MARKING GUIDELINE

MARKS	DURATION	QUESTIONS
31	50 minutes	3

Name: _____ Class: _____

Date: _____

MARK ____ / 31

INSTRUCTIONS AND INFORMATION

1. Answer **ALL** the questions in this question paper.
2. Answer QUESTION 1 by **circling** the letter (A–D) in the answer grid at the end of that section.
3. Show **ALL** calculations clearly.
4. Show all units where applicable.
5. Number the answers correctly according to the numbering system used in this question paper.
6. A non-programmable calculator may be used, unless stated otherwise.
7. Write neatly and legibly.

QUESTION 1 [10 MARKS]

Four options are given as possible answers to the following questions. Choose the correct answer and circle the letter (A–D) in the grid at the end of this section. If you want to change your choice, put a cross through the wrong letter and circle your new choice.

1.1 $5(x + 2) = \ldots$ (1)

A) $x + 10$ **B)** $5x + 2$

C) $7x$ **D)** $\mathbf{5x + 10}$ ✓

Answer: D — The 5 multiplies BOTH terms in the bracket.

- **A** — multiplied only the second term
- **B** — multiplied only the first term
- **C** — added 5 and 2 to x

1.2 $3x(x + 5) = \ldots$ (1)

A) $8x^2$ **B)** $3x^2 + 5$

C) $\mathbf{3x^2 + 15x}$ ✓ **D)** $3x + 15x$

Answer: C — $3x \times x = 3x^2$ and $3x \times 5 = 15x$.

- **A** — added everything together
- **B** — multiplied only the first term
- **D** — forgot to multiply the x terms

1.3 $-2(x - 4) = \ldots$ (1)

A) $\mathbf{-2x + 8}$ ✓ **B)** $-2x - 8$

C) $-2x - 4$ **D)** $2x - 8$

Answer: A — $-2 \times (-4) = +8$: multiplying two negatives gives a positive.

- **B** — kept the minus on the second term
- **C** — did not multiply the 4
- **D** — dropped the minus on the first term

1.4 Simplify: $4(x + 2) - 3x$ (1)

A) $x + 6$ **B)** $x + 8$ ✓

C) $x + 2$ **D)** $7x + 8$

> **Answer: B** — $4x + 8 - 3x = x + 8$.
> - **A** — subtracted 2 as well
> - **C** — did not expand the bracket first
> - **D** — ADDED the $3x$ instead of subtracting it

1.5 $-3x(2x - 5 + y) = \ldots$ (1)

A) $-6x^2 - 15x - 3xy$ **B)** $-6x^2 + 15x + y$

C) $-6x^2 + 15x - 3xy$ ✓ **D)** $-6x + 15x - 3xy$

> **Answer: C** — Multiply $-3x$ into EVERY term: $-3x \times 2x = -6x^2$, $-3x \times (-5) = +15x$ and $-3x \times y = -3xy$.
> - **A** — $-3x \times (-5)$ is POSITIVE: a negative times a negative
> - **B** — multiplied only the first two terms and left y alone
> - **D** — forgot that $x \times x = x^2$

1.6 Divide: $\frac{12x^3}{4x}$, $x \neq 0$ (1)

A) $3x^2$ ✓ **B)** $3x^4$

C) $8x^2$ **D)** $3x^3$

> **Answer: A** — $12 \div 4 = 3$ and $x^3 \div x = x^2$.
> - **B** — added the exponents
> - **C** — subtracted the coefficients
> - **D** — forgot to subtract the exponents

1.7 Determine the value of $4a - b$ if $a = 3$ and $b = 5$. (1)

A) -7 **B)** 7 ✓

C) 17 **D)** 12

> **Answer: B** — $4(3) - 5 = 12 - 5 = 7$.
> - **A** — subtracted the wrong way round
> - **C** — added the 5
> - **D** — forgot to subtract b

1.8 $(3x^2)^2 = \ldots$ (1)

A) $6x^4$ **B)** $3x^4$

C) $9x^2$ **D)** $9x^4$ ✓

> **Answer: D** — Square the 3 AND the x^2: $3^2 = 9$ and $(x^2)^2 = x^4$.
> - **A** — doubled the 3 instead of squaring it
> - **B** — squared only the x^2, not the 3
> - **C** — squared the 3 but left x^2 as it was

1.9 Simplify: $2(3x - 1) + 3(x + 4)$ (1)

A) $9x + 10$ ✓ **B)** $9x - 10$

C) $9x + 3$ **D)** $6x + 10$

> **Answer: A** — $6x - 2 + 3x + 12 = 9x + 10$.
> - **B** — used -12 instead of $+12$
> - **C** — subtracted 2 from 12 instead of adding
> - **D** — forgot to expand the second bracket

1.10 Which one of the following is EQUAL to $6x + 9$? (1)

A) $6(x + 9)$ **B)** $3(2x + 9)$

C) $3(2x + 3)$ ✓ **D)** $3(2x + 6)$

> **Answer: C** — The common factor is 3: $3 \times 2x = 6x$ and $3 \times 3 = 9$.
> - **A** — did not divide the 9 by 6
> - **B** — did not divide the 9 by 3
> - **D** — divided the 9 by 3 but wrote 6

ANSWER GRID — MARKING GUIDELINE

1.1	A	B	C	(D)
1.2	A	B	(C)	D
1.3	(A)	B	C	D
1.4	A	(B)	C	D
1.5	A	B	(C)	D
1.6	(A)	B	C	D
1.7	A	(B)	C	D
1.8	A	B	C	(D)
1.9	(A)	B	C	D
1.10	A	B	(C)	D

QUESTION 2 [9 MARKS]

Expand the following.

2.1 $5(x + 2)$, and hence simplify $5(x + 2) - 3x$ (3)

> $= 5 \times x + 5 \times 2$ *(1)*
> $= \mathbf{5x + 10}$ *(1)*
> $5x + 10 - 3x = \mathbf{2x + 10}$ *(1)*

2.2 $3x(x + 5)$, and hence simplify $3x(x + 5) + 2x^2$ (3)

> $= 3x \times x + 3x \times 5$ *(1)*
> $= \mathbf{3x^2 + 15x}$ *(1)*
> $3x^2 + 15x + 2x^2 = \mathbf{5x^2 + 15x}$ *(1)*

2.3 $-2(y - 4)$ (3)

> $-2 \times y = -2y$ *(1)*
> $-2 \times (-4) = +8$ *(1)*
> $= \mathbf{-2y + 8}$ *(1)*

QUESTION 3 [12 MARKS]

Expand and simplify the following.

3.1 $3(x + 2) + 2(x + 1)$ (3)

$= 3x + 6 + 2x + 2$ *(2)*
$= \mathbf{5x + 8}$ *(1)*

3.2 $6 - 3(x - 2)$ (3)

$= 6 - 3x + 6$ *(2)* — note $-3 \times (-2) = +6$
$= \mathbf{12 - 3x}$ *(1)*

3.3 Simplify: $(10x^2 + 5x) \div 5x$, $x \neq 0$ (3)

Divide EACH term by $5x$ *(1)*
$= \frac{10x^2}{5x} + \frac{5x}{5x}$ *(1)*
$= \mathbf{2x + 1}$ *(1)*

3.4 Determine the value of $5a - b$ if $a = 4$ and $b = 7$, and then its value if $a = 4$ and $b = -7$. (3)

$5(4) - 7 = \mathbf{13}$ *(1)*
$5(4) - (-7) = 20 + 7$ *(1)*
$= \mathbf{27}$ — subtracting a negative ADDS *(1)*

TOTAL: 31 marks

This question paper consists of 3 questions.

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