BHARATH COACHING CENTRE

10th CBSE	Polynomial	Total: 50
Maths	Unit - 2	Time: 1.30 hrs

SECTION – A 5 x 1 = 5

1. If the zeroes of $x^2 - px - q$ are reciprocal of each other, then find the value of q.
2. If the sum of the zeroes of the polynomial, $p(x) = (k^2 - 14)x^2 - 2x - 4$ is 1, then find the value of k.
3. If the sum of the zeroes of the quadratic polynomial $3x^2 - kx + 6$ is 3, then find the value of k.
4. What is the value of p, for which the polynomial $x^3 + 4x^2 - px - 6$ is completely divisible by $(x - 1)$?
5. The graph of a polynomial p(x) intersects the x – axis three times in distinct points. Could $4 - 4x - x^2 - x^3$ be an expression for p(x)?

SECTION – B 5 x 2 = 10

6. Find the quadratic polynomial the sum and product of whose zeroes are -7 and -18 respectively. Hence find the zeroes.
7. If $\alpha = 2$, and $\beta = 3$ are zeroes of a polynomial, $x^2 - 5x + 6$, then find polynomial whose zeroes are $\frac{1}{\alpha}$ & $\frac{1}{\beta}$.
8. Form a quadratic polynomial whose zeroes are $\frac{3-\sqrt{3}}{5}$ and $\frac{3+\sqrt{3}}{5}$.
9. Divide $2x^5 - 3x^4 + 2x^2 - 3$ by $x^2 - 1$.
10. When a polynomial $6x^4 + 8x^3 + 27x^2 + 21x + 7$ is divided by another polynomial $3x^2 + 4x + 1$, the remainder is in the form ax + b. Find a and b.

SECTION – C 5 x 3 = 15

11. If α and β are the zeros of the quadratic polynomial $f(x) = x^2 - x - 2$, find a polynomial whose zeros are $2\alpha + 1$ and $2\beta + 1$.
12. Quadratic polynomial $4x^2 + 12x + 9$ has zeroes as α and β. Now form a quadratic polynomial whose zeroes are $\alpha - 1$ and $\beta - 1$.
13. If one zero of the polynomial $2x^2 - 5x - (2k + 1)$ is twice the other, find both the zeroes of the polynomial and the value of k.
14. Find all the zeroes of $2x^4 - 3x^3 - 3x^2 + 6x - 2$, if two of the zeroes are $\sqrt{2}$ and $-\sqrt{2}$
15. Check whether polynomial $3x^2 - 5x + 2$ is a factor of the polynomial $3x^4 - 5x^3 - 10x^2 + 20x - 8$. Verify by division algorithm.

SECTION – D 5 x 4 = 20

16. If α and β are the zeros of the quadratic polynomial $f(x) = 3x^2 - 6x + 4$, find the value of $\frac{\alpha}{\beta} + \frac{\beta}{\alpha} + 2\left(\frac{1}{\alpha} + \frac{1}{\beta}\right) + 3\alpha\beta$.
17. If α and β are the zeros of the quadratic polynomial $f(x) = x^2 - 3x - 2$, find a polynomial whose zeros are $\frac{1}{2\alpha + \beta}$ and $\frac{1}{2\beta + \alpha}$.
18. Find all the zeroes of the polynomial $2x^4 - 9x^3 + 5x^2 + 3x - 1$, if two of its zeroes are $2 + \sqrt{3}$ and $2 - \sqrt{3}$

19. Find the polynomial of the least degree which should be subtracted from polynomial $x^4 - 5x^3 + x^2 + 17x - 11$ so that it is exactly divisible by $x^2 - 3$.
20. If the polynomial $f(x) = x^4 - 6x^3 + 16x^2 - 25x + 10$ is divided by another polynomial $x^2 - 2x + k$, the remainder comes out to be $x + a$, find k and a.