MATHEMATICS MOCK TEST

Class: VIII | Set: 2

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 inversely proportional and $x = 10$ when $y = 6$, find x when $y = 12$.
2. Find the number of edges in a polyhedron having 6 faces and 8 vertices.
3. Find the area of a rhombus whose diagonals are of lengths 10 cm and 12 cm.
4. If A can finish a work in 8 days, what is the work done by A in 3 days?
5. Write the formula for the total surface area of a cylinder of radius r and height h.

SECTION B

(2 Marks Each)

6. A truck consumes 28 litres of diesel for a distance of 448 km. How much diesel will be needed to cover 64 km?
7. 12 men can build a wall in 9 days. How many men are required to build it in 6 days?
8. The parallel sides of a trapezium are 12 cm and 8 cm, and the distance between them is 6 cm. Find the area of the trapezium.
9. Find the side of a cube whose total surface area is 600 cm^2.
10. How many vertices does a triangular pyramid have? Verify Euler's formula for it.

SECTION C

(3 Marks Each)

11. Two taps A and B can fill a tank in 6 hours and 8 hours respectively. If both are opened together, how long will they take to fill the tank?
12. The area of a rhombus is 240 cm^2 and one of the diagonals is 16 cm. Find the length of the other diagonal and the side of the rhombus.
13. A rectangular tank is 225 m by 162 m at the base. With what speed must water flow into it through an aperture 60 cm by 45 cm that the level may be raised 20 cm in 5 hours?
14. Find the area of a polygon $ABCDE$ if $AD = 8$ cm, $AH = 6$ cm, $AG = 4$ cm, $AF = 3$ cm and perpendiculars $BF = 2$ cm, $CH = 3$ cm, $EG = 2.5$ cm. (Assume F, G, H are points on diagonal AD).

SECTION D

(4 Marks Each - Case Study)

Case Study 1: The Water Supply Project
A housing society has a cylindrical water tank to supply water to its residents. The diameter of the tank is 7 m and its height is 10 m.

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

(ii) If the society consumes 77,000 litres of water every day, for how many days will the full tank last? (2 Marks)

Case Study 2: The School Canteen
In a school hostel, there is enough food for 100 students for 20 days.

(i) If 25 more students join the hostel, for how many days will the food last? (2 Marks)

(ii) If the food needs to last for 25 days, how many students should leave the hostel? (2 Marks)

VIVA VOCE

(5 Marks)

- **Mensuration:** What is the difference between Lateral Surface Area and Total Surface Area?
- **Proportion:** If the speed of a car increases, does the time to reach a fixed destination follow direct or inverse proportion?
- **Work:** If person A does $\frac{1}{10}$ of a work in a day, how many days will they take to complete the work?
- **Polygons:** What is a regular polygon? Give an example of a quadrilateral that is a regular polygon.
- **3D Figures:** Can a polyhedron have 10 faces, 20 edges, and 15 vertices? Justify using Euler's Formula.