MATHEMATICS MOCK TEST

Class: VIII | Set: 3

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. If two quantities x and y vary inversely, what remains constant: x/y or xy?
2. How many faces does a pentagonal prism have?
3. Find the area of a rhombus whose diagonals are 8 cm and 6 cm.
4. If a tap can fill a tank in 5 hours, what part of the tank is filled in 1 hour?
5. What is the Lateral Surface Area (LSA) of a cylinder with radius r and height h?

SECTION B

(2 Marks Each)

6. A car travels 14 km in 25 minutes. If the speed remains the same, how far can it travel in 5 hours?
7. Tap A fills a tank in 4 hours and Tap B empties it in 6 hours. If both are opened together, how much time will it take to fill the tank?
8. The parallel sides of a trapezium are 14 cm and 10 cm and its area is 120 cm^2. Find the distance between the parallel sides.
9. A cuboid has a volume of 275 cm^3 and a base area of 25 cm^2. Find its height.
10. Verify Euler's formula for a hexagonal prism (Faces = 8, Vertices = 12, Edges = 18).

SECTION C

(3 Marks Each)

11. 120 men had food provisions for 200 days. After 5 days, 30 men died due to an epidemic. How long will the remaining food last?
12. A and B together can do a piece of work in 12 days, while A alone can finish it in 20 days. In how many days can B alone finish the work?
13. Find the area of a quadrilateral $ABCD$ in which diagonal $AC = 24$ cm, and the perpendiculars (offsets) from vertices B and D on AC are $h_1 = 8$ cm and $h_2 = 13$ cm respectively.

14. A closed cylindrical tank of radius 7 m and height 3 m is made from a sheet of metal. How much sheet of metal is required? (Take $\pi = \frac{22}{7}$)

SECTION D

(4 Marks Each - Case Study)

Case Study 1: Agricultural Irrigation
A farmer uses a pump to fill his irrigation tank. He observes that 8 pumps of the same capacity can fill the tank in 45 minutes.

(i) How many more pumps are required to fill the same tank in 30 minutes? (2 Marks)

(ii) If the farmer only has 5 pumps working, how long will it take to fill the tank? (2 Marks)

Case Study 2: Industrial Packaging
A company manufactures gift boxes in the shape of cubes. Each box has an edge of 10 cm. These boxes are to be packed in a large wooden crate of dimensions 1 m $\times$ 0.8 m $\times$ 0.5 m.

(i) Find the total surface area of one gift box. (2 Marks)

(ii) Find the maximum number of gift boxes that can be packed in the wooden crate. (2 Marks)

VIVA VOCE

(5 Marks)

- **Direct Proportion:** If the quantity of one item increases and the other also increases, is it always direct proportion? Give an example.
- **Time & Work:** If three people work together, how do you calculate their combined one-day work?
- **Trapezium:** Can a parallelogram be called a trapezium? Why?
- **Volume:** What is the difference between Capacity and Volume?
- **3D Geometry:** Define a ”Regular Polyhedron” and name one.