**HOLIDAY ASSIGNMENT, PHYSICS**

**FORM ONE WORK**

**INTRODUCTION TO PHYSICS**

1. State two factors that should be controlled in manufacturing a cylindrical container of uniform thickness, which should normally be in a standing position.
2. The figure shows a measuring cylinder which contains water initially at level A. A solid mass 11g is immersed in the water, the level rises to B.



Determine the density of the solid. (Give your answer to 1 decimal point)A butcher has a beam balance and masses 0.5 kg and 2 kg. How would he measure 1.5 kg of meat on the balance at once?

1. The number of molecules in 18cm3 of a liquid is 6 x 1023. Assuming that the diameter of the molecules is equivalent to the side of a cube having the same length as the molecule. Determine the diameter of the molecule.
2. Determine the density in kg/m3 of a solid whose mass is 40g and whose dimensions in cm are 30 x 4 x 3
3. Record as accurately as possible the masses indicated by the pointer in figures A.



1. Figure 1 shows the reading on a burette after 55 drops of a liquid have been used.



If the initial reading was at 0cm mark, determine the volume of one drop.

 (2 marks)

1. Fig. 1 shows the change in volume of water in a measuring cylinder when an irregular solid is immersed in it.

Given that the mass of the solid is 567g, determine the density of the solid in gcm-3. (Give your answer correct to 2 decimal places.

1. Athin wire was wound 30 times closely over a boiling tube. The total length of the windings was found to be 9.3 mm. Calculate the radius of the wire.
2. (a) Given that a kilogram of copper contains about 1025 atoms and that density

of copper is about 9000kg/m3/ estimate the diameter of the copper atom?

 (b) State the assumption made in (9a) above.

1. Adrop of oil of volume 1.0 x 10-3 spreads out on clean water surface to a film of area 10cm2. Calculate the thickness of the film.
2. Asmall drop of oil has a volume of 5 x 10-8m3. When it is put on the surface of some clean water, it forms a circular film of 0.lm2 in area;

(i) What is the size of a molecule of oil?

(ii) State two assumptions you make in your calculations?

1. The density of concentrated Sulphuric acid is 1.8gcm-3. Calculate the volume of 3.6kg of the acid.
2. 1600 cm3 of fresh water of density l g/cm3 are mixed with 1400cm3 of seawater of density 1.25g/cm3. Determine the density of the mixture.

**TOPIC 2**

**FORCES**

1. A student was heard saying “the mass of a ball on the moon is one sixth its mass on earth”. Give a reason why this statement is wrong.
2. In the study of a free fall, it is assumed that the force *f* acting on a given body of mass *m* is gravitational, given by F= mg. State two other forces that act on the same body.
3. State how a lubricant reduces friction in the bearings of moving part of a machine.
4. Distinguish between mass and weight of a body stating the units for each.
5. State with reason the purpose of the oil that circulates in a motorcar engine.
6. Name two types of forces which can act between objects without contact.
7. A house in which a cylinder containing cooking gas is kept unfortunately catches fire. The cylinder explodes. Give a reason for the explosion.
8. Give a reason why the weight of a body varies from place to place