BHARATH COACHING CENTRE

9th CBSE   Maths   Total: 50

Surface Area & Volumes   Time: 1.30hrs

SECTION – A $5 \times 1 = 5$

1. Find the lateral surface area of a cube whose edge is 11 cm.
2. If the circumference of the base of a right circular cone and the slant height are 120π and 10 cm respectively, then find the curved surface area of the cone.
3. The radius of a sphere is 5 cm. if the diameter is increased by 20 %, what will be the new radius?
4. The diagonal of a cube is $\sqrt{12}$ cm. find the volume.
5. Calculate the amount of air inside a conical tent with base radius 7 m and height 12 m.

SECTION – B $5 \times 2 = 10$

6. Curved surface area of a right circular cylinder is 4.4 m². If the radius of the base of the cylinder is 0.7 m, find its height.
7. The radius of a spherical balloon increases from 7 cm to 14 cm as air is being pumped into it. Find the ratio of surface areas of the balloon in the two cases.
8. A river 3 m deep and 40 m wide is flowing at the rate of 2 km per hour. How much water will fall into the sea in a minute?
9. If the volume of a right circular cone of height 9 cm is 48 π cm³, find the diameter of its base.
10. A capsule of medicine is in the shape of a sphere of diameter 3.5 mm. How much medicine (in mm³) is needed to fill this capsule?

SECTION – C $5 \times 3 = 15$

11. A metal pipe is 77 cm long. The inner diameter of a cross section is 4 cm, the outer diameter being 4.4 cm .Find its (i) inner curved surface area, (ii) outer curved surface area, (iii) total surface area.

12. A conical tent is 10 m high and the radius of its base is 24 m. Find (i) Slant height of the tent. (ii) Cost of the canvas required to make the tent, if the cost of 1 m2 canvas is Rs 70.

13. A godown measures 40 m × 25 m × 10 m. Find the maximum number of wooden crates each measuring 1.5 m × 1.25 m × 0.5 m that can be stored in the godown.

14. Monica has a piece of canvas whose area is 551 m2. She uses it to have a conical tent made, with a base radius of 7 m. Assuming that all the stitching margins and the wastage incurred while cutting, amounts to approximately 1 m2, find the volume of the tent that can be made with it.

15. A shot-putt is a metallic sphere of radius 4.9 cm. If the density of the metal is 7.8 g per cm3, find the mass of the shot-putt.

SECTION – D $5 \times 4 = 20$

16. Hameed has built a cubical water tank with lid for his house, with each outer edge 1.5 m long. He gets the outer surface of the tank excluding the base, covered with square tiles of side 25 cm (see Fig). Find how much he would spend for the tiles, if the cost of the tiles is Rs 360 per dozen.

17. A hemispherical dome of a building needs to be painted (see Fig). If the circumference of the base of the dome is 17.6 m, find the cost of painting it, given the cost of painting is Rs 5 per 100 cm^2.

18. It costs Rs 2200 to paint the inner curved surface of a cylindrical vessel 10 m deep. If the cost of painting is at the rate of Rs 20 per m2, find (i) Inner curved surface area of the vessel, (ii) Radius of the base,
(iii) Capacity of the vessel.

19. A heap of wheat is in the form of a cone whose diameter is 10.5 m and height is 3 m. Find its volume. The heap is to be covered by canvas to protect it from rain. Find the area of the canvas required.

20. A dome of a building is in the form of a hemisphere. From inside, it was white-washed at the cost of Rs 498.96. If the cost of white-washing is Rs 2.00 per square metre, find the (i) inside surface area of the dome, (ii) volume of the air inside the dome.