* **Density** → Mass present per unit volume is called Density [by Sonu sir]

→ Density of a substance is defined as the mass of a unit volume of that substance.

∴ $\text{Density} = \frac{\text{Mass}}{\text{Volume}}$ → $d = \frac{M}{V}$

→ (i) S.I. Unit of Density = $Kg/m^3 = Kg\ m^{-3}$

→ (ii) C.G.S. Unit of Density = $gm/cm^3 = gm\ cm^{-3}$

* **Relation** → $1\ gm/cm^3 = 1000\ Kg/m^3$

Some important term Related to density :-

(i) Density of a substance is not changed by change in it's size or shape

(ii) The Density of a substance is more in it's Solid state, Less in Liquid state and still Less in it's Gaseous state.

* **Exception** → density of ice (solid state of water) Less than density of water

(iii) The density of a substance is decreases With increase in it's Temperature. If it expand on Heating

(iv) Density of water increases when it heated From 0°C to 4°C and then decreases When heated above 4°C.

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

→ $M = V \times d$

by Sonu Kr. Gupta

*Relative Density → Relative Density defined by a ratio of density a substance to Density of water. [by sonu sir]

$$\text{Relative Density of substance} = \frac{\text{Density of substance}}{\text{Density of water}}$$

→ No-any Unit of Relative Density of substance.

$$\text{R.D.} = \frac{\text{Density of substance}}{\text{Density of water}}$$

* In term of mass (Mass form) of R.D

Relative Density of a substance also defined as ratio of mass of substance (M_s) to mass of water (M_w) if their volume be same.

$$\text{R.D. of substance} = \frac{\text{Mass of substance}}{\text{Mass of water}}$$

$$\text{R.D. of substance} = \frac{M_s}{M_w}$$

→ If volume be same.

Here M_s = Mass of substance

M_w = Mass of water... (by Sonu sir)

* **Buoyant Force** → When a body is Partially or completely immersed in a liquid, it experiences an upward Force due the displaced Liquid by body, which is called buoyant Force or upthrust. (by Sonu sir)

* Buoyant Force (upthrust) is equal to the weight of the Liquid displaced by the body

* What are the Factors on Which Buoyant Force (upthrust) acting on a body in a liquid Depends → When a body is immersed in a Liquid, the displaced Liquid acts an upward Force on body called Buoyant Force Which depends on Following Factors. →

(1) The volume of the body immersed in the Liquid → if larger the volume Part of the body immersed in a liquid, greater is the Buoyant Force

Buoyant force ∝ Volume of body

(2.) Density of the liquid (d_l) → Buoyant Force is maximum, if density of liquid (d_l) is high.)

(3.) Shape and size of body Which immersed in Liquid. by Sonu sir

* If the density of body is more than density of Liquid, then body sink in Liquid.

* If the density of body is Equal to or Less than the density of Liquid then body Floats on Liquid.