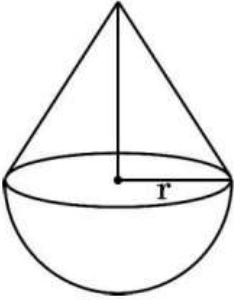
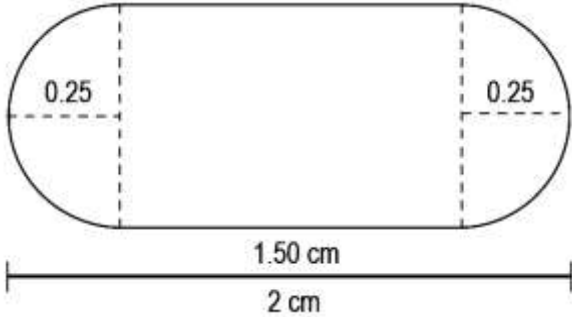


CHAPTER 12 - SURFACE AREAS AND VOLUMES

MULTIPLE-CHOICE QUESTIONS

1.	A solid is of the form of a cone of radius 'r' surmounted on a hemisphere of the same radius. If the height of the cone is the same as the diameter of its base, then the volume of the solid is :  (a) πr^3 (b) $3\pi r^3$ (c) $\frac{4}{3} \pi r^3$ (d) $\frac{2}{3} \pi r^3$
2.	The curved surface area of a right circular cylinder of height 14 cm is 88 cm^2. The diameter of its circular base is: (a) 2 cm (b) 1 cm (c) 4 cm (d) 7 cm
3.	What is the total surface area of a solid hemisphere of diameter 'd' ? (a) $3\pi d^2$ (b) $2\pi d^2$ (c) $\frac{3}{4} \pi d^2$ (d) $\frac{1}{2} \pi d^2$
4.	If the area of the base of a cone is 51 cm^2 and its volume is 85 cm^3, then the vertical height of the cone is given as : (a) $\frac{5}{6} \text{ cm}$ (b) $\frac{5}{3} \text{ cm}$ (c) $\frac{5}{2} \text{ cm}$ (d) 5 cm
5.	The ratio of the total surface area to the lateral surface area of a cylinder with base radius 80 cm and height 20 cm is (a) 1 : 2 (b) 2 : 1 (c) 3 : 1 (d) 5 : 1
6.	A medicine-capsule is in the shape of a cylinder of radius 0.25 cm with two hemispheres stuck to each of its ends. The length of the entire capsule is 2 cm. What is the total surface area of the capsule? (Take π as 3.14)  (a) 0.785 cm^2 (b) 0.98125 cm^2 (c) 2.7475 cm^2 (d) 3.14 cm^2

7.	The radius of the largest right circular cone that can be cut out from a cube of edge 4.2 cm is (a) 2.1 cm (b) 4.2 cm (c) 3.1 cm (d) 2.2 cm
8.	Volume and surface area of a solid hemisphere are numerically equal. What is the diameter of hemisphere? (a) 9 units (b) 6 units (c) 4.5 units (d) 18 units
9.	Volumes of two spheres are in the ratio 64:27. The ratio of their surface areas is (a) 3:4 (b) 4:3 (c) 9:16 (d) 16:9
10.	Three cubes each of side 15 cm are joined end to end. The total surface area of the cuboid is: (a) 3150 cm ² (b) 1575 cm ² (c) 1012.5 cm ² (d) 576.4 cm ²
11.	The volume of a wall, 5 times as high as it is broad and 8 times as long as it is high, is 12.8 m ³ . The breadth of the wall is (a) 30 cm (b) 40 cm (c) 22.5 cm (d) 25 cm
12.	The base radii of a cone and a cylinder are equal. If their curved surface areas are also equal, then the ratio of the slant height of the cone to the height of the cylinder is: (a) 2 : 1 (b) 1 : 2 (c) 1 : 3 (d) 3 : 1
13.	If a marble of radius 2.1 cm is put into a cylindrical cup full of water of radius 5cm and height 6 cm, then how much water flows out of the cylindrical cup? (a) 38.8 cm ³ (b) 55.4 cm ³ (c) 19.4 cm ³ (d) 471.4 cm ³
14.	A cubical ice cream brick of edge 22 cm is to be distributed among some children by filling ice cream cones of radius 2 cm and height 7 cm upto its brim. How many children will get the ice cream cones? (a) 163 (b) 263 (c) 363 (d) 463
15.	The volume of the largest right circular cone that can be cut out from a cube of edge 4.2 cm is (a) 9.7 cm ³ (b) 77.6 cm ³ (c) 58.2 cm ³ (d) 19.4 cm ³
16.	A hollow cube of internal edge 22cm is filled with spherical marbles of diameter 0.5 cm and it is assumed that $\frac{1}{8}$ space of the cube remains unfilled. Then the number of marbles that the cube can accomodate is (a) 142296 (b) 142396 (c) 142496 (d) 142596
17.	A metallic spherical shell of internal and external diameters 4 cm and 8 cm, respectively is melted and recast into the form a cone of base diameter 8cm. The height of the cone is (a) 12cm (b) 14cm (c) 15cm (d) 18cm

