

A/W

1) Find pressure due to water at a depth 2m inside it. (Given density of water = $1 \text{ g/cm}^3 = 1000 \text{ kg/m}^3$)

~~$P = \rho \cdot g \cdot h \cdot g$~~

~~$= 2 \cdot (2) \cdot (10^3 \text{ kg/m}^3) \cdot (9.8 \text{ m/s}^2)$~~

~~2x~~

$P = h \cdot \rho \cdot g$

$= 2 \times 1000 \times \frac{9.8}{10} = 19600 \text{ Pa.}$
(A)

2) A circular pillar of area of cross section $6 \times 10^{-3} \text{ m}^2$ supports a weight of 60 kg. Calculate the pressure exerted on the pillar.

(A) area = $6 \times 10^{-3} \text{ m}^2$

weight (m) = 60 kg

P?

$F = mg$

$$= 60 \times 10$$

$$= 600 \text{ N}$$

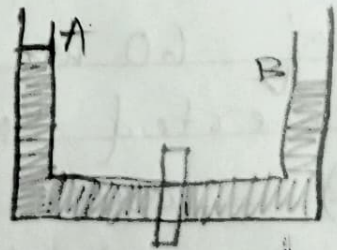
$$\rightarrow P = \frac{F}{A}$$

$$\rightarrow P = \frac{600}{6 \times 10^3}$$

$$2) P = \frac{1600}{\frac{6000}{10}} = \frac{1}{10} = 0.1 \text{ Pa.}$$

3) a) The levels of water, in the two arms of A & B of a U-tube are shown in the dia. A valve is put in between the two arms. State the dirⁿ of flow of water, when this valve is removed, & give reasons for the same.

Ans) The water will flow from A to B when this valve is removed.



The reason behind this is water moves from high pressure to low pressure.

b) From which hole water travels, the largest distance? Why?

Ans) Hole D water travels the largest distance because pressure increases with depth.

4) The pressure of the water at the surface of pond is — that at the bottom of the pond.

Ans) (a) Lower than. (✓)

5) Which is not the factor affecting fluid pressure?

Ans) (c) Colour of the liquid. (✓)

6) Observe vessels A, B, C, D carefully. Arrange them in the order of decreasing pressure at the bottom of the containers.

Ans) D-1, B-2, A-3, C-4.

7) A force of 16 N acts on an area of 50 cm^2 . What is the pressure in Pa?
Ans) (a) 3200 Pa. (✓)

8) What force will produce a pressure of 50,000 Pa on an area of 0.2 m^2 .
Ans) (a) 10,000 N. (✓)

9) A force of 300 N, while acting on an area A, produces a pressure of 1500 Pa. What is the magnitude of A in cm^2 ?
Ans) 2000 cm^2 . (✓)

10) Some piece of impurity (density = ρ) is embedded in ice. The ice is floating in water. (density = ρ_w). When ice melts, level of water will -
Ans) (2) remains unchanged. (✓)

11) a) St. 1 :- A man sitting in a boat which is floating on a pond. If the man drinks some water from the pond the level of the water in the pond decreases.

St. 2 :- According to Archimede's principle the weight displaced by the body is equal to the weight of the body.

Ans) St - 1 is False
St - 2 is True.

b) St. 1 :- A needle placed carefully on the surface of water may float, whereas a ball of the same material will always sink.

St. 2 :- The buoyancy of an object depends both on the material & shape of the object.

Ans) St - 1 is True.
St - 2 is False.