MATHEMATICS MOCK TEST

Class: VIII | Set: 05

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

NAME: _____   ROLL NO: _____

SECTION A   (1 Mark Each)

1. If $P = \{x : x$ is a factor of $6\}$ and $Q = \{x : x$ is a factor of $8\}$, find $P \cap Q$.

2. If 12 chairs cost ₹3600, what is the cost of 1 chair?

3. Find the cube of 0.4.

4. Solve for x: $x + 12 = 5$.

5. Name the quadrilateral which has only one pair of parallel sides.

SECTION B   (2 Marks Each)

6. Find the square root of 1296 using the prime factorization method.

7. Solve the inequation $5x - 4 > 11$ and write the solution set if $x \in \mathbb{N}$.

8. 15 men can finish a piece of work in 10 days. How many days will 1 man take to finish the same work?

9. Two angles of a quadrilateral are $70°$ and $110°$, and the remaining two angles are equal. Find the measure of the equal angles.

10. Calculate the simple interest on ₹5000 for 2 years at 4% per annum.

SECTION C   (3 Marks Each)

11. Find the compound interest on ₹6250 for 2 years at 8% per annum compounded annually.

12. In a group of 40 people, 25 speak Hindi, 20 speak English and each person speaks at least one of the two languages. How many people speak both Hindi and English? (Use Set operations).

13. Find the smallest number by which 392 must be multiplied so that the product is a perfect cube.

14. 6 taps of the same size fill a tank in 1 hour 20 minutes. How long will it take to fill the tank if only 5 taps of the same size are used?

SECTION D

Case Study 1: The Water Pump Challenge
A construction company uses two types of pumps to drain a basement. Pump A can empty the basement in 12 hours, while Pump B can empty it in 15 hours.

  (i) If both pumps are opened together, how long will it take to empty the basement? (2 Marks)

 (ii) If only Pump A works for 4 hours and then stops, what part of the basement is still full? (2 Marks)

Case Study 2: The Age Puzzle
In a family, the father's age is 5 years more than three times the son's age. The sum of their ages is 45 years.

  (i) Form a linear equation to represent this situation, taking the son's age as x. (2 Marks)

 (ii) Find the present ages of both the father and the son. (2 Marks)

VIVA VOCE
(5 Marks)

- **Equations:** What is the maximum power of the variable in a linear equation?

- **Variation:** If the number of books increases, does the total cost follow direct or inverse variation?

- **Quadrilaterals:** What is the sum of the exterior angles of any quadrilateral?

- **Roots:** Is 121 a perfect square? How do you know?

- **Interest:** What does 'compounded half-yearly' mean for the rate and time in CI calculations?