Assignment-1

1) Define the term density of a substance.

Ans The density of a substance is it's mass per volume. Density ~~abs~~ tells us how rigid ~~on~~ substance is.

2) Name the S.I unit of density. How it is related to ~~gcm~~ gcm^{-3}?

Ans The gram per cubic centimetre is a unit of density in the ~~gcm~~ CGS system commonly used in chemistry. To know the density the mass of matter is divided by the volume.

3) The density of a brass is 8.4 gcm. What do you mean by this statement?

Ans This statement means that ~~in~~ ~~volume of~~ one cubic centimetre of ~~of the~~ volume of brass has mass of 8.4 gcm.

4) Arrange the following substances in order of their increasing density. Iron, cork, Brass, water, mercury.

Ans cork < water < iron < brass < mercury.

5) How ~~does~~ does the density of a liquid or gas vary with temperature?

Ans When the temperature varries the volume too ~~varies~~ changes. And since the density is mass per volume and when the volume changes the density too changes.

6) A given quantity of liquid ~~or~~ is heated. Which of the following quantity will vary and how?

Ans The following quantity will vary when the given quantity

of liquid is heated:- The Kinetic energy, Intermolecular space, volume and density. The Kinetic energy increases as the heat ~~to~~ vibrates the ~~m~~ water molecules. The ~~Inter~~ Intermolecular space too increases ~~and~~ as the vibrations take the molecules little far from each other. When the Intermolecular space increases ta volume too Increases as we all Know the three classical states of matter expand on heating. The density decreases as there is increase in volume but no increase in mass and density is determined by mass per volume.

⑦ Describe an experiment ta determine the density of the material of a coin.

Ans To find the density of the material of coin, we need ta find its mass by beam ~~b~~ balance and its volume by measuring cylinder.

Experiment:-

Let the initial volume of water be $V_1 = 42$ ml
Let the final volume of water be when the coin is added in the cylinder $= V_2 = 52$ ml

So the volume of the coin ~~is~~ $= V_2 - V_1$
$= 52 - 42 = 10$ ml

Density of the coin $= D$

$$D = \frac{M}{V} = \frac{50}{52-42} = \frac{50}{10} = 5 g cm^{-3}$$

⑧ Describe an experiment to determine the density of a liquid.

Ans To find the density of a liquid = $D = \frac{M}{V}$

We need to find the volume of liquid. for Example milk.

Experiment :-

To find the mass of milk =
$M_1 g = 70 g$ (let)

fill the beaker half with milk and measure =
$m_2 g = 116 g$ (let)

Now, to find the volume of milk into measuring cylinder. note the volume $V = 40$ (let)

= Density of milk = $D = \frac{m}{V} = \frac{m_2 - m_1}{40}$

$= \frac{(116 - 70)}{40} = \frac{46}{40} = \frac{4.6}{4} = 1.15 \ gcm^{-3}$

⑨ What is a density bottle? How is it used to find the density of a liquid?

Ans Density bottle are used to determine the density of the liquids. It makes use of the bottles weight and the bottle is filled with water and at last the bottle is weighted with the liquid and the density is to be determined