



Exercise 13C

Question 1:

Here, $r = 35$ cm and $h = 84$ cm

$$\begin{aligned}\therefore \text{Volume of the cone} &= \frac{1}{3} \pi r^2 h \\ &= \left(\frac{1}{3} \times \frac{22}{7} \times 35 \times 35 \times 84 \right) \text{ cm}^3 \\ &= 107800 \text{ cm}^3\end{aligned}$$

$$\begin{aligned}\therefore \text{Curved surface area} &= \left(\pi r \sqrt{h^2 + r^2} \right) \quad [\because l = \sqrt{h^2 + r^2}] \\ &= \pi r \sqrt{84^2 + 35^2} \\ &= \pi r \sqrt{8281} \\ &= \frac{22}{7} \times 35 \times 91 \\ &= 10010 \text{ cm}^2\end{aligned}$$

$$\therefore \text{Total surface area} = \pi r (l + r)$$

$$\begin{aligned}\text{Now,} \quad l &= \sqrt{h^2 + r^2} \\ &= \sqrt{84^2 + 35^2} \\ &= \sqrt{7056 + 1225} = \sqrt{8281} = 91 \text{ cm}\end{aligned}$$

$$\begin{aligned}\therefore \text{Total surface area} &= \frac{22}{7} \times 35 (91 + 35) \\ &= (22 \times 5 \times 126) \text{ cm}^2 = 13860 \text{ cm}^2\end{aligned}$$

Question 2:

Here, height (h) = 6 cm and slant height (ℓ) = 10 cm

$$\begin{aligned}\therefore \text{radius}(r) &= \sqrt{\ell^2 - h^2} \\ &= \sqrt{10^2 - 6^2} = \sqrt{100 - 36} \\ &= \sqrt{64} = 8 \text{ cm}\end{aligned}$$

$$\begin{aligned}\therefore \text{Volume of cone} &= \frac{1}{3} \pi r^2 h \\ &= \left(\frac{1}{3} \times 3.14 \times 8 \times 8 \times 6 \right) \text{ cm}^3 \\ &= 401.92 \text{ cm}^3\end{aligned}$$

$$\begin{aligned}\therefore \text{Curved surface area} &= \pi r \ell \\ &= (3.14 \times 8 \times 10) \text{ cm}^2 \\ &= 251.2 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\therefore \text{Total surface area} &= \pi r (\ell + r) \\ &= \pi r (10 + 8) \\ &= (3.14 \times 8 \times 18) \text{ cm}^2 \\ &= 452.16 \text{ cm}^2\end{aligned}$$

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