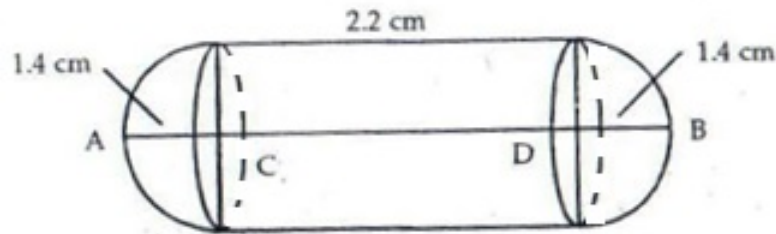




Exercise 19A

Question 8:



Diameter of cylindrical gulabjamun = 2.8 cm

Its radius = 1.4 cm

Total height of gulabjamun = AC + CD + DB = 5 cm

$$1.4 + CD + 1.4 = 5$$

$$2.8 + CD = 5$$

$$CD = 2.2 \text{ cm}$$

Height of cylindrical part $h = 2.2 \text{ cm}$

Volume of 1 gulabjamun = Volume of cylindrical part + Volume of two hemispherical parts

$$= \pi r^2 h + \frac{2}{3} \pi r^2 + \frac{2}{3} \pi r^3$$

$$= \pi r^2 h + \frac{4}{3} \pi r^3 = \pi r^2 \left(h + \frac{4}{3} r \right)$$

$$= \frac{22}{7} \times 1.4 \times 1.4 \times \left(2.2 + \frac{4}{3} \times 1.4 \right)$$

$$= 22 \times 0.2 \times 1.4 \times (2.2 + 1.87)$$

$$= 4.4 \times 1.4 \times 4.07 = 25.07 \text{ cm}^3$$

$$\text{Volume of 45 gulabjamuns} = 45 \times 25.07 \text{ cm}^3$$

Quantity of syrup = 30% of volume of gulabjamuns

$$= 0.3 \times 45 \times 25.07 = 338.46 \text{ cm}^3$$

Question 9:

$$\text{Diameter} = 7\text{cm}, \text{radius} = \frac{7}{2}\text{cm} = 3.5\text{cm}$$

$$\text{Height of cone} = 14.5\text{cm} - 3.5\text{cm} = 11\text{cm}$$

$$l = \sqrt{\left(\frac{7}{2}\right)^2 + (11)^2}\text{cm} = \sqrt{\frac{49}{4} + 121}\text{cm} = \sqrt{\frac{533}{4}}\text{cm}$$

$$l = \frac{23.08}{2}\text{cm} = 11.54\text{cm}$$

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

$$= \left[\frac{1}{3}\pi r^2 (2r + h) \right]$$

$$\text{where } r = \frac{7}{2} \text{ and } h = 11$$

$$= \left[\frac{1}{3} \times \frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} \times \left(2 \times \frac{7}{2} + 11 \right) \right] \text{cm}^3$$

$$= (12.83 \times 18) \text{cm}^3 = 230.94 \text{cm}^3$$

$$\text{Total surface area of toy} = (2\pi r^2 + \pi r l) \text{cm}^2 = \pi (2r + l) \text{cm}^2$$

$$= \frac{22}{7} \times \frac{7}{2} \times \left(2 \times \frac{7}{2} + 11.54 \right) \text{cm}^2$$

$$= (11 \times 18.54) \text{cm}^2 = 203.94 \text{cm}^2$$

Question 10:

$$\text{Diameter of cylinder} = 24\text{m}$$

$$\text{Radius of cylinder} = \frac{24}{2}\text{cm} = 12\text{cm}$$

$$\text{Height of the cylinder} = 11\text{m}$$

$$\text{Height of cone} = (16 - 11)\text{cm} = 5\text{cm}$$

$$\text{Slant height of the cone } l = \sqrt{r^2 + h^2} = \sqrt{144 + 25}\text{m} = 13\text{m}$$

$$\text{Area of canvas required} = (\text{curved surface area of the cylindrical part}) + (\text{curved surface area of the conical part})$$

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

$$= \left[\frac{22}{7} \times 12 \times (2 \times 11 + 13) \right] \text{m}^2$$

$$= \left(\frac{22}{7} \times 12 \times 35 \right) \text{m}^2 = 1320 \text{m}^2$$

***** END *****