Archimedes' principle test

1. Complete the following sentences

i) The weight of the filled bottle of Coca-Cola Light is *equal/lower/higher* then the buoyancy of the water. Score 1

ii) The weight of the filled bottle of Coca-Cola is *equal/lower/higher* then the buoyancy of the water. Score 1

iii) The Coca-Cola Light has a *marginally greater/lower/higher* density then the water. Score 1

2. Choose the right sentence

Archimedes discovered the following relationship between the amount of the liquid displaced by the submerged object, and the amount of the buoyant force on the object.

i) the buoyant force on the object equals the weight of the fluid displaced ☐

ii) the buoyant force on the object equals the mass of the fluid displaced ☐

iii) the buoyant force on the object equals the volume of the fluid displaced ☐

Score 1

3. Answer the following questions

A solid object is held above a container of water attached to a dynamometer as shown in the figure below. The weight of the object is 0.40 kg and its volume is 0.1 dm^3. The unit weight of the liquid is 1 kg/dm^3.

i) What is the weight measured by the dynamometer?

…….. Score 1

ii) The object is lowered partially into the liquid. How does the weight of the mass (as measured by the dynamometer) compare to your answer in (i)?

…….. Score 1

iii) The object is lowered further on into the liquid until it is completely submerged. What is the weight measured by the dynamometer?

…….. Score 1