Determination of density of an irregular solid, Density of a liquid, density bottle

Home assignment

1) The density of alcohol is 600 $kg\,m^{-3}$. Express it in $g\,cm^{-3}$.

Ans: The density of the alcohol is $g\,cm^{-3}$

$1\,kg\,m^{-3} = 10\,g\,cm^{-3}$
$600\,kg\,m^{-3} = 10\,g\,cm^{-3}$

$\Rightarrow 600 \times 10\,g\,cm^{-3}$
$\Rightarrow 6000\,g\,cm^{-3}$

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) S.I unit

Answers: $D = \frac{M}{V}$

$D = \frac{150}{200} = \frac{3}{4} = 0.75\,g\,cm^{3}$

In S.I unit unit = $1 g cm^{-3} = 1000 kg m^{-3}$

$0.75 g cm^{-3} = 0.75 \times 1000$
$= 750 kg m^{-3}$

3) Calculate the density of solid from the follow data:

a) Mass of solid (M) = 72g

b) Initial volume of water in measuring cy
V_1 = 24ml

c) Final volume of water when solid
is completely immersed in wate
48ml

Final volume of the completely immersed
water = 48ml

Initial volume = 24ml

Volume of solid = $V_2 - V_1$

$18ml = 18cm^3$

$D = \frac{M}{V}$

$D = \frac{77.3}{+8} = 3gcm^{-3}$

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

Answer: The density of a liquid or gas varies due to temperature ~~because~~ because increase in the temperature makes increase in the volume due to which there is more density. When the temperature decreases then the volume also decreases for which the density also decreases.

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

Answer: The density bottles are normally used as ... for measuring the viscousity of the liquid.