Date 02/08
Page

PHYSICS.

NUMERICALS.

1) Given,

Mass of silver = 103 gm

Mass of silver in Kg = $\frac{103}{1000}$ Kg

Volume of silver = 10 cm3

Volume of silver in m3 = $\left[10 \times \frac{1}{10^6}\right] m^3$

Density of silver = $\frac{103 \times 10^{-3} \text{ Kg}}{10 \times 10^{-6} \text{ m}^3}$

$= 10300 \text{ Kg m}^{-3}$

Density of water = 1000 Kgm^{-3}

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

$= \frac{10300 \text{ Kg m}^{-3}}{1000 \text{ Kgm}^{-3}}$

$= 10.3$

∴ Hence, the density of silver is $103 \times 10^2 \text{ Kgm}^{-3}$ relative density of silver is 10.3.

Date 02/08
Page 021

2) Given,

Mass of the piece of wood = 150g

Mass of the piece of wood in kg = $\frac{150}{1000}$ kg

Volume of the piece of wood = 200 cm^3

Volume of the piece of wood in m = $\left[\frac{200 \times 1}{10^6}\right] m^3$

Density of the piece of wood in C.G.S unit =

$$\frac{150}{200 cm^2}$$

$$= \underline{0.75 \, g \, cm^{-2}}$$

$$\underline{750 \, Kgm^{-3}}$$

∴ Hence, the density of wood in C.G.S and S.I unit are $0.75 \, g \, cm^{-2}$ and $750 \, Kgm^{-3}$.

Date 02/08
Page

3) Any substance belonging to liquid or gaseous state., when given or it generates kinetic energy, their inter-molecular distance increases because of their reduction in inter molecular forces of attraction between the particles undergo random motion. Due to these changes, the volume increase where variation of their density is found or their density increases.

4) The ~~real~~ relative density of a substance is defined as the ~~of~~ ratio of the density of substance to that of density of water.

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

As, it is a ratio, so, it has no unit. It is unitless.

5) The density of a body and that of a liquid determine whether the body will float or sink into that liquid is in follows:-

i) If the body is more dense than that of a given liquid on which it is placed, it will sink.

Date 02/08
Page

ii) If the body is lesser dense than that of the given liquid in which it ~~is~~ placed, it will float.

6) The principal of floatation states that when an object floats on a liquid the buoyant force that acts on the ~~effect~~ equal to the weight of the object.
The law of floatation is also known as the 'Archimeds principle'.

QUESTION

a) In all liquids
b) Liquid A
c) Liquid C.