PHYSICS

NCERT - NCERT PHYSICS(TAMIL ENGLISH)

FLOATING BODIES

Example

1. What is the effective density of the maxture of water and milk when

(i) they are taken with same masses

(ii) they are taken with same volumes

▶ **Watch Video Solution**

1. Let us suppose you have two blocks and you do not know what material they are made of. The volume of one block is 30 cm^3 while the other is 60 cm^3. The second block is heavier than the first. Based on this information, can you tell which of the two blocks is denser?

▶ **Watch Video Solution**

2. What would happen if the Toricelli experiment is done on moon?

▶ **Watch Video Solution**

3. A stopper is inserted in a small hole of the glass tube of the mercury barometer below the top level of the mercury in it. What happens when you pull out the stopper from the glass tube?

▶ **Watch Video Solution**

4. Why don't we use water instead of mercury in Torricelli experiment? If we are ready to do this experiment, what length of tube is needed?

▶ **Watch Video Solution**

5. Find the weight of the atmosphere around the earth (take the radius of earth as 6400km.)

▶ Watch Video Solution

6. Why is it easier for you to float in salt water than in fresh water?

▶ Watch Video Solution

7. Why is there no horizontal buoyant force on a submerged body?

▶ Watch Video Solution

8. Two solid blocks of identical size are submerged in water. One block is iron and the other is aluminium. Upon which is the buoyant force greater?

9. A piece of iron when placed on a block of wood, this makes the wood to float lower in the water. If the iron piece is suspended beneath the wood block, would it float at the same depth? Or lower or higher?

10. Can we increase the pressure inside the liquid?

Reflections On Concepts

1. Why do some objects float on the water and some sink ? (AS_1)

▶ **Watch Video Solution**

2. Explain density and relative density and write their formulae.

▶ **Watch Video Solution**

3. Explain buoyancy in your own words. (AS_1)

▶ **Watch Video Solution**

4. How can you find the relative density of a liquid ? (AS_1)

▶ **Watch Video Solution**

Application On Concepts

1. A solid sphere has a radius of 2 cm and a mass of $0.05kg.$ What is the relative density of the sphere ? (AS_1)

▶ **Watch Video Solution**

2. A small bottle weight 20 g when empty and 22 g when filled with water. When it is filled with oil it weight $21.76g$. What is the density of oil ? (AS_1)

▶ **Watch Video Solution**

3. An ice cube floats on the surface of water filled in glass tumbler (density of ice $= 0.9g/cm^3$). Will the water level in the glass rise? When the ice melts completely (AS_1)

▶ **Watch Video Solution**

4. Find the pressure at a depth of 10 m in water if the atmospheric pressure is 100kPa.

$$\left[1Pa = 1N/m^2\right]\left[100kPa = 10^5Pa = 10^5N/m^2 = 1atm.\right]$$

▶ **Watch Video Solution**

5. How can you appreciate the technology of making ships those float on water using the material which sink in water ? (AS_6)

▶ **Watch Video Solution**

Higher Order Thinking Questions

1. Can you make iron to float in water ? How ? (AS_3)

▶ Watch Video Solution

2. Where do you observe Archimedes principle in daily life ? Give two examples.

▶ Watch Video Solution

3. Do all objects that sink in water, sink in oil ? Give reason.

▶ Watch Video Solution

Multiple Choice Questions

1. Unit of relative density is

A. g/cm^3

B. cm/g^3

C. N/m^2

D. No units

Answer:

▶ Watch Video Solution

2. The instrument used to measure the purity of milk is

A. a) Barometer

B. b) Hygrometer

C. c) Lactometer

D. d) Speedometer

Answer:

3. If $P_0 =$ Pressure, n= Density, h=height, and g=accelaration due to gravity then the atmospheric pressure =

A. a) P_0 =ngh

B. b) P = mgh

C. c) P=vgh

D. d) $P = 1/2\,\mathrm{mgh}$

Answer:

4. The first barometer with mercury was invented by

A. Pascal

B. Archimedis

C. Newton

D. Torricelli

Answer:

5. The hydraulic jack which is used in automobile work shops, works on the principle of

    A. Archimedes

    B. Pascal

    C. Torricelli

    D. Newton

Answer:

▶ **Watch Video Solution**

6. The density of water at $25°C$ is

A. $1g/cm^3$

B. $2g/cm^3$

C. $3g/cm^3$

D. $0.99g/cm^3$

Answer: