



Exercise 13B

Question 14:

Here, cylindrical bucket has diameter = 28 cm.

$$\therefore \text{radius} = \left(\frac{28}{2}\right) \text{ cm} = 14 \text{ cm and height} = 72 \text{ cm}$$

Length of the tank = 66 cm

Breadth of the tank = 28 cm

\therefore Volume of tank = Volume of cylindrical bucket

$$\Rightarrow l \times b \times h = \pi r^2 h$$

$$\Rightarrow 66 \times 28 \times h = \frac{22}{7} \times 14 \times 14 \times 72$$

$$\Rightarrow h = \left(\frac{22 \times 2 \times 14 \times 72}{66 \times 28}\right) \text{ cm}$$

$$\Rightarrow h = 24 \text{ cm}$$

\therefore The height of the water level in the tank = 24 cm.

Question 15:

$$\text{Internal radius} = \left(\frac{3}{2}\right) \text{ cm} = 1.5 \text{ cm}$$

And, external radius = (1.5 + 1) cm = 2.5 cm

$$\text{Volume of cast iron} = \left[\pi \times (2.5)^2 \times 100 - \pi \times (1.5)^2 \times 100\right] \text{ cm}^3$$

$$= \pi \times 100 \times [(2.5)^2 - (1.5)^2] \text{ cm}^3$$

$$= \frac{22}{7} \times 100 \times [6.25 - 2.25] \text{ cm}^3$$

$$= \left(\frac{22}{7} \times 100 \times 4\right) \text{ cm}^3$$

$$\therefore \text{Weight} = \left(\frac{22}{7} \times 100 \times 4 \times \frac{21}{1000}\right) \text{ kg}$$

$$[\because 1 \text{ kg} = 1000 \text{ g}]$$

$$= 26.4 \text{ kg}$$

\therefore the weight of the iron pipe = 26.4 kg.

Question 16:

Internal diameter of the tube = 10.4 cm

$$\text{internal radius} = \left(\frac{10.4}{2}\right) \text{ cm} = 5.2 \text{ cm}$$

and length = 25 cm

and external radius = (5.2 + 0.8) cm = 6 cm

$$\text{Required volume} = \left[\pi \times (6)^2 \times 25 - \pi \times (5.2)^2 \times 25\right] \text{ cm}^3$$

$$= \pi \times 25 [(6)^2 - (5.2)^2] \text{ cm}^3$$

$$= \frac{22}{7} \times 25 [36 - 27.04] \text{ cm}^3$$

$$= \left(\frac{22}{7} \times 25 \times 8.96\right) \text{ cm}^3$$

$$= 704 \text{ cm}^3$$

\therefore the volume of the metal = 704 cm³

***** END *****

