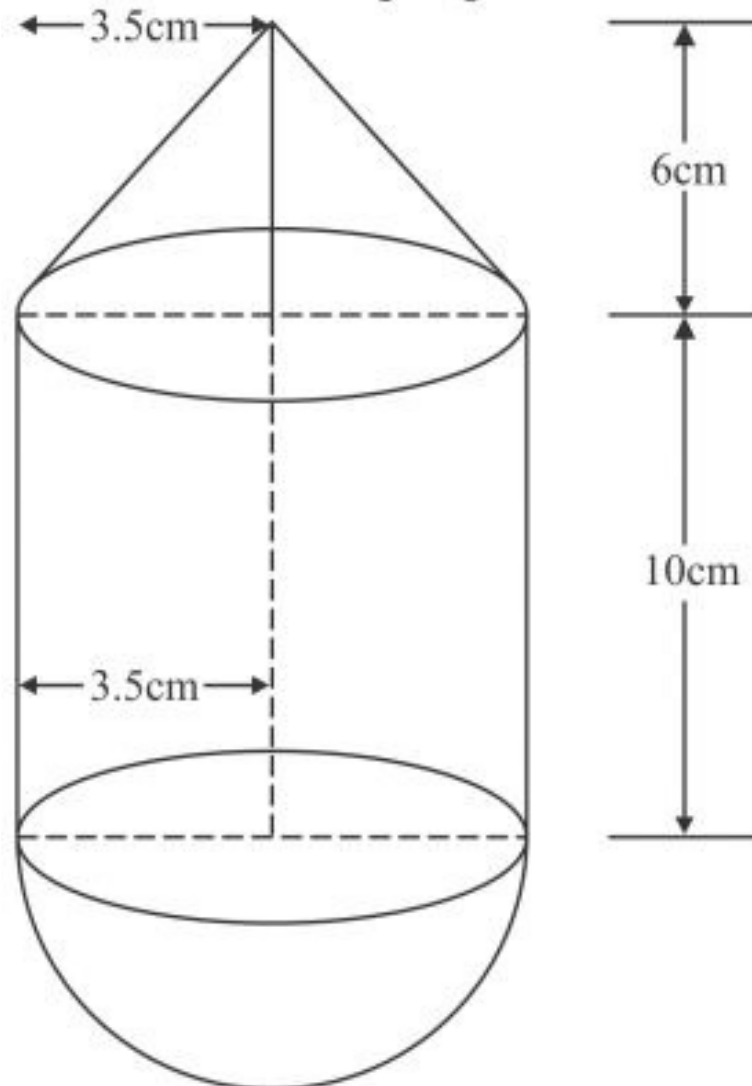




Surface Areas and Volumes Ex.16.2 Q5

Answer :

