Level - 2 (Higher Order)

MCQ Type :

1. If the zeroes of the quadratic polynomial $x^2 + (a+1)x + b$ are 2 and –3, then

Ⓐ $a = -7, b = -1$ Ⓑ $a = 5, b = -1$ Ⓒ $a = 2, b = -6$ Ⓓ $a = 0, b = -6$

(Hints : Put x = 2 and –3. Solve equations for a and b)

2. If $p(x) = ax^2 + bx + c$ and $a + b + c = 0$, then one zero is

Ⓐ $-b/a$ Ⓑ c/a Ⓒ b/c Ⓓ none of these

(Hints : Put b = -(a+c) and factorise.)

3. The number of polynomials having zeroes as –2 and 5 is

Ⓐ 1   Ⓑ 2   Ⓒ 3   Ⓓ more than 3

(Hints : Number of polynomials is infinite)

4. The graph of the polynomial $ax^2 + bx + c$ is a downward parabola if

Ⓐ $a > 0$ Ⓑ $a < 0$ Ⓒ $a = 0$ Ⓓ $a = 1$

5. If a polynomial of degree 4 is divided by quadratic polynomial, the degree of the remainder is

Ⓐ ≤ 1 Ⓑ ≥ 1 Ⓒ 2   Ⓓ 4

6. The number of zeroes that polynomial $f(x) = (x-2)^2 + 4$ can have is :

Ⓐ 1   Ⓑ 2   Ⓒ 0   Ⓓ 3

(Hints : No real values of x so that y = 0)

SA-II Type :

7. If the sum of square of the zeroes of the polynomial $x^2 + px + 45$ is equal to 135, find the value of p.

(Hints : $\alpha + \beta = -p$, $\alpha\beta = 45$)

8. If the zeroes of $p(x) = 2x^2 - 6x - 3$ are $\dfrac{3 \pm \sqrt{k}}{2}$, where k is a real number. Find 'k'.

(Hints : Product of zeroes $= \dfrac{-3}{2}$)

9. Find the value of k such that the polynomial $x^2 - (k+6)x + 2(2k - 1)$ has the sum of its zeroes equal to half of its product.

(Hints : $\alpha + \beta = k + 6$, $\alpha\beta = 2(2k - 1)$)

10. Obtain zeros of $4\sqrt{3}x^2 + 5x - 2\sqrt{3}$ and verify relation between its zeroes and coefficients.

(Hints : $\alpha + \beta = \dfrac{-5}{4\sqrt{3}}$ $\alpha\beta = \dfrac{-2\sqrt{3}}{4\sqrt{3}}$)

11. –5 is one of the zeros of $2x^2 + px – 15$, zeroes of $p(x^2 + x) + k$ are equal to each other. Find the value of k.

(Hints : Put x = –5 to find p. For equal roots $b^2 = 4ac$.)

12. If α and β are zeroes of the polynomial $x^2 + 4x + 3$, find he polynomial whose zeroes are $1 + \dfrac{\beta}{\alpha}$ and $1 + \dfrac{\alpha}{\beta}$.

(Hints : $\alpha + \beta = –4$, $\alpha\beta = 3$)

A N S W E R

1. Ⓓ		**7.** $\pm\,15$	
2. Ⓑ		**8.** 15	
3. Ⓓ		**9.** k = 7	
4. Ⓑ		**10.** $\dfrac{\sqrt{3}}{4}, -\dfrac{2}{\sqrt{3}}$	
5. Ⓐ		**11.** $\dfrac{7}{4}$	
6. Ⓒ		**12.** $3x^2 – 16x + 16$	