Mathematics

(www.tiwariacademy.com)

(Chapter – 2) (Polynomials) (Practice Test 2)

(Class X)

Time: 1 hour 15 minutes **M. M: 25**

General Instructions:

- This question paper contains four sections: A, B, C and D. Each part is compulsory.
- Section A has 5 MCQ of one mark each.
- Section B has 3 questions of two marks each.
- Section C has 3 questions of three marks each.
- Section D has 2 questions of five marks each, attempt any 1 out of 2.
- There is no negative marking.

[Section – A]

1. The zeroes of the quadratic polynomial $x^2+99x+127$ are
   (A) both positive (B) both negative
   (C) one positive and one negative (D) both equal

2. The degree of the polynomial $(x+1)(x^2-x-x^4+1)$ is:
   (A) 2 (B) 3 (C) 4 (D) 5

3. If α, β are the zeroes of polynomial f(x) = $x^2-p(x+1)-c$ such that (α + 1) (β + 1) = 0, then c =
   (A) 1 (B) 0 (C) -1 (D) 2

4. If zeroes of the polynomial f(x) = x^3-3px^2+qx-r is in A.P., then
   (A) $2p^3 = pq - r$ (B) $2p^3 = pq + r$ (C) $p^3 = pq - r$ (D) none of these

5. If the product of two zeroes of the polynomial f(x) = $2x^3-6x^2-4x+9$ is 3, then its third zero is
   (A) $\frac{3}{2}$ (B) $-\frac{3}{2}$ (C) $\frac{9}{2}$ (D) $-\frac{9}{2}$

[Section – B]

6. Define a polynomial with real coefficients?

7. If x, y are the zeroes of the polynomial such that x + y = -6 and xy = -4 then write the polynomial.

8. Give an example of polynomials f(x), g(x), q(x) and r(x) satisfying f(x) = g(x). q(x) + r(x), where degree r(x) = 0.

[Section – C]

9. What must be added to the polynomial f(x) = $x^4+2x^3-2x^2+x-1$ so that the resulting polynomial is exactly divisible by x^2+2x-3?

10. Given that $x-\sqrt{5}$ is a factor of the cubic polynomial $x^3-3\sqrt{5}x^2+13x-3\sqrt{5}$, find all the zeroes of the polynomial.

11. If α and β are the zeroes of the polynomial ax^2+bx+c, find the value of $\alpha^2 + \beta^2$.

[Section – D]

12. If $p(x) = x^3 - 2x^2 + kx + 5$ is divided by $(x - 2)$, the remainder is 11. Find k. Hence find all the zeroes of x3 + kx2 + 3x + 1.

13. If the zeroes of the polynomial $f(x) = ax^3 + 3bx^2 + 3cx + d$ are in A.P., prove that $2b^3 - 3abc + a^2d = 0$.

TIWARI ACADEMY

Hints and Answers

Section – A

1. Both negative
2. 5
3. 1
4. $2p^3 = pq - r$
5. $-\frac{3}{2}$

Section - B

6. A polynomial with real coefficients is a product of irreducible polynomials of first and second degrees.
7. $f(x) = x^2 + 6x - 4$
8. $f(x) = x^3 + x^2 + x + 1$

Section – C

9. $x - 2$
10. $\sqrt{5}, \sqrt{5}+\sqrt{2}, \sqrt{5}-\sqrt{2}$
11. $\alpha^2 + \beta^2 = \frac{b^2 - 2ca}{a^2}$

Section – D

12. $k = 3$
    Zeroes are -1, -1, -1