MATHEMATICS MOCK TEST

Class: VIII | Set: 10

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Test the divisibility of 81852 by 11 using the divisibility rule.
2. Rewrite using set notation: "Set B and Set C are equivalent sets."
3. If 50 pencils can be bought for ₹120, how many pencils can be bought for ₹108?
4. Solve the linear equation: $(z+3)(z-3) - z(z+5) = 6$.
5. Pipe A can fill a tank in 36 minutes. What part of the tank is filled by Pipe A in 1 minute?

SECTION B

(2 Marks Each)

6. Find two numbers whose product is a one-digit number and their sum is a two-digit number.
7. Let A be the set of letters in the word "seed". Find $n(A)$ and write the number of proper subsets of A.
8. If a labourer earns ₹784 per week, how much will he earn in 15 days?
9. A can do a piece of work in 12 days and B alone can do it in 16 days. They worked together for 3 days and then A left. How long did B take to finish the remaining work?
10. The sum of three consecutive odd numbers is 75. Find the numbers.

SECTION C

(3 Marks Each)

11. Replace A, B and C by suitable numerals in the following multiplication:

$$\begin{array}{cccc} & & A & B \\ \times & & & 3 \\ \hline & C & A & B \end{array}$$

12. Let $\xi = \{x \mid x \in N, 4 \leq x < 18\}$, $A = \{x \mid x \text{ is a multiple of } 2\}$, and $B = \{x \mid x \text{ is a multiple of } 3\}$. Find $(A \cup B)'$ and $A' \cap B'$. Are they equal?

13. Two pipes A and B can separately fill a cistern in 20 minutes and 30 minutes respectively, while a third pipe C can empty the full cistern in 15 minutes. If all three are opened together, in what time will the empty cistern be filled?

14. A right-angled triangle having perimeter 120 cm has its two perpendicular sides in the ratio $5 : 12$. Find the lengths of its sides.

SECTION D

(4 Marks Each - Case Study)

Case Study 1: Digit Logic Puzzle
In a numerical puzzle, you are given a condition: A two-digit number is 3 more than 4 times the sum of its digits. If 18 is added to the number, its digits are reversed.

(i) Let the tens digit be x and units digit be y. Form a linear equation based on the first condition. (2 Marks)

(ii) Use the second condition to find the original number. (2 Marks)

Case Study 2: Labor and Baskets
A group of 13 men can weave 117 baskets in a week (7 days). The workshop receives an urgent order for 189 baskets to be completed in just 3 days.

(i) How many baskets can one man weave in one day? (2 Marks)

(ii) How many men will be needed to weave 189 baskets in 3 days? (2 Marks)

VIVA VOCE

(5 Marks)

- **Sets:** What is the difference between an empty set (ϕ) and a set containing zero ($\{0\}$)?
- **Linear Equations:** If a number is subtracted from the numerator and added to the denominator of a fraction, what algebraic step is usually taken first to solve for the number?
- **Variation:** Explain with an example why the number of workers and time taken to complete a wall is an inverse variation.
- **Numbers:** What is the divisibility rule for 4?
- **Time & Work:** If A is twice as good a workman as B, and B takes 20 days, how many days will A take?