adjusting the focal length of the eye lens. This is due to_____.
   (iii) What is meant by the term osmoregulation?
   (iv) Who is known as father of genetics?
   (v) What is meant by power of accommodation of the eye ?
   (vi) Enzyme increases the rate of reaction by lowering the activation energy. Is this statement is true or false?
   (vii) What is cistron?
   (viii) State two economically important uses of heterotrophic bacteria.
   (ix) What is the main function of kinase?
   (x) The growth of bacterial population follows a geometric progression.
   a) True
   b) False
   (xi) Are viruses living or non-living?
   (xii) Fluid Thioglycollate medium is used for the cultivation of which type of organism?

Group-B (Short Answer Type Question)

Answer *any three* of the following : [5 x 3 = 15]

2. How are co-factors different from prosthetic groups? [5]
3. Give characteristics of genetic code. [5]
4. Differentiate between DNA/RNA. [5]
5. Explain Krebs cycle. draw suitable flowchart for explanation. [5]
6. The sequence of the coding strand of DNA in a transcription unit is mentioned below. [5]
   3′ AATGCAGCTATTAGG 5′
   Write the sequence for:
   1. Its complementary strand
   2. Its mRNA

Group-C (Long Answer Type Question)

Answer *any three* of the following : [15 x 3 = 45]

7. Illustrate the two models by which an enzyme holds the substrate. [15]
8. Explain steps of Gycolysis in details. [15]
9. Give functions of Proteins as receptors and structural elements. [15]
10. Describe the characteristics of the individuals with the following chromosomal abnormalities: [15]
    Trisomy at chromosome 21
    XXY
    XO
11. A tall plant with red flowers (dominant) is crossed with a dwarf plant with white flowers (recessive). Work out a dihybrid cross and state the dihybrid ratio. What will be the effect on the dihybrid ratio if the two genes are interacting with each other? [15]

*** END OF PAPER ***