POLYNOMIALS

SECTION -3 (8X2=16m)

Answer the following 8X2=16m

21. Check whether -2 and 3 are the zeroes of the polynomial \( p(x) = x^2 - x - 6 \)?

22. Why are \( \frac{1}{4} \) and -1 zeroes of the polynomial \( p(x) = 4x^2 + 3x - 1 \)?

23. Let \( p(x) = x^2 - 4x + 3 \). Find the value of \( p(0), p(1), p(2), p(3) \) and obtain zeroes of the polynomial \( p(x) \).

24. Find the zeroes of the polynomial \( p(x) = x^2 + 7x + 10 \) and verify the relationship between the zeroes and coefficients?

25. Find the zeroes of the polynomial \( p(x) = x^2 - 2x - 8 \) and verify the relationship between the zeroes and coefficients?

26. Find a quadratic polynomial if the zeroes of it are 2 and -1/3 respectively?

27. Divide \( 3x^3 + x^2 + 2x + 5 \) by \( 1 + 2x + x^2 \)?

28. Find a quadratic polynomial, the sum and product of whose zeroes are 1/4 and -1 respectively?

SECTION -4 (5X4=20m)

Answer the following 5X4=20m

29. Verify that 1, -1, -3 are the zeroes of the polynomial \( x^3 + 3x^2 - x - 3 \) and then verify the relationship between the zeroes and coefficients?

OR

Verify that 3, -1, -1/3 are the zeroes of the polynomial \( 3x^3 - 5x^2 - 11x - 3 \) and then verify the relationship between the zeroes and coefficients?

30. Find all zeroes of \( 2x^4 - 3x^3 - 3x^2 + 6x - 2 \), if you know that two of its zeroes are \( \sqrt{2} \) and \( -\sqrt{2} \)?

OR

Find all zeroes of \( 3x^4 + 6x^3 - 2x^2 - 10x - 5 \), if you know that two of its zeroes are \( \sqrt{3} \) and \( -\sqrt{3} \)?
31. Draw the graph of \( y = x^2 - 5x + 6 \), find the zeroes of \( y = x^2 - 5x + 6 \)?

OR

Draw the graph of \( y = x^2 - 2x - 8 \), find the zeroes of \( y = x^2 - 2x - 8 \)?

32. Divide \( 3x^2 - x^3 - 3x + 5 \) by \( x - 1 - x^2 \), and verify the division algorithm?

OR

Find a cubic polynomial with the sum, sum of the product of its zeroes taken two at a time, and the product of its zeroes as 2, −7, −14 respectively.

33. On dividing \( x^3 - 3x^2 + x + 2 \) by a polynomial \( g(x) \), the quotient and remainder were \( x - 2 \) and \( -2x + 4 \), respectively. Find \( g(x) \).

OR

Give examples of polynomials \( p(x) \), \( g(x) \), \( q(x) \) and \( r(x) \), which satisfy the division algorithm and (i) \( \deg p(x) = \deg q(x) \) (ii) \( \deg q(x) = \deg r(x) \) (iii) \( \deg r(x) = 0 \)?