MATHEMATICS PRACTICE TEST

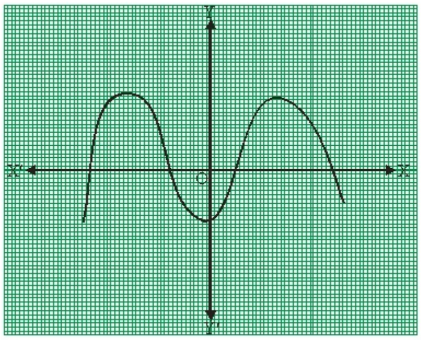
Class: X^{th}

Max Marks:* 30 ; *Time: 1hour | **Dated:26 / 02 /2023**

Polynomials

General Instructions:

Questions 1 to5 carries 1 mark each, 6 to 9 carries 2 marks each, 10 to 13 carries 3 marks each and Question 14 carry 5 marks.



1. The graphs of $y = p(x)$ is given in figure. Find the number of zeroes of $p(x)$.
2. Give geometrical meaning of the zeroes of a polynomial.

Or

Find the quadratic polynomial, the sum and product of whose zeros are $\sqrt{2}$ and –12 respectively.

3. Evaluate $p(x) = 2 - x^2 + \sqrt{5}x$ at $x = -\frac{1}{\sqrt{5}}$
4. Find the zeroes of the polynomial $x^2 + 7x + 12$
5. Find the sum of the zeroes of polynomial $4u^2 + 8u = 0$
6. Find the zeros of the quadratic polynomial g (s) = $4s^2 - 4s + 1$ and verify the relationship between the zeros and their coefficients.
7. Find a quadratic polynomial whose sum is 0, and product of its zeroes is $\sqrt{5}$.
8. What must be subtracted from $8x^4 + 14x^3 - 2x^2 + 7x - 8$ so that the resulting polynomial is exactly divisible by $4x^2 + 3x - 2$.
9. If the zeroes of the polynomial $x^3 - 3x^2 + x + 1$ are $(a - b)$, a and ($a + b$), find a and b.
10. If α and β are the zeros of the quadratic polynomial $f(x) = ax^2 + bx + c$, then evaluate: $\alpha - \beta$

Or

If α and β are the zeros of the polynomial $(f)x = 2x^2 + 5x + k$, satisfying the relation $\alpha^2 + \beta^2 + \alpha\beta = \frac{21}{4}$, then find the value of k for this to be possible.

11. Check whether the first polynomial is a factor of the second polynomial by dividing the second polynomial by the first polynomial : $x^2 + 3x + 1$; $3x^4 + 5x^3 - 7x^2 + 2x + 2$
12. Give example of polynomials $p(x)$, $g(x)$, $q(x)$ and $r(x)$, which satisfy the division algorithm and degree $r(x) = 0$.

Or

Find a cubic polynomial with the sum, sum of the products of its zeroes taken two at a time, and product of its zeroes as 5, –16 and –80 respectively.

13. If α and β are the zeros of the quadratic polynomial $f(x) = ax^2 + bx + c$, then evaluate $\alpha^4 + \beta^4$.

Or

Divide the polynomial $c(x) = 9x^4 - 4x^2 + 4$ by the polynomial $d(x) = 3x^2 + x + 1$ to find the quotient and remainder.

14. Find all zeros of the polynomial $f(x) = 2x^4 + x^3 - 7x^2 + 3x + 6$, if its two zeros are $-\sqrt{\frac{3}{2}}$ and $\sqrt{\frac{3}{2}}$.

……..End of Paper……..