Chapter 13

ASSIGNMENT

OBJECTIVE 13.1

1. The height of a conical tent at the centre is 5m. The distance of any point on its circular base from the top of the tent is 13m. The area of the slant surface is :
   (A) 144 π sq m (B) 130 π sq m (C) 156 π sq m (D) 169 π sq m

2. A rectangular sheet of paper 22 m long and 12 cm broad can be curved to form the lateral surface of a right circular cylinder in two ways. Taking $\pi = \frac{22}{7}$, the difference between the volumes of the two cylinders thus formed is :
   (A) 200 c.c. (B) 210 c.c. (C) 250 c.c. (D) 252 c.c.

3. The percentage increase in the surface area of a cube when each side is increased to $\frac{3}{2}$ times the original length is
   (A) 225 (B) 200 (C) 175 (D) 125

4. A cord in the form of a square enclose the area 'S' cm². if the same cord is bent into the form of a circle, then the area of the circle is
   (A) $\frac{\pi S^2}{4}$ (B) $4\pi S^2$ (C) $\frac{S}{4\pi}$ (D) $\frac{4S}{\pi}$

5. If 'I', 'b' and 'h' if a cuboids are increased, decreased and increased by 1%, 3% and 2% respectively, then the volume of the cuboids
   (A) increase
   (B) decrease
   (C) increase or decreases depending on original dimensions
   (D) can't be calculated with given data

6. The radius and height of a cone are each increased by 20%, then the volume of the cone is increased by
   (A) 20% (B) 40% (C) 60% (D) 72.8%

7. There is a cylinder circumscribing the hemisphere such that their bases are common. The ratio of their volume is
   (A) 1 : 3 (B) 1 : 2 (C) 2 : 3 (D) 3 : 4

8. Consider a hollow cylinder of inner radius r and thickness of wall t and length ℓ. The volume of the above cylinder is given by
   (A) $2\pi\ell(r^2 - \ell^2)$ (B) $2\pi r \ell t\left(\frac{t}{2r} + 1\right)$ (C) $2\pi\ell(r^2 + t^2)$ (D) $2\pi r \ell(r + t)$

9. A cone and a cylinder have the same base area. They also have the same curved surface area. If the height of the cylinder is 3m, then the slant height of the cone (in m) is
   (A) 3 (B) 4 (C) 6 (D) 7

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10. A sphere of radius 3 cm is dropped into a cylindrical vessel of radius 4 cm. If the sphere is submerged completely, then the height (in cm) to which the water rises, is

(A) 2.35   (B) 2.30   (C) 2.25   (D) 2.15

SUBJECTIVE 13.2

1. The whole surface of a rectangular lock is 846 cm². Find the length, breadth and height, if these dimensions are in the ratio 5 : 4 : 3.

2. An open box is made of wood 3 cm thick. its external length, breadth and height are 1.48 m, 1.16 m and 8.3 dm. Find the cost of painting the inner surface at Rs 5 per m².

3. A room 8 m long 6 m board and 3 m high has two windows $1\frac{1}{2}$ m × 1 m and a door 2 m × $1\frac{1}{2}$ m. Find the cost of papering the walls will paper 50 cm wide at Rs. 40 per metre.

4. 50 circular plates, each of radius 7 cm and thickness $\frac{1}{2}$ cm, are placed one above the other to form a solid right circular cylinder. Find the total surface area.

5. A tent in the shape of a right circular cylinder surmounted by a right circular cone. The heights of the cylindrical and the conical parts are 40 m and 21 m respectively. If the base diameter of the tent is 56 m, find the area of the required canvas to make this tent if 20% of the area is consumed in folding and sewing.

6. A toy is in the form of a right circular cylinder closed at one end and with a hemisphere on the other end. The height and the radius of the base are 15 cm and 6 cm respectively. The radius of the hemisphere are cylinder are same. Calculate the total surface area and the volume of the toy. if the toy is painted at the rate of Rs. 2.50 per 10 cm², find the cost of painting the toy.

7. An iron pillar has some portion in the form of a right circular cylinder an remaining in the form of a right circular cone. The radius of the base of each of the cone and the cylinder is 8 cm. The cylindrical portion is 240 cm high and the conical part is 36 cm high. Find the weight of the pillar, if one cubic cm of iron weights 7.8 g.

8. A solid metallic sphere of diameter 28 is melted and recasted into a number of smaller cones, each of diameter $4\frac{2}{3}$ cm and height 3 cm. Find the number of cones so formed.