

## Home Assignment

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

Ans -  $P = h\rho g$   
 $= 2 \times 1000 \times \frac{9.8}{10} = 19600\text{ Pa}$

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

Ans - area =  $6 \times 10^{-3}\text{m}^2$

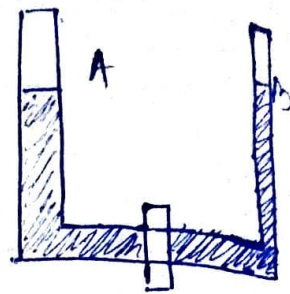
weight (cm) = 60kg  
P = ?

$\Rightarrow F = mg$   
 $= 60 \times 10 = 600\text{ N}$

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

$\Rightarrow P = \frac{600}{6 \times 10^{-3}} \Rightarrow P = \frac{600}{6000} = \frac{1}{10} = 0.1\text{ Pa}$

③ 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.



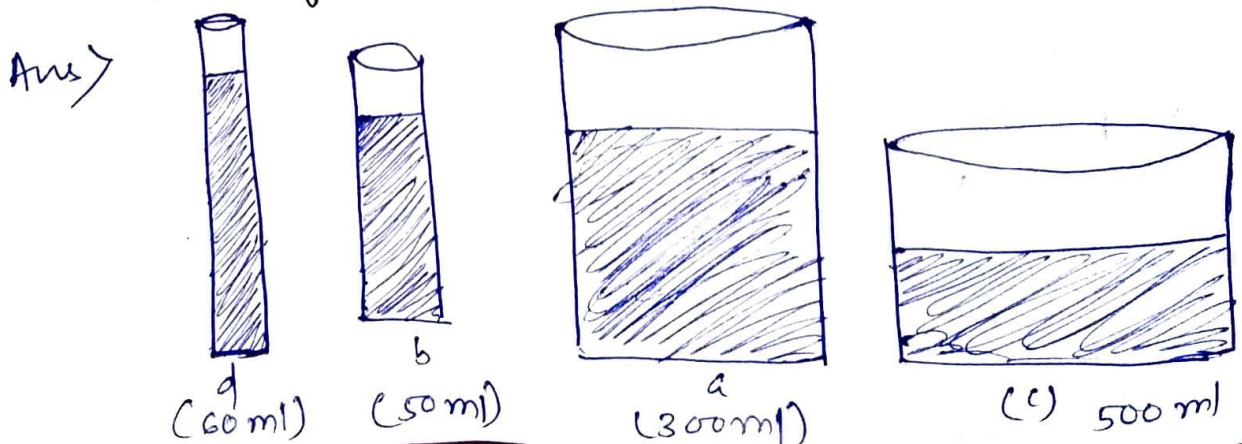
b) From which hole water travels the largest distance? why

Ans - Hole 2 water travels the largest distance because pressure increases with depth.

Q. The pressure of the water at the surface of the pond is lower than that at the bottom of the pond.

Q. which is not the factor affecting the fluid pressure?  
 Ans - Color of the fluid.

Q. Observe the vessels A, B, C and D carefully. Arrange them in the order of decreasing pressure at the bottom of the container.



(Q) A force of 16 N acts on an area of  $50 \text{ cm}^2$ . What is the pressure in pascal?

Ans -  $3200 \text{ pa}$

Q) What force will produce a pressure  $50000 \text{ pa}$  on an area of  $0.2 \text{ m}^2$ ?

Ans -  $10000 \text{ N}$

Q. A force of  $300 \text{ N}$ , while acting on an area  $A$ , produces a pressure of  $1500 \text{ Pa}$ . What is the magnitude of  $A$  in  $\text{cm}^2$ .

Ans -  $2000 \text{ cm}^2$

4Q. Ans - remain unchanged, if  $p < p_{\text{w}}$ .

(5) Q. A man sitting in a boat which is floating on a pond. If the man drinks some water from the pond the level of water in the pond decreases.

Statement 2: According to Archimedes principle the weight displaced by body is equal to weight to the body.

Ans - (i) Statement 1 is false, Statement 2 is true.