MATHEMATICS MOCK TEST

Class: IX | Set: 4

Time: 1 Hour 30 Minutes | Written Marks: 35 | Viva: 5 | Total: 40 Marks

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Find the value of $(125)^{-1/3}$.
2. Find the zero of the polynomial $p(x) = cx + d$, where $c \neq 0$.
3. What is the ordinate of any point lying on the x-axis?
4. Check if $(4, 0)$ is a solution of the equation $x - 2y = 4$.
5. Find an irrational number between 2 and 3.

SECTION B

(2 Marks Each)

6. Rationalize the denominator of $\frac{1}{\sqrt{5}+\sqrt{2}}$.
7. Find the value of k, if $(x - 1)$ is a factor of $kx^2 - \sqrt{2}x + 1$.
8. Find the area of a triangle whose vertices are $(0, 0), (6, 0)$, and $(0, 4)$.
9. Write the equation $2x + 3y = 9.3\overline{5}$ in the form $ax + by + c = 0$.
10. Factorize: $27x^3 + y^3 + z^3 - 9xyz$.

SECTION C

(3 Marks Each)

11. Find the values of a and b if: $\frac{3+\sqrt{7}}{3-\sqrt{7}} = a + b\sqrt{7}$.
12. Factorize $x^3 - 3x^2 - 9x - 5$ completely.
13. Plot $A(2, 2), B(-2, 2), C(-2, -2), D(2, -2)$. Name the figure and find its perimeter.
14. If $x^2 + \frac{1}{x^2} = 23$, find the value of $x + \frac{1}{x}$.

SECTION D

(4 Marks Each)

15. Simplify by rationalizing: $\frac{1}{2+\sqrt{3}} + \frac{2}{\sqrt{5}-\sqrt{3}} + \frac{1}{2-\sqrt{5}}$.
16. Draw the graph of $y = 3x$. Does it pass through the origin?

VIVA VOCE

(5 Marks)

- **Real Numbers:** Is every real number an irrational number?
- **Polynomials:** What is the degree of a zero polynomial?
- **Coordinates:** Find the coordinates of a point at a distance of 3 units from x-axis and 2 units from y-axis (Quadrant I).
- **Origin:** Form of a line that always passes through the origin?
- **Theorems:** State the Factor Theorem.