POLYNOMIALS

DIVISION ALGORITHM OF POLYNOMIALS

EXERCISE

- **Q.1** Apply the division algorithm to find the quotient and remainder on dividing p(x) by g(x) as given below $p(x) = x^4 3x^2 + 4x + 5$, $g(x) = x^2 + 1 x$
- **Q.2** Check whether the first polynomial is a factor of the second polynomial by applying the division algorithm. $t^2 3$; $2t^4 + 3t^3 2t^2 9t 12$.
- **Q.3** Obtain all the zeroes of $3x^4 + 6x^3 2x^2 10x 5$, if two of its zeroes are $\sqrt{\frac{5}{3}}$ and -

- **Q.4** Give examples of polynomials p(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) $\deg q(x) = 0$
- **Q.5** If the zeroes of polynomial $x^3 3x^2 + x + 1$ are a b, a, a + b. Find a and b.
- **Q.6** If two zeroes of the polynomial $x^4 6x^3 26x^2 + 138x 35$ are $2 \pm \sqrt{3}$, find other zeroes.
- **Q.7** If $x^{100} + 2x^{99} + k$ is divisible by (x + 1), then find the value of k.
- **Q.8** On dividing $(x^3 6x + 7)$ by (x + 1), find the remainder.
- **Q.9** On dividing $(x^3 3x^2 + x + 2)$ by a polynomial g(x), the quotient and remainder are (x 2) and (-2x + 4) respectively. Find g(x).
- **Q.10** 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 value of p and q.

 $[\]sqrt{\frac{5}{3}}$.

CLASS 10

ANSWER KEY

- 1. $x^4 3x^2 + 4x + 5$
- **2.** $(2t^2 + 3t + 4)(t^2 3)$
- **3.** $\sqrt{\frac{5}{3}}, -\sqrt{\frac{5}{3}}, -1, -1.$
- **5.** $a = -1 \& b = \pm \sqrt{2}$
- 6. x = 7, x = -5
- **7.** 1
- **8.** 12
- 9. $x^2 x + 1$
- **10.** p = 2, q = 3