**Half mark and one mark questions**

1. Define a polynomial?
2. Give an example to 7th degree polynomial which is a trinomial?
3. What the coefficient of x² in the polynomial 2x3 - x² + 7x + 1?
4. Sujatha said, “All polynomials are multinomial”. Do you agree with her? Justify?
5. “x + is not a polynomial”. Is it true? Give reason.
6. What is the degree of zero polynomial?
7. Santhosh says, “The degree of any constant is zero”. Savithri says, “The degree of all constants is not zero”. Who said correct?
8. Write the general form a cubic polynomial in the variable ‘x’?
9. “A quadratic polynomial may be trinomial”. True or false? Explain with an example?
10. Write the difference between ‘Zero polynomial’ and ‘Zero of polynomial’?
11. If P(x) = x² + 3x + 1, then find P(-1)?
12. If zero of a linear polynomial in the variable ‘x’ is 5/2, then find the polynomial?
13. How many zeroes have a quadratic polynomial?
14. What is the zero of the polynomial ‘3x’?
15. Give an example to a quadratic polynomial having no zeroes?
16. Is zero of the polynomial P(x) = 3x² - 1?
17. Write division algorithm?
18. If the degree of dividend is ‘m’ and degree of divisor is ‘n’ then what is the degree of remainder?
19. If the degree of dividend is ‘p’ and degree of divisor is ‘q’ then what is the degree of quotient?
20. What is the remainder when the polynomial x3 + 7x² - 2x + 3 when divided by (x – 2)?
21. Find the value of the polynomial 9x² - 3x + 1 at x = -1?
22. Divide 4x² + 4x + 1 by 2x?
23. Define ‘Remainder theorem’?
24. What is the remainder when P(x) is divided by ax + b?
25. Raju said, “If P (2) = 0, then 2 is zero of the polynomial P(x)”. But Ravi said, “If P (2) = 0, then (x – 2) is a factor of the polynomial P(x)”. Who is correct?
26. P(x) is divided by (x – a). Is the remainder same as the value of the polynomial P(x) at the zero of (x – a)?
27. What is a factor of P(x) = ax4 + bx3 + cx² + dx + e if a + b + c + d + e = 0?
28. Explain the relation between zero of a polynomial and factor of a polynomial with an example?
29. Expand (3x + y)3?
30. What is the suitable identity to find the value of 103 × 97 without actual multiplication?
31. The area of a rectangle is a3 – b3. If its length is (a – b), then find its breadth?
32. Simplify (2x + 3y)² - (2x – 3y)²?
33. If 2 is a zero of the polynomial ax² + bx + c then find the value of 4a + 2b + c?
34. Write the degree of the polynomial y3 – 7y² - y + 1?
35. Write the zeroes of the polynomial x² - 1?
36. Find the value of (-2)3 + (-3)3 + (5)3 without finding the cubes?

**Two marks questions**

1. If P(x) = 3x² + 2x – 7, then find the values of P(0), P(3), P(-1)?
2. Given 2 is zero of the polynomial x3 -2x² + ax + 1 then find the value of ‘a’?
3. Verify whether -2 and 3 are zeroes of the polynomial x² + 5x + 6?
4. Find the quadratic polynomial whose zeroes are 2 and -3?
5. Find the zeroes of the polynomial x² - 2x – 8?
6. Find the value of ‘m’ in order that x4 – 2x3 + 3x² - mx + 6 may be divisible by x – 3?
7. Is it possible that a quadratic polynomial will have 3 factors? If possible, explain with an example?
8. Find the factors of x² + 11x + 6?
9. Find the remainder when x3 + 3x² + 3x + 1 divided by (5 + 2x)?
10. If one zero of the polynomial x² + 5x – K is -3, then find the value of ‘k’ and other zero?
11. Divide (3x² - 14x – 5) by (3x + 1).
12. Check whether the polynomial x3 – 2x² - 5x + 4 is a multiple of (x – 2)?
13. When will the polynomial xn – yn exactly divisible by (x + Y) and (x – y)?
14. If ax² + 2a²x + b3 is divided by (x + a) exactly, then show that a = b or a² + ab + b² = 0?
15. Show that a3 – b3 = (a – b) (a² + ab + b²)?
16. If a + = m and a - = n, then write the relation between m and n?
17. If sum of two numbers is 5 and sum of their cubes is 35, then find sum of their squares?
18. If 3x - = 4 (x ≠ 0), then find the value of 27x3 - ?
19. Given 9x² + (7a – 5)x + 25 = (3x + 5)², find the value of ‘a’ ?
20. If a + b = 6 and a – b = 4, then find (i) a² + b² (ii) ab using identities?
21. Given a² + = 23 then find a3 + (a ≠ 0)?
22. Evaluate the value of × using suitable identity?
23. Prove that a3 + b3 + c3 = 3abc if a + b + c = 0?
24. Find the possible expressions for the length and breadth of the rectangle whose area is x² - 5x – 6?
25. Show that if 2(a² + b²) = (a + b)² then a = b?

**Four marks questions**

1. Divide the polynomial 2x4 – 4x3 – 3x -1 by (x – 1) and verify the remainder with the zero of the divisor?
2. If the polynomials ax3 + 3x² - 13 and 2x3 – 5x + a are divided by (x – 2) leave same remainder, then find the value of ‘a’?
3. Find the remainder when P(x) = 2x3 - 5x² + 3x – 1 is divided by q(x) = x – 2 and verify your answer by actual division?
4. Lateral surface area of a cylinder is x4 + 3x3 -4x² + x + 1. If its perimeter of the base is x² - 2x + 1, then find height of the cylinder?
5. When the polynomial x3 - 3x² + ax + b is divided by (x – 2) leaves remainder -1 and (x + 1) leaves remainder -13. Find the values of ‘a’ and ‘b’?
6. Find the quadratic polynomial which leaves the remainders 1, 2, 4 when divided by (x – 1), (x – 2) and (x – 3) respectively?
7. Factorize: 2x3 – 11x² + 17x – 6?
8. Find the values of ‘a’ and ‘b’ if (x + 1) and (x – 1) are factors of the polynomial x3 + 2x² + ax + b?
9. Find the remainders when 4x² - 8x + 3 is divided by (i) (2x - 1) (ii) (2x + 3) (iii) (x – 2) (iv) (3x – 2)?
10. If 3 is zero of the polynomial x² + kx – 24, then show that it is also zero of the polynomial x² - kx + 6?
11. Given 2 is zero of the polynomial x² - 5x + k then find the value of ‘k’ and other zero?
12. Find the zeroes of the polynomial 4x² + 5x + 1 and also find their sum and product? Then write the relation between the coefficient of the terms of the polynomial and zeroes of the polynomial?
13. If a3 + b3 + c3 = 3abc, then find the value of ?
14. If a² - 5a – 1 = 0 (a ≠ 0), then find (i) a + (ii) a - (iii) a² - ?
15. The difference between two positive numbers is 5 and the sum of their squares is 73. Find the product of the two numbers?
16. If a + = 6 then find a - and a² - ?