18.	A solid piece of iron in the form of a cuboid of dimensions $49\text{cm} \times 33\text{cm} \times 24\text{cm}$, is moulded to form a solid sphere. The radius of the sphere is (a) 21cm (b) 23cm (c) 25cm (d) 19cm
19.	A right circular cylinder of radius r cm and height h cm ($h > 2r$) just encloses a sphere of diameter (a) r cm (b) $2r$ cm (c) h cm (d) $2h$ cm
20.	If each edge of a cube is increased by 50%, the percentage increase in the surface area is (a) 50% (b) 75% (c) 100% (d) 125%
21.	The area of the base of a rectangular tank is 6500 cm^2 and the volume of water contained in it is 2.6 m^3 . The depth of water in the tank is (a) 3.5 m (b) 4 m (c) 5 m (d) 8 m
22.	The radii of two cylinders are in the ratio $2 : 3$ and their heights are in the ratio $5 : 3$. The ratio of their volumes is (a) $27 : 20$ (b) $20 : 27$ (c) $4 : 9$ (d) $9 : 4$
23.	In a shower, 5 cm of rain falls. The volume of the water that falls on 2 hectares of ground, is (a) 100 m^3 (b) 10 m^3 (c) 1000 m^3 (d) 10000 m^3
24.	A mason constructs a wall of dimensions $270\text{cm} \times 300\text{cm} \times 350\text{cm}$ with the bricks each of size $22.5\text{cm} \times 11.25\text{cm} \times 8.75\text{cm}$ and it is assumed that $\frac{1}{8}$ space is covered by the mortar. Then the number of bricks used to construct the wall is (a) 11100 (b) 11200 (c) 11000 (d) 11300
25.	Twelve solid spheres of the same size are made by melting a solid metallic cylinder of base diameter 2 cm and height 16 cm. The diameter of each sphere is (a) 4 cm (b) 3 cm (c) 2 cm (d) 6 cm
26.	How many bags of grain can be stored in a cuboidal granary ($8\text{m} \times 6\text{m} \times 3\text{m}$), if each bag occupies a space of 0.64 m^3 ? (a) 8256 (b) 90 (c) 212 (d) 225
27.	A solid is hemispherical at the bottom and conical (of same radius) above it. If the surface areas of the two parts are equal then the ratio of its radius and the slant height of the conical part is (a) $1 : 2$ (b) $2 : 1$ (c) $1 : 4$ (d) $4 : 1$
28.	A circus tent is cylindrical to a height of 4 m and conical above it. If its diameter is 105 m and its slant height is 40 m, the total area of canvas required is (a) 1760 m^2 (b) 2640 m^2 (c) 3960 m^2 (d) 7920 m^2
	Questions number 29 and 30 are Assertion and Reason based questions carrying 1 mark each. Two statements are given, one labelled as Assertion (A) and the other is labelled as Reason (R).

	Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A). (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A). (c) Assertion (A) is true, but Reason (R) is false. (d) Assertion (A) is false, but Reason (R) is true.
29.	<i>Assertion (A)</i> : The surface area of largest sphere that can be inscribed in a hollow cube of side 'a' cm is $\pi a^3 \text{ cm}^2$. <i>Reason (R)</i> : The surface area of a sphere of radius r is $\frac{4}{3} \pi r^3$.
30.	<i>Assertion (A)</i> : Two cubes each of edge length 10 cm are joined together. The total surface area of newly formed cuboid is 1200 cm^2 . <i>Reason (R)</i> : Area of each surface of a cube of side 10 cm is 100 cm^2 .