

Home Assignment:-

- 1-) The density of alcohol is 600 kg/m^{-3} . Express it in g cm^{-3}
- 2-) A piece of wood of mass 150 g has a volume of 200 cm^3 . Find the density of wood in (a) C.G.S. unit (b) SI unit.
- 3-) Calculate the density of solid given the following data
 - a-) mass of solid (m) = 72 g
 - b-) initial volume of water in measuring cylinder = 24 ml .
 - c-) final volume of water when solid is completely immersed in water = 42 ml .

$$\rightarrow 1 \text{ kg} = 1000 \text{ g}$$

$$600 \text{ kg} = 600 \times 1000$$

$$600000 \text{ g}$$

$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ m}^3 = 100 \times 100 \times 100$$

$$= 1000000$$

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

$$= 0.6 \text{ g/cm}^3$$

$$\rightarrow \text{Mass} = 150 \text{ g}$$

$$\text{Volume} = 200 \text{ cm}^3$$

$$\text{Density} = \frac{\text{mass}}{V}$$

$$= \frac{150}{200} = \frac{3}{4}$$

$$= \frac{3 \times 25}{4 \times 25} = \frac{75}{100} = 0.75$$

CGS units = 0.75 g/cm³

$$\text{SI Unit} = \text{kg/m}^3$$

$$= 0.75 \text{ g} = 1 \text{ kg} = 1000 \text{ g}$$

$$\frac{75}{100} \times 1000 = 750 \text{ kg/m}^3$$

3) (i) $m = 72g$

b) $V_1 = 24$

c) $V_2 = 42$

$= V_2 - V_1 = 42 - 24 = 18 = D = \frac{M}{V}$

$= \frac{72}{18} = 4g/cm^3$

4) How does the density of a liquid (or gas) vary with temperature?

A) When we increase the temperature the density increases and the volume decreases. But when we decrease the temperature volume increases and density decreases.

5) What is a density bottle? How is it used to find the density of a liquid?

A) It is an instrument used to measure the liquid. It is a glass bottle which has stopper at its end which through all the water through a hole