Polynomial – Higher Order Questions (Class 10 Maths)

Level 1 – Conceptual Questions

1. Find the zeroes of the polynomial $p(x) = x^2 - 5x + 6$ and verify the relationship between the zeroes and coefficients.

2. If α and β are the zeroes of the polynomial $3x^2 - 7x + 2$, find a quadratic polynomial whose zeroes are (2α) and (2β).

3. The sum and product of the zeroes of a quadratic polynomial are 7 and 10 respectively. Find the polynomial.

Level 2 – Application-Based Questions

4. A cubic polynomial $p(x)$ has zeroes -1, 2, and 3. Find the polynomial when its leading coefficient is 2.

5. If the zeroes of the quadratic polynomial $2x^2 + kx + 3$ are reciprocal to each other, find the value of k.

6. Determine a cubic polynomial whose zeroes are 1, -2, and 3, and having the sum of coefficients equal to 6.

Level 3 – Analytical/Challenging Questions

7. If the zeroes of the polynomial $ax^2 + bx + c$ are in the ratio 3:2, show that $9b^2 = 100ac$.

8. A cubic polynomial $p(x)$ is such that the sum of its zeroes is 6, the sum of the product of its zeroes taken two at a time is 11, and the product of its zeroes is 6. Find $p(x)$ if its leading coefficient is 1.

9. If one zero of the polynomial $3x^3 - 8x^2 + 5x + 4$ is 4/3, find the other two zeroes.

10. Prove that if the zeroes of the polynomial $ax^2 + bx + c$ are equal, then $b^2 = 4ac$.