# HOME WORK

Q1. The mass of $10cm^3$ of silver is 103g. Find
a) The density of silver in $kg/m^3$
b) Relative density of silver

Ans- Given,
Mass of silver = 103g
volume = $10cm^3$

a) Density of Silver = $\frac{\text{Mass}}{\text{volume}} = \frac{103}{10} = 10.3 g/cm^3$

$1 g/cm^3 = 1000 kg/m^3$

$10.3 g/cm^3 = (10.3 \times 1000)\ kg/m^3$

$= 10300 kg/m^3$

∴ Density is $10300\ kg/m^3$

b) Relative density of silver = $\frac{\text{Density of silver}}{\text{Density of water}}$

Density of water = $1 g/cm^3 = 1000 kg/m^3$

$= \frac{10300\ kg/m^3}{1000\ kg/m^3}$

$= 10.3$

∴ Relative Density is 10.3

Q2) A piece of wood of mass 150g has a volume of $200 cm^3$. Find the Density of wood in C.G.S. Unit and S.I. Unit.

Ans- Given,

Mass of piece of wood = 150g

Volume = $200 cm^3$

Density of wood (C.G.S) = $\frac{\text{Mass}}{\text{Volume}} = \frac{150}{200} = 0.75$ g/cm³

$1 g/cm^3 = 1000 kg/m^3$

$0.75 g/cm^3 = 0.75 \times 1000 = 750 kg/m^3$

(Density in S.I. unit)

Q3) How does the density of a liquid (or gas) vary with temperature?

Ans- As the temperature increases, volumes of most of the liquids also increases and when the volume increases, density Decreases.

Q4) Define the term Relative density of a substance. What is the unit of Relative density?

Ans- The relative density of a substance is defined as the ratio of the density of the substance to the density of water. It has no unit.

Q5) How does the density of a body and that of a liquid determine whether the body will float or sink into that liquid?

Ans- If the density of a body is less than the density of liquid, the body will float on the surface of the liquid. Whereas if the density of a body is more than the density of liquid the body will sink in liquid.

Q6) What is the law of floatation?

Ans- 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 floatation.

Q7). The diagram given shows a body floating in three different liquids. A, B & C at different levels.

a) In which liquid does the body experience the greatest buoyant force?

b) Which liquid has the least density?

c) Which liquid has the highest density?

Ans - a) The buoyant force is the same in each case as the weight of the body is the same in each case.

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

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