MATHEMATICS MOCK TEST

Class: VIII | Set: 11

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Find the quotient when you divide the total number of four-digit numbers by the total number of three-digit numbers.
2. Rewrite the following statement using set notation: "Set C is a superset of set D."
3. If the cost of 40 toys is ₹1024, find the cost of one dozen such toys.
4. If a worker takes 12 days to finish a task, what part of the work is completed by the worker in 5 days?
5. Solve the linear equation: $4x - 9 = 2x + 7$.

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. Describe the following set in roster form: $F = \{x \mid x = n^2, n \in N, 2 \leq n \leq 5\}$.
8. If a car covers 56.7 km in 4.5 litres of petrol, how many kilometres will it cover in 26 litres of petrol?
9. Two pipes A and B can separately fill a tank in 36 minutes and 45 minutes respectively. If both pipes are opened simultaneously, how much time will be taken to fill the tank?
10. Divide 180 into two parts such that the first part is 12 less than twice the second part.

SECTION C

(3 Marks Each)

11. Find the values of A and B in the following subtraction sum:

$$\begin{array}{rcc} & 6 & A \\ - & A & B \\ \hline & 3 & 7 \end{array}$$

12. Let $\xi = \{13, 14, 15, 16, 17, 18, 19, 20, 21\}$, $A = \{13, 17, 19\}$ and $B = \{14, 16, 18, 20\}$. Find A' and B'.

13. If 5 labourers earn ₹9000 in 15 days, how many labourers can earn ₹6720 in 8 days?

14. Solve the following linear equation: $y(2y+3) - 2y(y-5) = 26$.

SECTION D

(4 Marks Each - Case Study)

Case Study 1: Remuneration and Efficiency
In a technical workshop, three workers A, B, and C are evaluated based on their performance. A is thrice as good a workman as B, and B is twice as good a workman as C. All three took up a combined job and received ₹1800 as total remuneration.

(i) Determine the ratio of the work efficiencies of A, B, and C. (2 Marks)

(ii) Calculate the individual share of the ₹1800 received by worker A and worker C. (2 Marks)

Case Study 2: Geometric Dimensions (Linear Equations)
A right-angled triangle is being designed for a structural frame. The triangle has a perimeter of 120 cm. Its two perpendicular sides (the base and the height) are in the ratio $5 : 12$.

(i) Let the common ratio be x. Find the lengths of the two perpendicular sides and use Pythagoras theorem to find the length of the hypotenuse in terms of x. (2 Marks)

(ii) Calculate the actual lengths of all three sides of the triangle. (2 Marks)

VIVA VOCE

(5 Marks)

- **Sets:** What is the difference between an ”element” and a ”subset”?
- **Linear Equations:** What is the difference between a linear expression and a linear equation?
- **Variation:** If the number of men increases, the time taken to complete a work decreases. Is this direct or inverse variation?
- **Playing With Numbers:** If you add 18 to a two-digit number and its digits are reversed, what is the difference between the digits of that number?
- **Time & Work:** If A can do $1/4$ of a work in 5 days, in how many days can A complete the whole work?