Name _____ Section _____ Date _____

LABORATORY 18 *Archimedes' Principle*

PRE-LABORATORY ASSIGNMENT

1. What is the definition of density? What are its units?

2. What is specific gravity? What are its units?

3. State Archimedes' principle.

4. The buoyant force on an object placed in a liquid is (a) always equal to the volume of the liquid displaced (b) always equal to the weight of the object (c) always equal to the weight of the liquid displaced (d) always less than the volume of the liquid displaced.

5. An object that sinks in water displaces a volume of water (a) equal to the object's weight (b) equal to the object's volume (c) less than the object's volume (d) greater than the object's weight.

6. An object that sinks in water has a mass in air of 0.0675 kg. Its apparent mass when submerged in water, as in Figure 18-1, is 0.0424 kg. What is the specific gravity *SG* of the object? Considering the densities given in Appendix II, of what material is the object probably made? Show your work.

7. A piece of wood that floats on water has a mass of 0.0175 kg. A lead weight is tied to the wood, and the apparent mass with the wood in air and the lead weight submerged in water is 0.0765 kg. The apparent mass with both the wood and the lead weight both submerged in water is 0.0452 kg. What is the specific gravity of the wood? Show your work.

8. An object has a mass in air of 0.0832 kg, apparent mass in water of 0.0673 kg, and apparent mass in another liquid of 0.0718 kg. What is the specific gravity of the other liquid? Show your work.