Exercise 13C

Question 3:

Here, Volume $=(100\pi)\,cm^3$, height $(h)=12\,cm$

$$\text{Volume of the cone} = \frac{1}{3}\pi r^2 h$$

$$\Rightarrow \quad 100\ \pi = \frac{1}{3}\pi \times r^2 \times 12$$

$$\Rightarrow \quad r^2 = \frac{100\pi \times 3}{\pi \times 12}$$

$$\Rightarrow \quad r^2 = 25$$

$$\Rightarrow \quad r = \sqrt{25} = 5\,cm.$$

$$\text{Slant height}(\ell) = \sqrt{h^2 + r^2}$$

$$= \sqrt{12^2 + 5^2}$$

$$\ell = \sqrt{144 + 25} = \sqrt{169} = 13\,cm$$

$$\therefore \quad \text{Slant height}, \ell = 13\,cm$$

$$\therefore \quad \text{Curved surface area} = \pi r \ell$$

$$= \pi \times 5 \times 13\,cm^2$$

$$= 65\pi\,cm^2$$

Question 5:

Here, curved surface area $=550\,cm^2$ and

slant height $(\ell) = 25\,cm$

$\therefore$ Curved surface area $= \pi r \ell$

$$\Rightarrow \quad 550 = \frac{22}{7} \times r \times 25$$

$$\Rightarrow \quad r = \left(\frac{550 \times 7}{22 \times 25}\right) cm = 7\,cm$$

Now, height $(h) = \sqrt{\ell^2 - r^2}$

$$= \sqrt{(25)^2 - (7)^2}$$

$$= \sqrt{625 - 49}$$

$$= \sqrt{576} = 24\,cm$$

$$\therefore \quad \text{height of the cone} = 24\,cm$$

$$\text{Volume of the cone} = \frac{1}{3}\pi r^2 h$$

$$= \left(\frac{1}{3} \times \frac{22}{7} \times 7 \times 7 \times 24\right) cm^3$$

$$= 1232\ cm^3$$

$$\therefore \quad \text{Volume of the cone} = 1232\,cm^3$$

********** END **********