Ch-11 Surface Areas and Volumes

1. A brick measures 30 cm $\times$ 10 cm $\times$ $7\frac{1}{2}$ cm. How many bricks will be required for a wall 30 m long, 2 m high and $\frac{3}{4}$ m thick?

2. The surface area of a cube is $18\frac{3}{8}$ m^2. Find its volume.

3. A hemispherical tank is emptied by a pipe at the rate of 5 litres per minute. How long will it take to half empty the tank, if it is $1\frac{1}{2}$ m in diameter. [Take $\pi = \frac{22}{7}$ and 1000 cm^3 = 1 litre]

4. If the heights of two cylinders are in the ratio of 4 : 3 and their radii are in the ratio of 3 : 4 then what is the ratio of their volumes?

5. If the radius of the base of a solid cone is 'r' and its slant height is 1, then what is its lateral surface area?

6. What is the total surface area of a cone, whose radius = $\frac{r}{3}$ and slant height = 31?

7. If a right circular cone has radius 4 cm and slant height 5 cm then what is its volume?

8. The radius of a hemisphere is r. What is its volume?

9. If the radius of a sphere is 2r, then what is its volume?

10. If the radius of a sphere is doubled, then what is the ratio of their volumes?

11. The length, breadth and height of a cuboid are 15 cm, 10 cm and 20 cm respectively. Find its total surface area.

12. Shanta had to make a model of a cylindrical kaleidoscope for her science project. She wanted to use chart paper to make the curved surface of the kaleidoscope, what would be the area of chart paper required by her, if she wanted to make a kaleidoscope of length 25 cm with a 3.5 cm radius? Take $\pi = \frac{22}{7}$.

13. The height of a cone is 16 cm and its base radius is 12 cm. Find –
    a. the curved surface area, and
    b. total surface area of the cone. [Use $\pi = 3.14$]

14. If the slant height and the base radius of a cone are 10 cm and 8 cm respectively, then find –
    a. the curved surface area, and
    b. total surface area. [Take $\pi = 3.14$]

15. The hollow sphere in which the circus motor cyclist performs his stunts, has a diameter of 7 m, Find the area available to the motor cyclist for riding.

16. A hemispherical dome of a building needs to be painted. 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.

17. A wall of length 10 m was to be built across an open ground. The height of the wall is 4 m and thickness of the wall is 24 cm. If this wall is to be built up with bricks whose dimensions are 24 cm x 12 cm x 8 cm, how many bricks would be required?

18. The pillars of a temple are cylindrical shaped, if each pillar has a circular base of radius 20 cm and height 10 m, how much concrete mixture would be required to build 14 such pillars?

19. The sides of a right triangle are 7 cm, 24 cm and 25 cm. If it is revolved about its side 7 cm to form a solid cone, then find the volume of the solid so formed.

20. Two cones have their base radii in ratio of 3 : 1 and the ratio of their heights as 1 : 3. Find the ratio of their volumes.