We have the following diagram



For cone, we have

$$r = 3.5 \text{ cm}$$

$$h = 6 \text{ cm}$$

$$l = \sqrt{r^2 + h^2}$$

$$= \sqrt{3.5^2 + 6^2}$$

$$= 6.95 \text{ cm}$$

Curved surface area of the cone is given as

$$S_1 = \pi r l$$

$$= \frac{22}{7} \times 3.5 \times 6.946$$

$$= 76.408 \text{ cm}^2$$

For cylindrical part, we have

$$r = 3.5 \text{ cm}$$

$$h = 10 \text{ cm}$$

Curved surface area of the cylinder is

$$S_2 = 2\pi r h$$

$$= 2 \times \frac{22}{7} \times 3.5 \times 10$$

$$= 220 \text{ cm}^2$$

The surface area of the hemisphere is

$$S_3 = 2\pi r^2$$

$$= 2 \times \frac{22}{7} \times 3.5^2$$

$$= 77 \text{ cm}^2$$

Total surface area of the solid is given by

$$S = S_1 + S_2 + S_3$$

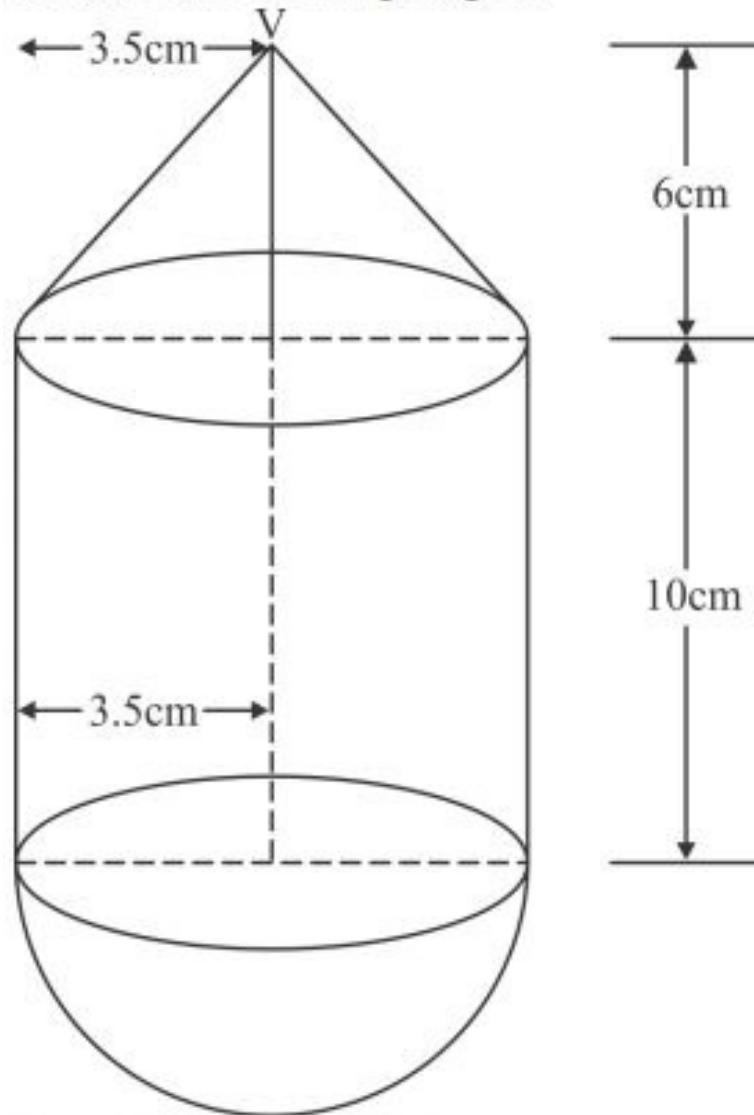
$$= 76.408 + 220 + 77$$

$$= 373.408 \text{ cm}^2$$

Hence the total surface area of the solid is $S = 373.408 \text{ cm}^2$

Answer :

We have the following diagram



For cylindrical part, we have

$$h = 13 \text{ cm}$$

$$r = 5 \text{ cm}$$

Therefore, the curved surface area of the cylinder is given by

$$\begin{aligned}S_1 &= 2\pi rh \\&= 2 \times 3.14 \times 5 \times 13 \\&= 408.2 \text{ cm}^2\end{aligned}$$

For conical part, we have

$$h = 30 - 13 - 5$$

$$= 12 \text{ cm}$$

$$l = \sqrt{h^2 + r^2}$$

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

$$= 13 \text{ cm}$$

Therefore, the curved surface area of the conical part is

$$\begin{aligned}S_2 &= \pi rl \\&= 3.14 \times 5 \times 13 \\&= 204.1 \text{ cm}^2\end{aligned}$$

For hemisphere, we have

$$r = 5 \text{ cm}$$

Therefore the surface area of the hemisphere is

$$\begin{aligned}S_3 &= 2\pi r^2 \\&= 2 \times 3.14 \times 5^2 \\&= 157 \text{ cm}^2\end{aligned}$$

The total surface area of the toy is

$$\begin{aligned}S &= S_1 + S_2 + S_3 \\&= 408.2 + 204.1 + 157 \\&= 769.3 \text{ cm}^2\end{aligned}$$

Hence, total surface area of the toy is $S = 769.3 \text{ cm}^2$

***** END *****