MATHEMATICS MOCK TEST

Class: VIII | Set: 13

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

NAME: _____   ROLL NO: _____

SECTION A   (1 Mark Each)

1. If x and y are in direct proportion and $x = 5$ when $y = 20$, find the value of y when $x = 8$.

2. State the number of faces and vertices for a triangular prism.

3. Write the formula for the area of a rhombus.

4. If a person A can complete a job in 12 days, what part of the work is done by A in 1 day?

5. Find the volume of a cube whose edge is 6 cm.

SECTION B   (2 Marks Each)

6. If 12 workers can build a wall in 48 hours, how many workers will be required to do the same work in 32 hours?

7. A machine in a soft drink factory fills 840 bottles in 6 hours. How many bottles will it fill in 5 hours?

8. The area of a trapezium is 34 cm^2 and the length of one of the parallel sides is 10 cm and its height is 4 cm. Find the length of the other parallel side.

9. Find the height of a cuboid whose base area is 180 cm^2 and volume is 900 cm^3.

10. Verify Euler's formula for a rectangular pyramid (Faces = 5, Vertices = 5, Edges = 8).

SECTION C   (3 Marks Each)

11. A can do a piece of work in 10 days, B in 12 days and C in 15 days. In how many days will they finish the work if they all work together?

12. A car travels 14 km in 25 minutes. How far can it travel in 5 hours at the same speed?

13. Find the area of a rhombus whose side is 5 cm and whose altitude is 4.8 cm. If one of its diagonals is 8 cm long, find the length of the other diagonal.

14. A rectangular paper of width 14 cm is rolled along its width and a cylinder of radius 20 cm is formed. Find the volume of the cylinder. (Take $\pi = \frac{22}{7}$)

SECTION D   (4 Marks Each - Case Study)

Case Study 1: The Cattle Farm Provision
A farmer has enough food to feed 20 animals in his cattle for 6 days.

  (i) How long would the food last if there were 10 more animals in his cattle? (2 Marks)

 (ii) If the farmer wants the food to last for 10 days, how many animals should be removed from the farm? (2 Marks)

Case Study 2: Industrial Water Storage
A cylindrical water tank has a diameter of 1.4 m and its depth (height) is 2 m.

  (i) Find the volume of the tank in cubic metres. (2 Marks)

 (ii) Find the capacity of this tank in litres ($1 \text{ m}^3 = 1000$ litres). (2 Marks)

VIVA VOCE   (5 Marks)

  • **Proportion:** Define direct proportion with a suitable example.

  • **Euler's Formula:** What is the relation between Faces, Vertices, and Edges?

  • **Mensuration:** What is the difference between a prism and a pyramid?

  • **Work:** If the efficiency of a worker is doubled, what happens to the time taken to complete the task?

  • **Units:** Convert 1 cm^3 into millilitres (mL).