



2. Mass of wood (M) = 150g  
Volume of wood (V) = 200 cm<sup>3</sup>  
Density (D) = ?

$$D = \frac{M}{V} = \frac{150}{200} = 0.75 \frac{g}{cm^3}$$

In S.I system =  $0.75 \times 1000$   
= 750 kg/m<sup>3</sup>.

3. Most of the liquids increase in volume with an increase in temperature. but water shows anomalous behaviour. water has a maximum volume at 4°C. and maximum density increases but water when cooled further below 4°C and hence the density of water increases when it is cooled up to 4°C while decreases when cooled

Further below  $4^{\circ}\text{C}$ . In other words, the density of water is maximum at  $4^{\circ}\text{C}$  equal to  $1\text{g}\cdot\text{cm}^{-3}$  or  $1000\text{kg}\cdot\text{m}^{-3}$ .

4. Ratio of the density (mass per volume) of a substance to the density of a given reference material. Relative density ~~of~~ is the ratio of density of a substance to the density of water at  $4^{\circ}\text{C}$ . The relative density has no units.

5. The density of an object determine whether it will float or sink in another substance. An object will float if it is less dense than the liquid it placed in.

6. When a body floats in a liquid, the weight of the liquid displaced by its immersed part is equal to the total weight of the body. This is the law of flotation.

7. ~~10~~

a) Buoyant force is same in each case as the wt. of the body is same in each case and Buoyant force is equal to the weight of the liquid displaced by the immersed part of the body which balances the weight of body.

b) - The liquid A has the least density as body immerses the maximum.

c) Liquid - C has the highest density as the body immerses the least.