EXAM-STYLE CLASS TEST

MARKS	DURATION	QUESTIONS
33	50 minutes	3

Name: ..... Class: .....

Date: .....

MARK ____ / 33

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

A) $x^3 + 3x^2 + x + 2$ **B)** $x^3 + 5x^2 + 7x + 2$

C) $x^3 + 5x^2 + 6x + 2$ **D)** $x^3 + 2x^2 + 7x + 2$

1.2 $(x - 3)(x^2 + 3x + 9) = \ldots$ (1)

A) $x^3 - 9x - 27$ **B)** $x^3 - 6x^2 - 27$

C) $x^3 + 27$ **D)** $x^3 - 27$

1.3 $(2x + 1)(x^2 - 4x + 3) = \ldots$ (1)

A) $2x^3 - 8x^2 + 6x + 3$ **B)** $2x^3 - 9x^2 + 2x + 3$

C) $2x^3 - 7x^2 + 10x + 3$ **D)** $2x^3 - 7x^2 + 2x + 3$

1.4 In the expansion of $(x + 5)(x^2 - 2x + 7)$, the coefficient of x^2 is ... (1)

A) 5 **B)** 3

C) -2 **D)** -10

1.5 $(a + b)(a^2 - ab + b^2) = \ldots$ (1)

A) $a^3 + b^3$ **B)** $a^3 - b^3$

C) $a^3 + 2a^2b + b^3$ **D)** $a^3 + a^2b + b^3$

1.6 The CONSTANT term of $(3x - 4)(x^2 + 2x - 5)$ is ... (1)

A) -20 **B)** 20

C) -9 **D)** -15

1.7 A box measures $(x + 1)$ by $(x + 2)$ by $(x + 3)$. Its VOLUME is ... (1)

A) $x^3 + 6x^2 + 11x + 6$ **B)** $x^3 + 3x^2 + 2x$

C) $x^3 + 6x^2 + 6x + 6$ **D)** $x^3 + 6$

1.8 $(2x + 3)(4x^2 - 6x + 9) = ...$ (1)

A) $8x^3 - 27$ **B)** $2x^3 + 27$

C) $8x^3 + 27$ **D)** $8x^3 + 9$

1.9 Which trinomial completes $(x - 5)(\ldots) = x^3 - 125$? (1)

A) $x^2 + 5x + 25$ **B)** $x^2 + 5x - 25$

C) $x^2 - 5x + 25$ **D)** $x^2 + 25$

1.10 $(x + 4)(x^2 - 4x + 16) - x^3 = ...$ (1)

A) $8x^2$ **B)** $x^3 + 64$

C) 64 **D)** 0

ANSWER GRID — CIRCLE YOUR ANSWERS FOR QUESTION 1

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 [10 MARKS]

Expand and simplify FULLY.

2.1 $(x - 1 + x^2)(3 - x)$ (4)

2.2 $(2x + 1)(x^2 + 3x - 2)$ **(4)**

2.3 State how many products there are BEFORE collecting like terms when a binomial is multiplied by a trinomial, and explain why. **(2)**

QUESTION 3 [13 MARKS]

The two expansions below lead to the cube identities.

3.1 Expand and simplify: $(x - 2)(x^2 + 2x + 4)$ **(3)**

3.2 Expand and simplify: $(x + 5)(x^2 - 5x + 25)$ **(3)**

3.3 Explain why all the middle terms disappear in both expansions. **(3)**

3.4 Hence write down the identities for $a^3 - b^3$ and $a^3 + b^3$. **(4)**

TOTAL: 33 marks

This question paper consists of 3 questions.

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