Question

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

(a) the volume of density bottle

(b) the relative density of liquid

Question

From the following observations, calculate the density and relative density of a brine solution. Mass of empty density

bottle = 22 g

Mass of bottle + water = 50 g

Mass of bottle + brine solution = 54 g

Question

The mass of an empty density bottlfe is 30 g, it is 75 g when filled completely with water and 65 g when filled completely with a liquid. Find :

(a) volume of density bottle,

(b) density of liquid, and

(c) relative density of liquid.

Question

It is easier to swim in sea water than in river water. Explain the reason.

Answer:

Density of sea water is greater than density of river water, [because of impurities]

(i) In each case the weight of water displaced will be equal to the weight of the man.

∴ Ratio of weight of sea water and river water displaced by man is 1: 1.

(ii) With smaller portion of man's body submerged in sea water, the wt. of sea water displaced is equal to the total weight of body. While to displace the same weight of river water, a larger portion of the body will have to be submerged ¡n water.

∴ It is easier for man to swim in sea water.

Question

Icebergs floating on sea water are dangerous for ships. Explain the reason.

Answer:

ICEBERGS are very dangerous for ships as ICEBERGS are huge masses of ice floating in sea [density of ice being 0.917 g Cm^{-3}] with about 9/10 portion below water and only 1/10 portion of it above surface of water.

Question

Explain why it is easier to lift a stone under water than in air.

Answer:

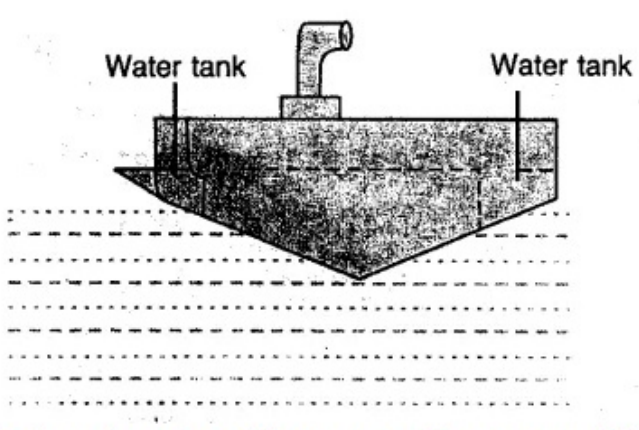
In water, the stone experience a buoyant force which counter balances the weight of the stone acting downward and this makes the stone lighter and thus easier to lift the stone in water.

Question

What is a submarine ? How can it be made to'dive in water and come to the surface of water.

Answer:

SUBMARINE: Submarine is a water-tight boat which can travel under water like a ship. It is providgd with water tanks. When submarine is to dive, water is filled in water tanks and it is made heavier and average density of submarine becomes greater than the density of sea water and it sinks. To make the submarine rise to the surface of water, water tanks are emptied and average density.of submarine becomes less than the density of sea water and it rises to surface of water.



While submarine is underwater soldiers can see the enemy activities through periscope.

Question

A balloon filled with hydrogen rises in air. Explain the reason.

Answer:

A balloon filled with hydrogen rises to a certain height as it displaces more wt. of air than wt. of balloon but as it rises higher density of air DECREASES there and upthrust becomes less and ultimately upthrust becomes equal to the weight of balloon and balloon stops rising further.