MATHEMATICS MOCK TEST

Class: VIII | Set: 8

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Find two numbers whose product is a one-digit number and the sum is a two-digit number.
2. Describe the set in roster form: $G = \{x \mid x = \frac{n}{n+3},\ n \in N,\ n \leq 5\}$.
3. Solve the linear equation: $\frac{0.5z+4}{1.2z+6} = \frac{5}{3}$.
4. If 18 notebooks cost ₹333, how many notebooks can be purchased for ₹425.50?
5. A and B together can do a piece of work in 35 days. What is their combined work in 1 day?

SECTION B

(2 Marks Each)

6. The difference between a two-digit number and the number obtained by interchanging its digits is 63. What is the difference between the digits of the number?
7. Let $A = \{1, 2\}$. State which of the following are true: (i) $1 \in A$, (ii) $\{1\} \notin A$.
8. In a zoo, 28 parrots consume 7420 g of nuts in a day. If 8 parrots are sent to another zoo, what quantity of nuts will be required in a day?
9. A can do a piece of work in 12 days and B alone can do it in 16 days. They worked together on it for 3 days and then A left. How long did B take to finish the remaining work?
10. Two numbers are in the ratio $3 : 5$. If each is increased by 10, the ratio between the new numbers becomes $5 : 7$. Find the original numbers.

SECTION C

(3 Marks Each)

11. Replace A, B and C by suitable numerals:

$$\begin{array}{rccc} & A & B \\ \times & B & A \\ \hline (B+1) & C & B \end{array}$$

12. Let $A = \{a, b, c, d, e\}$, $B = \{a, c, e, g\}$, and $C = \{b, e, f, g\}$. Verify the associative law: $A \cup (B \cup C) = (A \cup B) \cup C$.

13. Three typists working 7 hours a day type a thesis in 10 days. For how many hours per day should 2 typists work to finish it in 21 days?

14. The sum of the digits of a two-digit number is 9. If 9 is added to the number formed by reversing the digits, then the result is thrice the original number. Find the original number.

SECTION D

(4 Marks Each - Case Study)

Case Study 1: Efficiency and Time Management
Worker A can do a certain job in 25 days which B alone can do in 20 days. A started the work and was joined by B after 10 days.

(i) What portion of the work was completed by A before B joined? (2 Marks)

(ii) In how many total days was the whole work completed? (2 Marks)

Case Study 2: The Age Gap Analysis
Seema is 10 years elder than Rekha. The ratio of their present ages is $5 : 3$.

(i) Let Rekha's age be x. Form a linear equation to find the current ages based on the given ratio. (2 Marks)

(ii) Find their ages five years from now. (2 Marks)

VIVA VOCE

(5 Marks)

- **Numbers:** If you divide the number of four-digit numbers by the number of three-digit numbers, what is the quotient?
- **Sets:** What is a "Power Set" and how do you calculate the number of elements in it?
- **Linear Equations:** What does it mean for numbers to be in "proportion" in the context of adding a constant to $15, 23, 29$ and 44?
- **Variation:** If 45 iron rods weigh 12.6 kg, will 24 rods weigh more or less? What type of variation is this?
- **Time & Work:** If person A is 60% more efficient than B, who will take fewer days to complete a task?