MATHEMATICS MOCK TEST

Class: VIII | Set: 5

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, find the value of y when $x = 8$, given that $x = 2$ when $y = 10$.
2. What is the sum of faces and vertices for a cube?
3. Find the area of a rhombus whose diagonals are 10 cm and 24 cm.
4. If P can do a work in 20 days, what is P's 1-day work?
5. Find the capacity in litres of a cube-shaped tank with an edge of 1 m.

SECTION B

(2 Marks Each)

6. 100 people have food for 24 days. If 20 more people join, how many days will the food last?
7. A and B working together can finish a piece of work in 6 days. A alone can do it in 10 days. How many days will B take to do it alone?
8. The area of a trapezium is 105 cm^2 and its height is 7 cm. If one of the parallel sides is 12 cm, find the other parallel side.
9. Find the curved surface area of a cylinder whose base radius is 7 cm and height is 10 cm.
10. Can a polyhedron have 10 faces, 20 edges, and 15 vertices? Justify using Euler's formula.

SECTION C

(3 Marks Each)

11. A machine fills 540 bottles in 3 hours. How many bottles will it fill in 5 hours?
12. Three pipes $A, B,$ and C can fill a tank in 12, 15, and 20 hours respectively. If all are opened together, how long will they take to fill the tank?
13. A rectangular courtyard 20 m long and 15 m broad is to be paved with square stones of side 25 cm. Find the number of stones required.
14. Find the volume of a cylinder whose total surface area is 968 cm^2 and radius of the base is 7 cm. (Take $\pi = \frac{22}{7}$)

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SECTION D

(4 Marks Each - Case Study)

Case Study 1: Road Construction
A government project aims to build a road. 45 men are employed to complete the task in 20 days.

(i) If the government wants to finish the road in 15 days, how many extra men should be employed? (2 Marks)

(ii) If only 30 men report for work, how many days will it take to complete the road? (2 Marks)

Case Study 2: The Garden Pavilion
A pavilion is to be built in the shape of a hexagonal prism. The base area is 150 m^2 and the height is 4 m.

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

(ii) If the interior needs to be painted excluding the base and the roof, find the area to be painted if the perimeter of the base is 60 m. (2 Marks)

VIVA VOCE

(5 Marks)

- **Proportion:** Give an example where two quantities are in direct proportion.
- **Work:** If the number of people working is halved, what happens to the time required to complete the work?
- **Solids:** What is a ”convex” polyhedron?
- **Mensuration:** How many square centimetres make one square metre?
- **Cylinder:** What happens to the volume of a cylinder if its radius is doubled and height is halved?