QB365

Important Questions - Surface Areas and Volumes

10th Standard CBSE

Maths

Reg.No. : | | | | | | |

Time : 01:00:00 Hrs

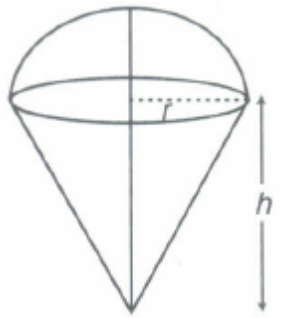
Total Marks : 50

Section - A

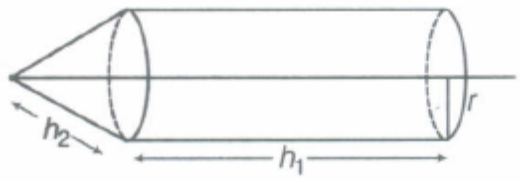
1) The slant height of the frustum of cone (l) = ... **1**

2) If the ratio between the volume of two spheres is 27 : 8, then ratio between their surface areas is **1**

3) Volume of given figure $= \frac{\pi r^2}{3}(\ldots + \ldots)$ **1**



4) Volume of given figure $= \pi r^2(\ldots + \ldots)$ **1**

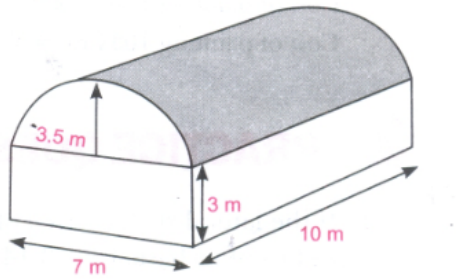


5) The radius of sphere is r cm. It is divided into two equal parts. Find the whole surface of two parts. **1**

6) 12 solid spheres of the same size are made by melting a solid metallic cone of base radius 1 cm and height of 48 cm. Find the radius of each sphere. **1**

7) If a cone is cut into two parts by a horizontal plane passing through the mid-points of its axis, find the ratio of the volume of the upper part and the cone. **1**

8) A godown building is in form as shown in the figure.The vertical cross section parallel to the width side of the building is a rectangle of dimensions 7m x 3m, mounted by semicircle of radius 3.5m.The inner measurements of the cuboidal portion of the building are 10m x 7m x 3m.Find the interior surface excluding the floor. **1**



9) Volume of two sphere are in the ratio 125:64. Find the ratio of their surface areas. **1**

10) The diagonal of a cube is $27\sqrt{3}m$. Find its surface area. **1**

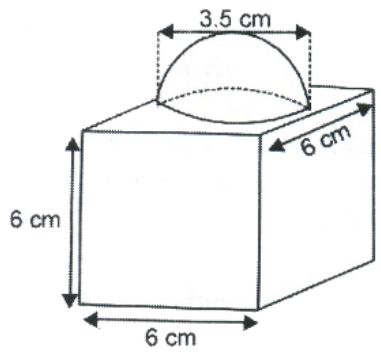
Section - B

11) A medicine capsule is in the shape of a cylinder with two hemispheres stuck to each of its ends (see figure).The length of the entire capsule is 14mm and the diameter of the capsule 5mm.Find its surface area. **2**

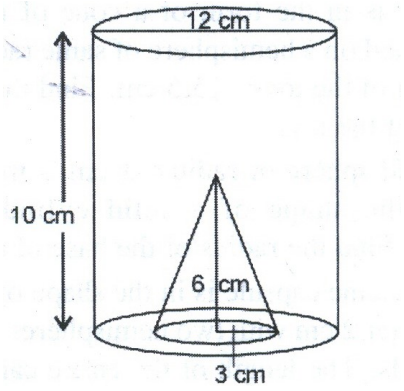
12) Water flows out through a circular pipe whose internal radius is 1 cm, at the rate of 80 cm/second into an empty cylindrical tank, the radius of whose base is 40 cm. By how much will the level of water rise in the tank in half an hour ? **2**

13) A well of diameter 3m is dug 14m deep.The earth taken out of it has been spread evenly all around it in the shape of a circular ring of width 4m to form an embankment.Find the height of the embankment. **2**

14) The decorative block shown in fig. is made of two solids - a cube and a hemisphere. The base of the block is a cube with edge 6 cm, and the hemisphere fixed on the top has a diameter of 3.5 cm. Find the total surface area of the block. $\left[Take \quad \pi = \frac{22}{7}\right]$ **2**



15) A metallic cylinder has diameter 12 cm and height 10 cm. It is made of iron. To reduce its weight, a conical hole is drilled in the cylinder as shown in the given figure. The radius of conical hole is 3 cm and its depth is 6 cm. Calculate the volume of iron in the metallic cylinder. $[Use \quad \pi = 3.14]$ **2**



16) A solid is in the form of a right circular cylinder with hemipherical ends. The total height of the solid is 108 cm and the diameter of the cylinder is 42 cm. Find the volume and surface area of the solid. $[Use \quad \pi = 22/7]$ **2**

17) Find the number of plates. 1.5 cm in diameter and 0.2 cm thick, that can be fitted completely inside a right circular cylinder of height 10 cm and diameter 4.5 cm. **2**

18) The radii of two right circular cylinders are in the ratio of 2 : 3 and their heights are in the ratio of 5 : 4. Calculate the ratio of their curved surface areas and ratio of their volumes. **2**

19) A cone is cut by a plane parallel to the base and upper part is removed. If the C.S.A.of the remainder is $\frac{15}{16}$ of the C.S.A. of whole cone, find the ratio of the line segments to which the cone's height is divided by the plane. **2**

20) Water is flowing at the rate of 2.52 km/h through a cylindrical pipe into a cylindrical tank, the radius of whose base is 40 cm, if the Increase in the level of water in the tank, in half an hour is 3.15 m, find the internal diameter of the pipe. **2**

Section - C

21) A tent is in the shape of a cylinder surmounted by a conical top.If the height and diameter of the cylindrical part are 2.1m and 4m respectively, and the slant height of the top is 2.8m, find the area of the canvas used for making the tent.Find the cost of the canvas of the tent at the rate of Rs.500 per m^2.Also find the volume air enclosed in the tent. **5**

22) 50 students of class X planned a visit to an old age home and to spend the whole day with its inmates. Each one prepared a cylindrical flower vase using cardboard to gift the inmates. The radius of cylindrical is 4.2 cm and the height is 11.2 cm. **5**

(i) What is the amount spent for purchasing the cardboard at the rate of Rs.20 per 100 m^2?

(ii) Which values are depicted by the students?

23) A toy is in the form of a cylinder of diameter $2\sqrt{2}$ m and height 3·5 m surmounted by a cone whose vertical angle is 90°. Find total surface area of the top. **5**

24) The radii of a circular end of a frustum of a cone are 33 cm and 27 cm. Its slant height is 10 cm. Find its volume and total surface area. **5**

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