Home Assignment

1) The mass of a density bottle is 35g when empty. 65g when filled with water, and 59g when filled with alcohol. Find the relative density of alcohol.

A) Mass of desity bottle = 35g

Filled with water in the density bottle mass = 65g

Filled with Alchohal in the density bottle mass = 59g

$(M_2 - M_1)g$ $(M_3 - M_1)g$

$= (65 - 35)g$ $= (59 - 35)g$

$= 30g$ $= 24g$

$$\frac{M_3 - M_1}{M_2 - M_1} = \frac{24}{30} = 0.8 = 0.8g$$

2) what is a density bottle? How is it used to find the density of a liquid?

A-) A density bottle is a specially designed volume to stored a fixed volume of a liquid/Specific volume of liquid. It is used to find the density of a liquid. By using common balance and mass of a liquid

3) Distinguish between density and relative density.

A) Each body has a certain mass of occupying this volume. The volume occupied by body increases, if its mass is increased off simultaneously mass of a body increases on increasing its volume is called mass

Relative density → the relative density of a substance to the density of water. the symbol of relative density is R.D. Thus $R.D. = \frac{M_3 - M_1}{M_2 - M_1}$

4→ Explain the meaning of the of the Statement (Relative density of aluminum is 2.7.

A→ The volume of ~~Alcohol~~ Aluminium is more than 2 times greater the water

5→ The mass of an empty density bottle is 21.8g. when filled completely with water it is 41.8g and when filled completely with liquid it is 40.6g. Find

a→ The volume of density bottle.
b→ The relative density of liquid.

A→ volume of bottle is = 41.8 - 21.8g =
20g 20g

$\rho = \frac{m}{v}$

$41.8g - 21.8g = v$

$41.8g - 21.8g = v$

$= 1 = \frac{M}{V}$

$= 1 = \frac{20g}{V}$

$= 1 \times 20g = V$

$= 20g = V$

5) $\frac{m_3 - m_1}{m_2 - m_1}$

$\frac{40.6g - 21.8g}{41.8g - 21.8g}$

$\frac{9.4}{\frac{11.8}{20}} = \frac{9.4}{10} = 94 \div 10$

$\frac{94}{10} \times \frac{1}{10}$

$\frac{94}{100} = 0.94$

6) From the following observations calculate the density and relative density of a brine solution.

a) mass of empty density bottle = 22g

b) mass of bottle + water = 50g

c) mass of bottle + brine solution = 54g.

A) density = 50 - 22 = 28g = $\frac{m}{V}$

$$d = \frac{28}{V}$$

$$1 = \frac{28}{V} = 1 \times 28g = V$$

$$= 28g = V$$

$$R.D = \frac{M_3 - M_1}{M_2 - M_1} = \frac{54g - 22g}{50g - 22g}$$

$$= \frac{32g}{28}$$