MATHEMATICS MOCK TEST

Class: VIII | Set: 4

Time: 1 Hour 30 Minutes | Written Marks: 35 | Viva: 5 | Total: 40 Marks

NAME: _____   ROLL NO: _____

SECTION A   (1 Mark Each)

1. If 10 metres of cloth costs ₹250, find the cost of 4 metres of the same cloth.

2. Find the number of vertices in a polyhedron having 5 faces and 9 edges.

3. Find the area of a rhombus whose diagonals are of lengths 12 cm and 21 cm.

4. If A can finish a work in x days and B can finish it in y days, what is their combined 1-day work?

5. Write the formula for the volume of a cylinder with base radius r and height h.

SECTION B   (2 Marks Each)

6. A scale of a map is given as $1 : 30000000$. Two cities are 4 cm apart on the map. Find the actual distance between them.

7. If 15 workers can build a wall in 48 hours, how many workers will be required to do the same work in 30 hours?

8. The area of a trapezium is 440 cm^2. The parallel sides are 30 cm and 14 cm. Find the distance between them.

9. Find the total surface area of a cube whose volume is 216 cm^3.

10. How many faces, edges, and vertices does a triangular prism have?

SECTION C   (3 Marks Each)

11. In a camp, there are provisions for 400 persons for 23 days. If 60 more persons join the camp, how long will the provisions last?

12. A can do a piece of work in 25 days and B can finish it in 20 days. They work together for 5 days and then A leaves. In how many days will B finish the remaining work?

13. Find the area of a rhombus whose side is 6 cm and whose altitude is 4 cm. If one of its diagonals is 8 cm long, find the length of the other diagonal.

14. Find the height of a cylinder whose radius is 7 cm and the total surface area is 968 cm². (Take $\pi = \frac{22}{7}$)

SECTION D **(4 Marks Each - Case Study)**

Case Study 1: Logistics and Transport
A loaded truck travels 14 km in 25 minutes.

(i) If the speed remains the same, how far can it travel in 5 hours? (2 Marks)

(ii) If the truck has to cover a distance of 168 km, how much time will it take? (2 Marks)

Case Study 2: Water Conservation
A swimming pool is 20 m in length, 15 m in breadth, and 4 m in depth.

(i) Find the cost of cementing its floor and four walls at the rate of ₹12 per square metre. (2 Marks)

(ii) Find the volume of water the pool can hold in litres. (Recall $1 \text{ m}^3 = 1000$ litres). (2 Marks)

VIVA VOCE **(5 Marks)**

- **Proportion:** Is the relationship between speed and time for a fixed distance direct or inverse? Why?

- **Time & Work:** If person X is three times faster than person Y, what is the ratio of time taken by X and Y?

- **Euler's Formula:** Can a polyhedron have 3 faces? Explain.

- **Mensuration:** What is the formula for the area of a general quadrilateral given a diagonal and two offsets?

- **Solids:** Name a 3D solid that has no vertices and no edges.