ASSIGNMENT

1) The density of alcohol is 600 kg/m^3. Express it in g/cm^3.

A- Density of alcohol = 600 kg/m^3

In g/cm^{-3} = $\frac{600}{1000}$ = 0.60 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) CGS unit, (b) SI unit.

A- (a) Mass of wood = 150 g

Volume of wood = 200 cm^3

Density = m/v = 150/200 = 0.75 g/cm^3

(b) In SI system = 0.75 × 1000

= 750 kg/m^3

3) Calculate the density of solid from the following data: (a) Mass of solid = 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.

A- Mass of solid = 72 g

Initial volume, = 24 ml

Final volume, = 42 ml

Volume of solid = $V_2 - V_1$ = 42 − 24 = 18 cm^3

$D = \frac{M}{V} = \frac{72}{18} = 4\ g\ cm^{-3}$

4) How does the density of a liquid vary with temp.?

A- As the temp. increases, volumes of most of the liquids also increases and when the volume increases and density decreases. Similarly, when temp. decreases, the volume of most liquids decreases which increases the density.

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

A- Density bottles are mainly used to determine the density of liquids of moderate viscosity.
The stopper has a narrow hole through it. When the bottle is filled with liquid and stopper is inserted, excess liquid rises through the hole and drains out. Thus the bottle will contain the same volume of liquid each time when it is filled.