X MATHS TEST ON POLYNOMIAL

TIME : 1 HR. **M.M. : 25**

1. If fourth degree polynomial is divided by quadratic polynomial. Write the degree of the remainder. **1**

2. State True or False :

If $p(x) = g(x) \cdot g(x) + r(x)$, degree of $p(x) = 6$, degree of $g(x) = 3$, then degree of $q(x)$ is 3. **1**

3. If $(x + a)$ is a factor of $2x^2 + 2ax + 5x + 10$, find a. **2**

4. Write a quadratic polynomial whose zeroes are $\frac{\sqrt{2}}{\sqrt{3}}$ and $-\frac{\sqrt{2}}{\sqrt{3}}$. **2**

5. Find the zeroes of the polynomial $f(x) = 4\sqrt{3}\,x^2 + 5x - 2\sqrt{3}$, and verify the relationship between the zeroes and its coefficients. **3**

6. On dividing $3x^3 + 4x^2 + 5x - 13$ by $g(x)$, the quotient and remainder are $(3x + 16)$ and $(16x - 43)$ respectively. find $g(x)$. **3**

7. If α, β and γ are the zeroes of the polynomial $g(x) = 6x^3 + 3x^2 - 5x + 1$, then find the value of $\alpha^{-1} + \beta^{-1} + \gamma^{-1}$. **3**

8. What must be subtracted from the resulting polynomial is exactly divisible by $4x^2 + 3x - 2$. **3**

9. If α and β are the zeroes of polynomial $x^2 - 6x + a$, then find the value of a, if $3\alpha + 2\beta = 20$. **3**

10. Obtain all the zeroes of the polynomial $f(x) = x^4 - 6x^3 - 26x^2 + 138x - 35$ are $2 \pm \sqrt{3}$. **4**