



Exercise 13B

Question 5:

Let base radius be r and height be h

$$\text{Then,} \quad 2\pi rh = 4400 \text{ cm}^2$$

$$\text{And} \quad 2\pi r = 110 \text{ cm}$$

$$\Rightarrow \quad \frac{2\pi rh}{2\pi r} = \frac{4400}{110}$$

$$\Rightarrow \quad h = 40 \text{ cm}$$

$$\therefore \quad 2 \times \frac{22}{7} \times r \times h \times 40 = 4400 \text{ cm}.$$

$$\Rightarrow \quad r = \left(\frac{4400 \times 7}{44 \times 40} \right) \text{ cm} = \frac{35}{2} \text{ cm}.$$

$$\therefore \quad \text{Volume of the cylinder} = \pi r^2 h$$

$$= \left(\frac{22}{7} \times \frac{35}{2} \times \frac{35}{2} \times 40 \right) \text{ cm}^3$$

$$= 38500 \text{ cm}^3.$$

Question 6:

Let the radius (r) = 2x cm and height (h) = 3x cm

Then, Volume of cylinder = $(\pi r^2 h)$

$$\text{Volume} = \left[\frac{22}{7} \times (2x)^2 \times 3x \right]$$

$$\text{Volume} = \left[\frac{22}{7} \times 4x^2 \times 3x \right]$$

$$\text{Volume} = \frac{22}{7} \times 12x^3$$

$$\Rightarrow 1617 = \frac{22}{7} \times 12x^3$$

[\because volume given = 1617 cm³]

$$\Rightarrow 12x^3 = \frac{1617 \times 7}{22}$$

$$\Rightarrow x^3 = \frac{1617 \times 7}{22 \times 12} = \left(\frac{7}{2} \right)^3$$

$$\Rightarrow x = \frac{7}{2}$$

$$\therefore \text{radius} = 2x = 2 \times \frac{7}{2} = 7 \text{ cm}$$

$$\text{and height} = 3x = 3 \times \frac{7}{2} = \frac{21}{2} \text{ cm}]$$

Total surface area = $2\pi r(h + r)$

$$= 2 \times \frac{22}{7} \times 7 \left(\frac{21}{2} + 7 \right) \text{ cm}^2$$

$$= 44 \times \left(\frac{21 + 14}{2} \right) \text{ cm}^2$$

$$= (22 \times 35) \text{ cm}^2 = 770 \text{ cm}^2$$

***** END *****