

## FLOATING AND SINKING

1. If an object floats, the volume of water it displaces is equal to or greater than the volume of.....

- A the entire object.
- B. the portion of the object that is above water.
- C the portion of the object that is submerged.
- D exactly half of the object.

2. Which of the following is true of the buoyant force?

- A In order for an object to float, buoyant must be smaller than gravitational force.
- B. In order for an object to float, buoyant force must be larger than gravitational force.
- C In order for an object to sink, the buoyant force must be greater than gravitational force.
- D a&b

3. What scientific rule states that the buoyant force on an object is equal to the weight of the fluid displaced by the object?

- A Archimedes' principle
- B. Pascal's principle
- C Bernoulli's principle
- D Newton's third law of motion

- A less than the ship's weight.
- B. equal to the ship's weight.
- C less than the ship's speed.
- D greater than the ship's speed.

5. A log that is just below the surface of the water (not sinking or floating) has .....

- A upward buoyancy
- B. neutral buoyancy
- C downward buoyancy
- D no buoyancy

6. A  $100\text{-cm}^3$  lead block is carefully submerged in a container of mercury. One  $\text{cm}^3$  of mercury weighs  $0.13\text{ N}$ .

a. What volume of mercury is displaced?  $1\text{m}$

b. How much does that volume of mercury weigh?  $2\text{m}$

c. What is the buoyant force on the lead?  $1\text{m}$

[Total 5m]

7. A body weighs 600 g in air and 400 g in water. Calculate  
(i) Upthrust on the body

[2m]

- (ii) Volume of the body

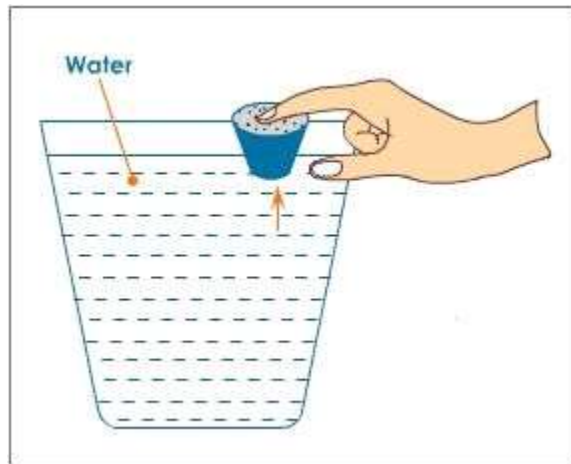
[2m]

- (iii) Relative density of the body.

[m]

[Total 5m]

8. When a cork is pushed in water as shown below, we find that as soon as it is released, the cork rises on its own and comes to the surface.



(i) Explain why this happens.

[1m]

(ii) State three factors that affect the force shown by the arrow

[3m]

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