# MATHEMATICS MOCK TEST

**Class: VIII | Set: 7**

**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 inverse variation and $xy = 60$, find $x$ when $y = 5$.
2. How many edges does a square pyramid have?
3. What is the area of a rhombus whose diagonals are $d_1$ and $d_2$?
4. If 8 workers can finish a task in 5 hours, how long will it take 1 worker?
5. Find the volume of a cuboid with dimensions $5$ cm $\times$ $4$ cm $\times$ $3$ cm.

## SECTION B

**(2 Marks Each)**

6. In a scout camp, there is food for 300 scouts for 42 days. If 50 more scouts join, how long will the food last?
7. $A$ and $B$ together can complete a work in 8 days. If $A$ alone can do it in 12 days, how many days will $B$ take to complete it alone?
8. The area of a trapezium is $180$ cm$^2$ and its height is $9$ cm. If one parallel side is $25$ cm, find the other.
9. Find the total surface area of a cylinder whose base radius is $3.5$ cm and height is $10$ cm.
10. A polyhedron has 20 faces and 12 vertices. Find the number of its edges using Euler's formula.

## SECTION C

**(3 Marks Each)**

11. A car travels $165$ km in 3 hours.
    (i) How long will it take to travel $440$ km at the same speed?
    (ii) How far will it travel in 7 hours?
12. $A, B$ and $C$ can do a piece of work in 10, 12 and 15 days respectively. They began the work together but $B$ left after 2 days. In how many days will $A$ and $C$ finish the remaining work?

**13.** Find the area of a polygon $MNOPQR$ if $MP = 9$ cm, $MD = 7$ cm, $MC = 6$ cm, $MB = 4$ cm, $MA = 2$ cm. Perpendiculars $NA = 1$ cm, $OC = 3$ cm, $QD = 2$ cm, $RB = 2.5$ cm are drawn on diagonal $MP$.

**14.** The radius and height of a cylinder are in the ratio $5 : 7$ and its volume is $550$ cm$^3$. Find its radius. (Take $\pi = \frac{22}{7}$)

## SECTION D

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

**Case Study 1: Factory Production**
A factory uses 4 machines to produce 500 units of a product in 6 hours.

(i) How many units can be produced by 6 machines in the same time? (2 Marks)

(ii) If the factory needs to produce 1000 units in 4 hours, how many machines of the same capacity are required? (2 Marks)

**Case Study 2: Water Tank Construction**
A rectangular water tank is $5$ m long, $4$ m wide, and $3$ m deep.

(i) Find the cost of plastering its inner four walls and bottom at the rate of ₹25 per square metre. (2 Marks)

(ii) If the water is filled up to a height of $2$ m, find the volume of water in the tank in kilolitres ($1$ m$^3 = 1$ kL). (2 Marks)

## VIVA VOCE

**(5 Marks)**

- **Proportion:** Is the number of spokes in a wheel and the angle between a pair of consecutive spokes in direct or inverse proportion?
- **Time & Work:** If 4 people finish a work in 10 days, what is the work done by 1 person in 1 day?
- **Euler's Formula:** Can a polyhedron have 4 faces, 4 vertices, and 6 edges? Name it.
- **Mensuration:** What is the area of a rhombus whose diagonals are $10$ cm and $8$ cm?
- **Volume:** How many $1$ cm cubes can be placed in a cubical box of side $10$ cm?