

① The mass of 10 cm^3 of silver is 103 gm . Find

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

Sol: $R.D. = \frac{\text{density of substance}}{\text{density of water}}$

$$\begin{aligned} \text{Density of silver} &= \frac{\text{mass}}{\text{volume}} \\ &= \frac{103}{10} \text{ g/cm}^3 \end{aligned}$$

$$= 10.3 \text{ g/cm}^3$$

$$\text{In } \text{kg/m}^3 = 103 \times 10^2 \text{ kg/m}^3$$

b) Relative density of silver

$$\begin{aligned} \text{sol: } R.D. &= \frac{103 \times 10^2}{1000} \\ &= \frac{103}{10} = 10.3 \end{aligned}$$

② A piece of wood of mass 150 g has a volume of 200 cm^3 . Find the density of wood in CGS unit and SI Unit.

sol: Mass = 150 g Vol = 200 cm^3	density (in CGS Unit) = $\frac{m}{V} = \frac{150}{200} \text{ g/cm}^3$ $= \frac{3}{4} \text{ g/cm}^3$ $= 0.75 \text{ g/cm}^3$
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$$\text{density (in SI unit)} = \frac{m}{V}$$

$$= \frac{150}{200} = 0.75 \text{ g/cm}^3$$

$$\text{In kg/m}^3 = 0.75 \times 1000$$

$$= 750 \text{ kg/m}^3$$

③ How does the density of liquid (or gas) vary with temp.?

ans → As the temperature increases, volumes of most of the liquids also increase and when the volume increases density decreases. This happens vice-versa.

④ Define the term relative density of a substance. What is the unit of relative density?

ans → Relative density of a substance is $\frac{\text{density of solid}}{\text{density of water}}$.

There is no unit of relative density.

⑤ How does the density of a body and that of a liquid determine whether the body will float or sink into that liquid?

ans \rightarrow If the density of a body is less than the density of liquid, the body will float on the surface of liquid.

If the density of a body is more than the density of liquid, the body will sink in a liquid.

Q What is the law of flotation?

ans \rightarrow When any body float displaces weight of water equals to its own weight, it floats.