NAME: ....

FLOATING AND SINKING

1. If an object floats, the volume of water is 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   C Bernoulli's principle
B. Pascal's principle   D Newton's third law of motion

4. A ship stays afloat as long as the buoyant force is.....................

A less than the ship's weight.   C less than the ship's speed.
B. equal to the ship's weight.   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   C downward buoyancy
B. neutral buoyancy   D no buoyancy

6. A 100-cm³ lead block is carefully submerged in a container of mercury. One cm³ of mercury weighs 0.13 N.

a. What volume of mercury is displaced? 1m

b. How much does that volume of mercury weigh? 2m

c. What is the buoyant force on the lead? 1m

d. Will the lead block sink or float in the mercury? 1m

[Total 5m]

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

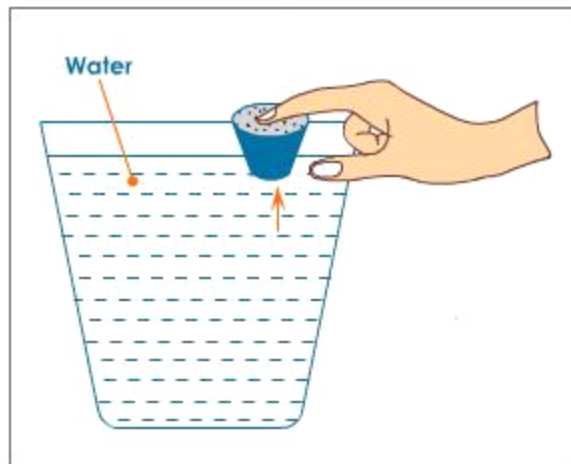[2m]

    (ii) Volume of the body

[2m]

    (iii) Relative density of the body.

[1m]

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]