



Exercise 13B

Question 11:

$$1\text{cm}^3 = 1\text{cm} \times 1\text{cm} \times 1\text{cm} \text{ and } 1\text{cm} = 0.01\text{m}$$

Therefore,

Volume of the

$$\text{gold} = 0.01\text{m} \times 0.01\text{m} \times 0.01\text{m} = 0.000001\text{m}^3 \dots\dots(1)$$

Diameter of the wire drawn = 0.1 mm

$$\text{Radius of the wire drawn} = \frac{0.1}{2}\text{mm} = 0.05\text{mm}$$

$$r = 0.00005\text{ m} \dots\dots(2)$$

$$\text{Length of the wire} = h\text{ m} \dots\dots(3)$$

Volume of the wire drawn = Volume of the gold

$$\Rightarrow \pi r^2 h = 0.000001$$

$$\Rightarrow \pi \times 0.00005 \times 0.00005 \times h = 0.000001 \text{ [from equations (1), (2) and (3)]}$$

$$h = \frac{0.000001 \times 7}{0.00005 \times 0.00005 \times 22}$$

$$\therefore h = 127.27\text{m}$$

\therefore the length of the wire is 127.27m

Question 12:

Let the radii of the two cylinders be $2R$ and $3R$.

And their heights be $5H$ and $3H$.

$$\text{Then, } \frac{V_1}{V_2} = \frac{\pi \times (2R)^2 \times 5H}{\pi \times (3R)^2 \times 3H} = \frac{\pi \times 4R^2 \times 5H}{\pi \times 9R^2 \times 3H} = \frac{20}{27}$$

\therefore the ratio of their volumes = 20 : 27

$$\text{Now, } \frac{S_1}{S_2} = \frac{2\pi (2R) (5H)}{2\pi (3R) (3H)} = \frac{10}{9}$$

\therefore the ratio of their curved surface = 10 : 9

Question 13:

For the tin having square base,

side = 12 cm and height = 17.5 cm.

$$\therefore \text{Volume} = (12 \times 12 \times 17.5)\text{cm}^3 = 2520\text{cm}^3$$

Now, diameter of tin with cylindrical base = 12 cm

$$\therefore \text{radius} = \left(\frac{12}{2}\right)\text{cm} = 6\text{cm} \text{ and height} = 17.5\text{cm}$$

$$\therefore \text{Volume} = \left(\frac{22}{7} \times 6 \times 6 \times 17.5\right)\text{cm}^3 = 1980\text{cm}^3$$

$$\begin{aligned} \text{Tin with square base has more capacity by } & (2520 - 1980)\text{cm}^3 \\ & = 540\text{cm}^3. \end{aligned}$$

***** END *****