**MID TERM 2 2022**

**PHYSICS**

**TIME: 1 ½ HOURS**

**NAME…………………………….………………..ADM…………………...CLASS…………..**

1. Differentiate fundamental quantities from derived quantities and give an example of each (2mks)

1. State what the following branches of physics deals with: (6mks)
2. Mechanics
3. Electricity and magnetism
4. Thermodynamics
5. Geometric optics

1. Waves
2. Atomic physics
3. State the SI units of the following quantities (3mk)

Length =…………………………………………………

Mass =……………………………………………….

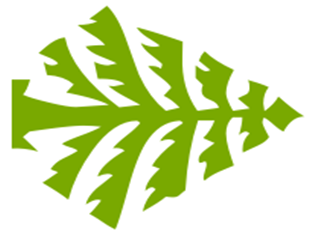
Temperature =………………………………………………..

1. Convert the following values into SI units

(i) 86400cm2  (1mk)

1. A student measured the length of a wire four times using a meter rule and obtained the following readings: 18.6cm; 18.5cm; 18.6cm; and 18.5cm. Determine the length the student(2mks)
2. In an experiment to estimate the height of a tree using its shadow, a ruler of height 100cm is placed next to the tree as shown below. If the ruler and the tree forms shadows of 150cm and 750cm respectively.

**150cm**



**100 cm**



**h**

**750cm**

**Tree**

**Ruler**

**Tree Shadow**

**Ruler Shadow**

Calculate the height h of the tree.

(3mk)

1. A thin wire was wound 10 times closely over a boiling tube. The total length of the wire wound around was found to be 440mm. Calculate the radius of the boiling tube in SI units. (3mks)

**Thread**

**Cylinder**

1. The figure below shows the map of a school compound. Each square is equivalent to 1cm2. Calculate the total area covered by the school on the map. (3mk)

1. a) Define volume and give its SI units. (2mks)

b) Find the capacity of a cylinder of radius 70cm and height 20cm in liters. (3mks)

c) A sphere of radius 6cm is molded into a thin cylindrical wire of length 32cm. Calculate the radius of the wire in SI Units. (3mks)

1. a) Define density and give its SI units. (2mks)
2. The figure below shows a block of mass 360g.

**2cm**

**12cm**

**5cm**

Calculate the

1. Volume of the block.(1mk)

(ii) Density of the block in SI unit.(2mks)

1. An empty density bottle has a mass of 50g. Its mass is 100g when filled with water and 120g when filled with liquid K. Calculate the density of liquid

K in SI units. (3mks)

1. 1600 cm3 of fresh water of density 1g/cm3 are mixed with 1400cm3 of seawater of density1.25g/cm3. Determine the density of the mixture.(3mks)
2. 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?(2mks)