

Q1-
sol-

$$\begin{aligned} \text{Volume of Hemisphere} &= \frac{2}{3} \pi r^3 \\ &= \frac{2}{3} \times 22 \times 35 \times 35 \times 35 \\ &= \frac{44 \times 61.125}{3} \\ &= \frac{2689.5}{3} \\ &= 896.5 \end{aligned}$$

Q2-
sol-

$$\text{Volume of cylinder} = \pi R^2 H$$

$$r = 1 \quad R = 2$$

$$h = 1 \quad H = 2$$

$$\begin{aligned} &= \frac{\pi R \times R \times H}{\pi r \times r \times h} \\ &= \frac{0.5 \quad 2}{1 \times 1} \\ &= 1:1 \end{aligned}$$

Q3
Sol

$$\text{Volume of hollow sphere} = \frac{4}{3}\pi r^3 - \frac{4}{3}\pi R^3$$

$$= 10^3 - 12^3$$

$$= 1000 - 1728$$

$$= -728$$

$$\text{Mass} = \text{Volume} \times \text{Density}$$

$$= 728 \times \frac{3.9}{100}$$

$$= 2.8392 \text{ cm}^3$$

Q4-
Sol-

$$\text{Volume of cuboid} = l \times b \times h$$

$$l = 10 \text{ m}$$

$$b = 8 \text{ m}$$

$$\text{Volume of cuboidal vessel} = 380 \text{ m}^3$$

Let height be h

$$l \times b \times h = 380$$

$$10 \times 80 \times h = 380$$

$$h = 4.75 \text{ m}$$

Q5-
Sol-

$$d = 3.5 \text{ m}$$

$$r = \frac{d}{2} = \frac{3.5}{2} = 1.75 \text{ m}$$

$$\text{depth of pit} = 12 \text{ m}$$

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

$$= \frac{1}{3} \times \frac{22}{7} \times 1.75^2 \times 12$$

$$= 38.5$$

$$\text{Volume of cone} = 38.5$$

$$\text{Hence capacity of pit} = 38.5 \text{ m}^3$$
$$= 38.5$$

$$\text{Volume of cylinder} = \pi r^2 h$$

$$r = 1.5 \text{ m}$$

$$= \frac{22}{7} \times 1.5 \times 1.5 \times h$$

$$= \frac{22 \times 2.25}{7} \times h$$

$$= 49.5 \times h$$

$$h = \frac{38.5}{49.5} = 7.07$$

Q7-
Sol-

Q8
Sol

Q9
Sol

Q7-

Sol- Volume of cuboid = $l \times b \times h$

$$= 24 \times 12 \times 8$$

$$= 2304$$

$$= 10 \times 4 \times 240$$

$$= 960$$

$$\text{Bricks} = \frac{2304}{960}$$

$$= 2.4$$

Q8-

Sol- Volume of cylinder = $\pi r^2 h$

$$= \frac{22}{7} \times 20 \times 20 \times 10$$

$$= 12,320$$

$$\text{For 14 pillars} = 12,320 \times 14$$

$$= 1,72,480$$

Q9-

Sol- Let diameter of earth = d

$$r = \frac{d}{2}$$

$$\text{Volume of moon} = \frac{4}{3} \pi r^3 = \frac{4}{3} \times \pi \left(\frac{d}{2}\right)^3$$

$$= \frac{4}{3} \pi (d^3/512)$$

Volume of earth:

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

$$= \frac{4}{3} \pi (d^3/8)$$

$$\text{Fraction of volume} = \frac{\frac{4}{3} \pi d^3/512}{\frac{4}{3} \pi d^3/8}$$

$$\frac{4}{3} \pi d^3/8$$

$$= \frac{512}{8}$$

$$= 1/64$$

Q10 -

sol- Volume of Hemisphere = $\frac{2}{3} \pi r^3$