

**MM 25****Polynomials****Time 1 Hour****Section A 1 Mark Each**

- Which of the following is not a polynomial?
(A) $x^2 + \sqrt{2}x + 3$ (B) $x^2 - \sqrt{2}x + 6$ (C) $x^3 + 3x^2 - 3$ (D) $6x + 4$
- The degree of the polynomial $6z^3 + 8z^4 + 0z^{11} + 7$ is
(A) 3 (B) -4 (C) 4 (D) 1
- $\sqrt{11}$ is a polynomial of degree
(A) 2 (B) 0 (C) 1 (D) $\frac{1}{2}$
- The value of k for which $x + 5$ is a factor of $p(x) = -x^3 + x + 5k$ is
(A) -120 (B) 120 (C) -24 (D) 24
- One of the factor of $(16y^2 - 1) + (1 - 4y)^2$ is
(A) $4 + y$ (B) $4 - y$ (C) $4y + 1$ (D) $8y$

Section B 2 Marks Each

- Check whether $7 + 3x$ is a factor of $3x^3 + 7x$
- Factorise: $x^2 + 3\sqrt{2}x + 4$
- Factorise: $2x^2 + y^2 + 2z^2 - 2\sqrt{2}xy + 2\sqrt{2}yz - 4xz$

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MM 25

Polynomials

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Section C 3 Marks Each

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9. If $a^3 + b^3 + c^3 = 3abc$ and $a + b + c = 0$, show that

$$\frac{(b+c)^2}{3bc} + \frac{(c+a)^2}{3ac} + \frac{(a+b)^2}{3ab} = 1.$$

10. Factorise : $x^3 + 6x^2 + 11x + 6$

Section D 4 Marks Each

11. Prove that $(a + b + c)^3 - a^3 - b^3 - c^3 = 3(a + b)(b + c)(c + a)$

12. If $xyz = 1$, then show that

$$(1 + x + y^{-1})^{-1} + (1 + y + z^{-1})^{-1} + (1 + z + x^{-1})^{-1} = 1$$

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