MATHEMATICS MOCK TEST

Class: VIII | Set: 5

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

NAME: _____ ROLL NO: _____

SECTION A   (1 Mark Each)

1. Test the divisibility of 56318 by 4 using the divisibility rule.

2. Rewrite the following statement using set notation: "Cardinal number of set E is 15".

3. If 50 pencils can be bought for ₹120, how many pencils can be bought for ₹1?

4. Solve the linear equation: $5y + 18 = 11 - 2y$.

5. If A and B together can do a piece of work in 35 days, what is their combined 1-day work?

SECTION B   (2 Marks Each)

6. The sum of the digits of a two-digit number is 13. The number obtained by interchanging its digits exceeds the given number by 9. Find the original number.

7. Describe the following set in roster form: $F = \{x \mid x = n^2, n \in N, 2 \leq n \leq 5\}$.

8. 13 men can weave 117 baskets in a week. How many baskets do 13 men weave in one day?

9. A is thrice as good a workman as B and B is twice as good a workman as C. If they receive ₹1800 for a job, what is the share of C?

10. Three numbers are in the ratio $4 : 5 : 6$ and their sum is 135. Find the numbers.

SECTION C   (3 Marks Each)

11. Find the values of $A, B,$ and C in the following subtraction:

$$\begin{array}{r} C \quad B \quad 6 \\ -\ 2 \quad 9 \quad A \\ \hline 5 \quad 3 \quad 9 \end{array}$$

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

13. A fort had provisions for 450 men for 80 days. After 10 days, 50 more men arrived. How long will the remaining food last?

14. Solve the following linear equation for x:

$$\frac{3x}{4} - \frac{x-4}{3} = \frac{5}{3}$$

SECTION D
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(4 Marks Each - Case Study)
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Case Study 1: The Completion Deadline
Two workers, A and B, are assigned a construction task. A can do a piece of work in 14 days, while B can do it in 21 days. They begin working together, but 3 days before the completion of the work, A leaves off.

(i) Calculate the total number of days taken to complete the entire work. (2 Marks)

(ii) What portion of the total work was done by B alone during the last 3 days? (2 Marks)

Case Study 2: The Cross-Country Ride
The distance between two stations is 300 km. Two motor-cyclists start simultaneously from these stations and move towards each other. The speed of one is 7 km/h faster than that of the other. After 2 hours of their start, the distance between them is 34 km.

(i) Let the speed of the slower cyclist be x. Form a linear equation to represent the total distance covered by both in 2 hours. (2 Marks)

(ii) Find the speed of each motor-cyclist in km/h. (2 Marks)

VIVA VOCE
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(5 Marks)
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- **Logic:** If you multiply a number by 7 and the product consists only of the digit 3, what is the smallest such number?

- **Sets:** What is a Power Set, and how many elements does it have for a set with n elements?

- **Variation:** Explain the relationship between speed and time for a fixed journey. Is it direct or inverse?

- **Equations:** In a linear equation $ax + b = 0$, what is the degree of the variable x?

- **Numbers:** State the divisibility rule for a number to be divisible by 8.