MATHEMATICS MOCK TEST

Class: VIII | Set: 9

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 vary directly, and $x = 3$ when $y = 9$, find the constant of variation k.
2. State the number of vertices and edges in a square prism.
3. Write the formula for the area of a rhombus using its diagonals d_1 and d_2.
4. If a worker finishes a task in 12 days, how much work is completed in 3 days?
5. Find the volume of a cube whose total surface area is 96 cm^2.

SECTION B

(2 Marks Each)

6. A machine fills 540 bottles in 3 hours. How many bottles will it fill in 5 hours?
7. 12 men can build a wall in 8 days. How many men are required to build the same wall in 6 days?
8. The area of a trapezium is 105 cm^2 and its height is 7 cm. If one of the parallel sides is 10 cm, find the length of the other parallel side.
9. Find the side of a cube whose total surface area is 600 cm^2.
10. Verify Euler's formula for a triangular pyramid (Faces = 4, Vertices = 4, Edges = 6).

SECTION C

(3 Marks Each)

11. A, B and C can finish a work in 10, 15 and 30 days respectively. If they work together, in how many days will the work be completed?
12. A car travels 165 km in 3 hours.
    (i) How far can it travel in 7 hours?
    (ii) How long will it take to travel 440 km?
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 cylindrical tank has a capacity of 6160 m^3. If the radius of its base is 14 m, find its depth. (Take $\pi = \frac{22}{7}$)

SECTION D

(4 Marks Each - Case Study)

Case Study 1: Logistics and Transportation
A truck travels 448 km on 28 litres of diesel.

(i) How much diesel is required to travel 64 km? (2 Marks)

(ii) If the truck has only 10 litres of diesel left, find the maximum distance it can travel before refilling. (2 Marks)

Case Study 2: Industrial Storage
An industrial warehouse uses large cuboidal crates to store goods. Each crate has dimensions 1.2 m $\times$ 1 m $\times$ 0.5 m.

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

(ii) If the warehouse needs to store a total volume of 60 m^3 of goods, how many such crates will be required? (2 Marks)

VIVA VOCE

(5 Marks)

- **Proportion:** Give a real-life example of a situation where time and speed are in inverse proportion.
- **Mensuration:** What is the formula for the curved surface area of a cylinder?
- **Time & Work:** If 4 people finish a job in 10 hours, how much time will 1 person take?
- **Solids:** Define a ”Polyhedron”.
- **Euler’s Formula:** What is the significance of the letters F, V, and E in the formula?