8. MENSURATION

Example problem

1. **A** solid right circular cylinder has radius 7 cm and height 20 cm. Find its (i) curved surface area and (ii) total surface area. (π = 22/7)
2. If the total surface area of a solid right circular cylinder is 880 sq.cm and its radius is 10 cm, find its curved surface area. (π = 22/7)
3. The ratio between the base radius and the height of a solid right circular cylinder is 2: 5. If its curved surface area is 3960/7 sq.cm, find the height and radius. (π = 22/7)
4. The diameter of a road roller of length 120 cm is 84 cm. If it takes 500 complete revolutions to level a playground, then find the cost of leveling it at the cost of 75 paise per sq. metre. (π = 22/7)
5. The internal and external radii of a hollow cylinder are 12 cm and 18 cm respectively. If its height is 14 cm, then find its curved surface area and total surface area. (π = 22/7)
6. Radius and slant height of a solid right circular cone are 35 cm and 37 cm respectively. Find the curved surface area and total surface area of the cone. (π = 22/7)
7. Let *O* and C be the centre of the base and the vertex of a right circular cone. Let *B* be any point on the circumference of the base. If the radius of the cone is 6 cm and if $OBC = 60^{o}$ then find the height and curved surface area of the cone. (π = 22/7)
8. A sector containing an angle of 120^{c} is cut off from a circle of radius 21 cm and folded into a cone. Find the curved surface area of the cone. (π = 22/7)
9. A hollow sphere, in which a circus motorcyclist performs his stunts, has an inner diameter of 7 m. find the area available to the motorcyclist for riding. (π = 22/7)
10. Total surface area of a solid hemisphere is 675π sq.cm. Find the curved surface area of the solid hemisphere. (π = 22/7)
11. The thickness of a hemispherical bowl is 0.25 cm. The inner radius of the bowl is 5 cm. Find the outer curved surface area of the bowl. (π = 22/7)
12. If the curved surface area of a right circular cylinder is 704 sq.cm, and height is 8 cm, find the volume of the cylinder in litres. (π = 22/7)
13. A hollow cylindrical iron pipe is of length 28 cm. Its outer and inner diameters are 8 cm and 6 cm respectively. Find the volume of the pipe and weight of the pipe if 1 cu.cm of iron weighs 7 gm. (π = 22/7)

14. Base area and volume of a solid right circular cylinder are 13.86 sq.cm, and 69.3 cu.cm respectively. Find its height and curved surface area. ($\pi = 22/7$)
15. The volume of a solid right circular cone is 4928 cu. cm. If its height is 24 cm, then find the radius of the cone. ($\pi = 22/7$)
16. The radii of two circular ends of a frustum shaped bucket are 15 cm and 8 cm. If its depth is 63 cm, find the capacity of the bucket in litres. ($\pi = 22/7$)
17. Find the volume of a sphere-shaped metallic shot-put having diameter of 8.4 cm.
18. A cone, a hemisphere and cylinder have equal bases. If the heights of the cone and a cylinder are equal and are same as the common radius, then find the ratio of their respective volumes. ($\pi = 22/7$)
19. If the volume of a solid sphere is $7241\frac{1}{7}$ cu.cm, then find its radius. ($\pi = 22/7$)
20. Volume of a hollow sphere is 11352 / 7 cm^3. If the outer radius is 8 cm, find the inner radius of the sphere. ($\pi = 22/7$)
21. A solid wooden toy is in the form of a cone surmounted on a hemisphere. If the radii of the hemisphere and the base of the cone are 3.5 cm each and the total heights of the toy is 17.5 cm, and then find the volume of wood used in the toy. ($\pi = 22/7$)
22. A cup is in the form of a hemisphere surmounted by a cylinder. The height of the cylindrical portion is 8 cm and the total height of the cup is 11.5 cm. Find the total surface area of the cup.
23. A circus tent is to be erected in the form of a cone surmounted on a cylinder. The total height of the tent is 49 m. Diameter of the base is 42 m and height of the cylinder is 21 m. Find the cost of canvas needed to make the tent, if the cost of canvas is Rs. 12.50/m^2.
24. A hollow sphere of external and internal diameters of 8 cm and 4 cm respectively is melted and made into another solid in the shape of a right circular cone of base diameter of 8 cm. Find the height of the cone . ($\pi = 22/7$)
25. Spherical shaped marbles of diameter 1.4 cm each are dropped into a cylindrical beaker of diameter 7 cm containing some water. Find the number of marbles that should be dropped into the beaker so that the water level rises by 5.6 cm. ($\pi = 22/7$)
26. Water is flowing at the rate of 15 km / hr through a cylindrical pipe of diameter 14 cm into a rectangular tank which is 50 m long and 44 m wide. In how many hours will the water level in the tank raise by 21 cm? ($\pi = 22/7$)
27. A cuboid shaped slab of iron whose dimensions are 55 cm×40 cm×15 cm is melted and recast into a pipe. The outer diameter and thickness of the pipe are 8 cm and 1 cm respectively. Find the length of the pipe. ($\pi = 22/7$)