MATHEMATICS MOCK TEST

Class: VIII | Set: 12

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

NAME: _____ ROLL NO: _____

SECTION A   (1 Mark Each)

1. State whether the following collection is a set or not: "All the interesting dramas written by Shakespeare."

2. Rewrite the following statement using set notation: "A is an empty set and B is a non-empty set."

3. If 5 men or 7 women can earn ₹700 per day, how much does one man earn in one day?

4. A number is 25 more than its $5/6$th part. Find the number.

5. Worker B is 60% more efficient than Worker A. If Worker A takes 12 days to finish a job, will Worker B take more or less than 12 days?

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 $\xi = \{x \mid x \in N, x \text{ is a factor of } 144\}$, $A = \{x \mid x \text{ is a factor of } 24\}$ and $B = \{x \mid x \text{ is a factor of } 36\}$. Find $A \cap B'$.

8. 15 men can do a piece of work in 36 hours. How many men will be required to finish the work in 20 hours?

9. A is twice as good a workman as B and together they finish a piece of work in 14 days. In how many days can A alone do it?

10. The sum of three consecutive odd numbers is 75. Find the numbers.

SECTION C   (3 Marks Each)

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

$$AB)252(BA$$
Process: $252 - 240 = 12$; then $12 - 12 = 0$.

12. Let $\xi = \{x \mid x \in N, 4 \leq x < 18\}$, $A = \{x \mid x$ is a multiple of $2\}$, and $B = \{x \mid x$ is a multiple of $3\}$. Verify that $A - B = A \cap B'$.

13. 13 men can weave 117 baskets in a week. How many men will be needed to weave 189 baskets in 3 days?

14. Divide 25 into two parts such that 7 times the first part added to 5 times the second part makes 139.

SECTION D (4 Marks Each - Case Study)

Case Study 1: Provisioning for the Fort
A fort had provisions for 450 men for 80 days. After 10 days, 50 more men arrived at the fort.

(i) For how many days was the food originally intended to last for the remaining 450 men after the first 10 days? (2 Marks)

(ii) How long will the remaining food last for the total number of men now present in the fort? (2 Marks)

Case Study 2: Geometric Land Plot Analysis
The length of a rectangular plot of land exceeds its breadth by 23 m. If the length is decreased by 15 m and the breadth is increased by 7 m, the area is reduced by 360 m².

(i) Let the breadth be x. Form a linear equation to represent the relationship between the original area and the new area. (2 Marks)

(ii) Find the original length and breadth of the plot. (2 Marks)

VIVA VOCE (5 Marks)

- **Playing With Numbers:** If you reverse the digits of a 3-digit number and subtract, the result is always divisible by which largest natural number?

- **Sets:** Define "Equivalent Sets" and distinguish them from "Equal Sets".

- **Variation:** What is the constant of variation in a direct variation $y = kx$?

- **Linear Equations:** What is the "root" of a linear equation?

- **Time & Work:** If person A does $1/n$ work in a day, how many days do they take to finish the work?