

1. Density of water =  $1\text{g/cm}^3$

Pressure = ? into a depth of 2m inside it

$$P = h\rho g = P = 2 \times 1 \times 10.$$

$$P = 20\text{N/m}^2$$

2. Area of cross-section =  $6 \times 10^{-3}\text{m}^2$

Weight supported = 60 kg.

Pressure exerted on pillar = ?

Weight of body =  $60 \times 10 = 600\text{N}$

$g = 10$

$$\text{Pressure} = \frac{F}{A} = \frac{600 \cdot 100 \cdot 10^2}{6 \times 10^{-3} \cdot 10^{-3}} = 10^5 \text{Nm}^2$$

So the pressure on the pillar is  $10^5 \text{nm}^2$

3 b From Hole d water travels the largest distance because as depth increases pressure also increases so it travels farthest.

a) When valve will be removed the direction of flow of water will be from A to B where the level of water in arm B will rise.

This happens because in arm A more water is present, which will exert more force than the water present in arm B. So water level in arm A will come down and water level in arm B will go up.

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

2. Colour of fluid does not affect fluid pressure.

3. D, B, A, C

1. Force = 16 N

$$\text{Area} = 50 \text{ cm}^2 = 0.005 \text{ m}^2$$

$$\text{Pressure} = \frac{F}{A} = \frac{16}{0.005} = 3200 \text{ Pa}$$

2.  $F = ?$

$$\text{Pressure} = 50000 \text{ Pa}$$

$$\text{Area} = 0.2 \text{ m}^2$$

$$50000 = \frac{x}{0.2}$$

$$x = 50000 \times 0.2$$

$$\text{Force} = 10000 \text{ N}$$

3.  $F = 300 \text{ N}$

$$\text{Area} = A$$

$$\text{Pressure} = 1500 \text{ Pa}$$

$$F = P \times A$$

$$300 = 1500 \times x$$

$$= \frac{300}{1500} \quad x = \frac{1}{5} = 0.2 \text{ m} = 2000 \text{ cm}$$

$$= \underline{\underline{0.00002}}$$

1. Fall if  $P \rightarrow P_w$

2. Statement 1 is false and statement 2 is true.