MATHEMATICS MOCK TEST

Class: VIII | Set: 09

Time: 2 Hours | Written Marks: 35 | Viva: 5 | Total: 40 Marks

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Find the cube of 1.5.
2. If $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ and $A = \{2, 4, 6, 8, 10\}$, find A^c (complement of A).
3. Solve for x: $2(x - 3) = 14$.
4. Three angles of a quadrilateral are $80°, 70°$ and $120°$. Find the fourth angle.
5. If x and y are in direct variation and $x = 5$ when $y = 25$, find y when $x = 8$.

SECTION B

(2 Marks Each)

6. Find the square root of 5329 using the long division method.
7. Solve the inequation $3x - 11 < 4$ and represent the solution set if $x \in \mathbb{N}$ (Natural Numbers).
8. Find the smallest number by which 1323 must be divided so that the quotient is a perfect cube.
9. Find the area of a rhombus whose diagonals are 12 cm and 16 cm.
10. Calculate the simple interest on ₹8600 for 2 years at 5% per annum.

SECTION C

(3 Marks Each)

11. Find the compound interest on ₹$10,000$ for 1 year at 20% per annum compounded half-yearly.
12. A and B can do a piece of work in 12 days, B and C in 15 days, and C and A in 20 days. In how many days can they finish it working together?
13. In a class of 50 students, 30 like Tea, 25 like Coffee and 10 like both. Find the number of students who like neither Tea nor Coffee using a Venn diagram.
14. If 20 men can build a wall in 9 days, how many men will be needed to build the same wall in 12 days?

SECTION D

(4 Marks Each - Case Study)

Case Study 1: Geometric Park Design
A park is in the shape of a parallelogram $ABCD$. The adjacent angles are given as $(3x - 10)^\circ$ and $(2x + 20)^\circ$.

(i) Find the value of x using the property of adjacent angles of a parallelogram. (2 Marks)

(ii) Find the measure of all four angles of the park. (2 Marks)

Case Study 2: Water Pump Efficiency
Two pumps A and B are used to fill a swimming pool. Pump A can fill the pool in 8 hours and Pump B can fill it in 12 hours.

(i) If both pumps are opened together, how long will they take to fill the pool? (2 Marks)

(ii) If Pump A works for 2 hours and then stops, how much more time will Pump B take to fill the rest of the pool? (2 Marks)

VIVA VOCE

(5 Marks)

- **Squares:** How many natural numbers lie between 15^2 and 16^2?
- **Interest:** What is the difference between principal and amount?
- **Sets:** Define an ”Infinite Set” with an example.
- **Cubes:** What is the digit at the units place of the cube of 9?
- **Inequations:** What happens to the inequality sign if we multiply both sides by -1?