

Home Work

$$1 \rightarrow 1 \text{ kg/m}^3 = \frac{1}{1000} \text{ g/cm}^3$$

$$600 \text{ kg/m}^3 = \frac{600}{1000} = 0.6 \text{ g/cm}^3$$

2 \rightarrow For a piece of wood,
mass = 150g
volume = 200 cm³

Density,

a) CGS unit

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

$$= \frac{150}{200} = 0.75 \text{ g/cm}^3$$

b) SI unit,

$$1 \text{ kg/m}^3 = \frac{1}{1000} \text{ g/cm}^3$$

$$1 \text{ kg/cm}^3 = 1000 \text{ kg/m}^3$$

$$0.75 \text{ /cm}^3 = 0.75 \times 1000$$

$$= \frac{75}{100} \times 1000$$

$$= 750 \text{ kg/m}^3$$

3) Given,

$$\text{Mass of solid} = 72 \text{ g}$$

$$\text{Initial volume of water} = V_1 = 24 \text{ ml}$$

$$\text{Final volume of water when solid is completely immersed in water} = V_2 = 42 \text{ ml}$$

$$\text{Volume of solid} = V_2 - V_1$$

$$= 42 - 24$$

$$= 18 \text{ ml} = 18 \text{ cm}^3$$

$$\text{Density of solid} = \frac{\text{Mass}}{\text{Volume}} = \frac{72}{18}$$

$$= 4 \text{ g/cm}^3$$

4) As the temperature increases, volume of most of the liquids also increased and when the volume increases, density decreases.

5) A density bottle is a specially designed bottle which is used to determine the density of a liquid. To determine the density of a liquid using the density bottle, we have to measure the mass of liquid and mass of water taken in it by using the common balance, the mass of water in the density bottle gives the volume of liquid.