



### Exercise 19A

Question 11:

Radius of hemisphere = 10.5 cm

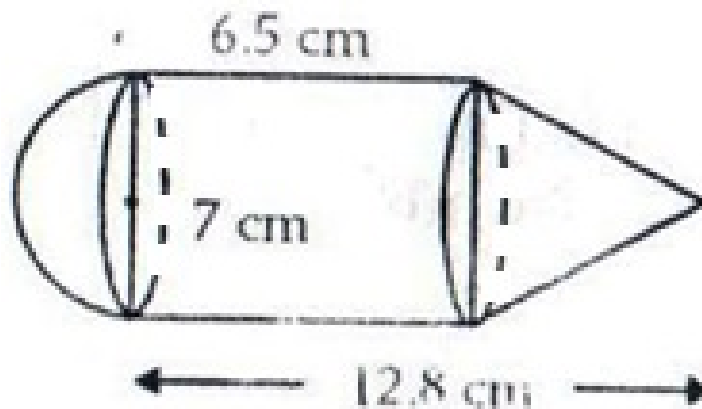
Height of cylinder = (14.5 - 10.5) cm = 4 cm

Radius of cylinder = 10.5 cm

Capacity = Volume of cylinder + Volume of hemisphere

$$\begin{aligned}
 &= \left( \pi r^2 h + \frac{2}{3} \pi r^3 \right) \text{cm}^3 = \pi r^2 \left( h + \frac{2}{3} r \right) \text{cm}^3 \\
 &= \left[ \frac{22}{7} \times 10.5 \times 10.5 \times \left( 4 + \frac{2}{3} \times 10.5 \right) \right] \text{cm}^3 \\
 &= (346.5 \times 11) \text{cm}^2 = 3811.5 \text{cm}^2
 \end{aligned}$$

Question 12:



Height of cylinder = 6.5 cm

Height of cone =  $h_2 = (12.8 - 6.5) \text{ cm} = 6.3 \text{ cm}$

Radius of cylinder = radius of cone

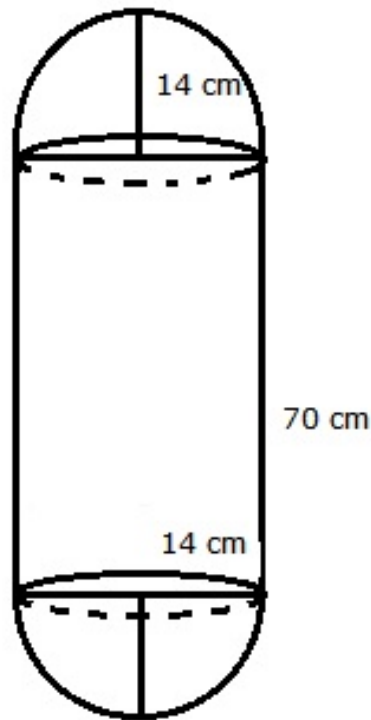
= radius of hemisphere

=  $7/2 \text{ cm}$

Volume of solid = Volume of cylinder + Volume of cone + Volume of hemisphere

$$\begin{aligned}
 &= \pi r^2 h_1 + \frac{1}{3} \pi r^2 h_2 + \frac{2}{3} \pi r^3 = \pi r^2 \left( h_1 + \frac{1}{3} h_2 + \frac{2}{3} r \right) \\
 &= \left[ \frac{22}{7} \times 3.5 \times 3.5 \times \left( 6.5 + 6.3 \times \frac{1}{3} + \frac{2}{3} \times 3.5 \right) \right] \\
 &= [(38.5) \times (6.5 + 2.1 + 2.33)] \text{cm}^3 \\
 &= (38.5 \times 10.93) \text{cm}^3 = 420.80 \text{cm}^3
 \end{aligned}$$

Question 13:



Radius of each hemispherical end =  $28/2 = 14$  cm  
 Height of each hemispherical part = Its Radius  
 Height of cylindrical part =  $(98 - 2 \times 14) = 70$  cm  
 Area of surface to be polished = 2(curved surface area of hemisphere) + (curved surface area of cylinder)

$$= \left[ 2(2\pi r^2) + 2\pi rh \right] \text{sq. unit}$$

$$= 2\pi r (2r + h) \text{cm}^2$$

$$= 2 \times \frac{22}{7} \times 14 \times [2 \times 14 + 70] \text{cm}^2$$

$$= (88 \times 98) = 8624 \text{ cm}^2$$

Cost of polishing the surface of the solid  
 = Rs.  $(0.15 \times 8624)$   
 = Rs. 1293.60

\*\*\*\*\* END \*\*\*\*\*