MATHEMATICS MOCK TEST

Class: VIII | Set: 11

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. If 5 metres of a uniform iron rod weighs 22.5 kg, what is the weight of 3 metres of the same rod?
2. How many edges does a hexagonal pyramid have?
3. Write the formula for the area of a general quadrilateral using one diagonal and two offsets.
4. If a person A can do a work in 10 days, what is the work done by A in 4 days?
5. Find the volume of a cylinder if the base area is 154 cm^2 and height is 10 cm.

SECTION B

(2 Marks Each)

6. A machine fills 960 bottles in 8 hours. How many bottles will it fill in 6 hours?
7. 8 men can finish a piece of work in 15 days. How many men are needed to finish the same work in 12 days?
8. The area of a trapezium is 168 cm^2 and its height is 8 cm. If one of the parallel sides is 25 cm, find the length of the other parallel side.
9. Find the total surface area of a cuboid whose length is 15 cm, breadth is 10 cm and height is 8 cm.
10. Verify Euler's formula for a Pentagonal Prism ($F = 7, V = 10, E = 15$).

SECTION C

(3 Marks Each)

11. A and B together can finish a piece of work in 15 days, while B alone can finish it in 20 days. In how many days can A alone finish the work?
12. A car travels 60 km in 45 minutes. How long will it take to travel 140 km if the speed remains constant?
13. Find the area of a rhombus whose diagonals are 16 cm and 12 cm long. Also, find its altitude if one of its sides is 10 cm.

14. The curved surface area of a cylinder is 1320 cm^2 and its base radius is 10.5 cm. Find the height and volume of the cylinder. (Take $\pi = \frac{22}{7}$)

SECTION D

(4 Marks Each - Case Study)

Case Study 1: The Library Project
A school library is being renovated. The librarian observes that 12 workers can arrange all the books on shelves in 10 hours.

(i) If the library needs the work to be finished in only 8 hours, how many more workers should be hired? (2 Marks)

(ii) If 4 workers do not report for work, how long will it take for the remaining workers to complete the arrangement? (2 Marks)

Case Study 2: Water Storage Management
A housing society has a common overhead tank in the shape of a cylinder. The inner radius of the tank is 2 m and its height is 7 m.

(i) Find the inner curved surface area of the tank that needs to be waterproofed. (2 Marks)

(ii) Find the maximum capacity of the tank in litres. (1 m$^3 = 1000$ litres). (2 Marks)

VIVA VOCE

(5 Marks)

- **Direct Proportion:** Explain what happens to quantity y if x is doubled in a direct proportion relation.
- **Time & Work:** If the work done by a person in 1 day is $1/15$, what is the total time required to finish the work?
- **Euler's Formula:** Can a polyhedron have 10 faces, 20 edges and 15 vertices? (Check using $F + V - E = 2$).
- **Mensuration:** What is the formula for the volume of a cube?
- **Geometry:** What is the difference between a prism and a pyramid in terms of their lateral faces?