Numericals

The mass of 10 cm^3 of silver is 103 gm. Find :-

a) The density of silver in kg/m^3.

A- Mass of silver = 1000 gm = 1 kg

Volume of silver = 10 cm^3 = $\frac{10}{1000000}$ = 10^{-5}

Density = $\frac{m}{V} = \frac{1}{10^{-5}} = \frac{10^5 kg}{m^3}$

b) Relative density of silver.

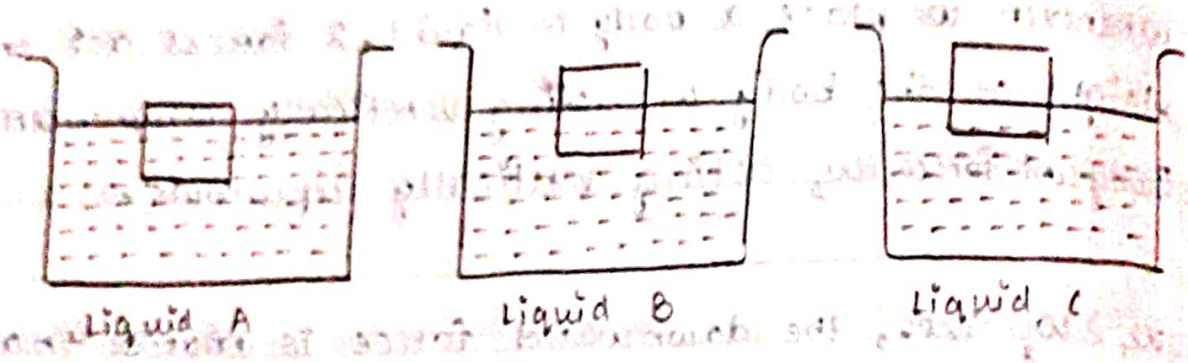
A- Relative density = density of silver / density of water

Density of water = $\frac{1 kg}{m^3}$

$= 10^5$

NUMERICAL

1) The diagram given bellow shows a body floating in 3 different liquids A, B and C at different levels.



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

A- Buoyant force is same in each case as the weight of the boy 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 the body.

b) Which liquid has the least density?

A- Liquid A has the least density as body immerses the maximum.

c) Which liquid has the highest density?

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

2) The density of water is 1.0 g cm^{-3}. The density of iron is 7.8 g cm^{-3}. The density of mercury is 13.6 g cm^{-3}. Answer:

a) Will a piece of iron float / sink in water?

A- Float

b) Will a piece of iron float / sink in mercury?

A- Sink

3) A piece of wood of mass 150 g has a volume of 200 cm^3. Find the density of wood in CGS and SI unit.

A- a) Mass of wood = 150 g

Volume of wood = 200 cm^3

Density = $\frac{m}{V}$

$= \frac{150}{200}$

$= 0.75$ g (in CGS unit system)

b) In SI unit system $= 0.75 \times 1000$

$= 750$ kg / m^3