# MATHEMATICS WORKSHEET **CHAPTER** – 2 : POLYNOMIALS

## VERY SHORT ANSWER TYPE QUESTIONS

- Q1. If one zero of the quadratic polynomial  $x^2-5x-6$  is 6, then find the other zero.
- O2. If both the zeroes of the quadratic polynomial  $ax^2 + bx + c$  are equal and opposite in sign, then find the value of 'b'?
- Q3. Can  $x^2 1$  be the quotient on division of  $x^6 + 2x^3 + x 1$  by a polynomial in x of degree 5?
- Q4. If 1 is a zero of the polynomial  $p(x) = ax^2 3(a-1)x 1$ , then find the value of 'a'?
- Q5. If on division of a polynomial p(x) by a polynomial g(x) the quotient is zero, what is the relation between degree of p(x) and g(x)?
- Q6. If one root of the polynomial  $p(y) = 5y^2 + 13y + m$  is reciprocal of other, then find the value of 'm'?
- Q7. If the graph of a polynomial intersects the x axis at only one point, can it be a quadratic polynomial?

#### SHORT ANSWER TYPE QUESTIONS

- $\overline{Q8}$ . What number should be added to the polynomial  $x^2$ -5x+4, so that 3 is the zero of the polynomial?
- Q9. If  $\alpha$  and  $\beta$  are zeros of  $p(x) = x^2 + x 1$ , then find  $1/\alpha + 1/\beta$ ?
- Q10. If  $\alpha$  and  $\beta$  are the zeros of the quadratic polynomial  $f(x) = 2x^2 5x + 7$ , find a polynomial whose zeros are  $2\alpha + 3\beta$  and  $3\alpha + 2\beta$ ?
- O11. If one of the zeros of the cubic polynomial  $x^3 + ax^2 + bx + c$  is -1, then what will be the product of the other two zeros?
- Q12. What must be subtracted from  $p(x) = 8x^4 + 14x^3 2x^2 + 7x 8$ , so that the resulting polynomial is exactly divisible by  $g(x) = 4x^2 + 3x - 2$ ? Q13. What must be added to  $f(x) = 4x^4 + 2x^3 - 2x^2 + x - 1$ , so that the resulting polynomial is divisible by
- $g(x) = x^2 + 2x 3$ ?
- Q14. If the polynomial  $x^4 + 2x^3 + 8x^2 + 12x + 18$  is divided by another polynomial  $x^2 + 5$ , the remainder comes out to be px+q. Find the values of 'p' and 'q'?
- Q15. If  $\alpha$ ,  $\beta$ ,  $\gamma$  be zeros of the polynomial  $6x^3 + 3x^2 5x + 1$ , then find the value of  $\alpha^{-1} + \beta^{-1} + \gamma^{-1}$ ?
  Q16. If  $\alpha$ ,  $\beta$  are the two zeros of the polynomial  $f(y) = y^2 8y + a$  and  $\alpha^2 + \beta^2 = 40$ , find the value of 'a'?

## LONG ANSWER TYPE OUESTIONS

- O17. Obtain all other zeros of the polynomial  $2x^4 9x^3 + 5x^2 + 3x 1$ , if two of its zeros are  $2 \sqrt{3}$  and  $2 + \sqrt{3}$ ? (CBSE 2018)
- Q18. Find the zeros of the polynomial  $f(x) = x^3 5x^2 2x + 24$ , if it is given that the product of its two zeros is
- Q19. If  $\alpha$ ,  $\beta$  are zeros of the quadratic polynomial  $f(x) = 2x^2 + 11x + 5$ , find b) $1/\alpha + 1/\beta - 2\alpha\beta$
- Q20. If the zeros of the polynomial  $f(x) = x^3 3x^2 6x + 8$  are of the form a-b, a, a+b, then find all the zeros.

# **ANSWERS**

- 1. -1
- 2. 0
- 3. No
- 4. 1
- 5.  $\deg p(x) < \deg g(x)$
- 6. 5
- 7. Yes
- 8. 2
- 9. 1
- 10.  $k(x^2 25/2 x + 41)$
- 11. b-a+1
- 12. 14x 10
- 13. 61x 65
- 14. p = 2, q = 3
- 15. 5
- 16. 12
- 17. -1/2, 1
- 18. 3, 4; 4, 3; -2
- 19. a) 10001/16
  - b) -36/5
- 20. -2, 1, 4