**Name …….index No……**

**Candidate's Sign……..……..**

**Date …..……..**

**232/3 2018**

**PHYSICS**

**PRACTICAL**

**JUNE /JULY**

**TIME: 2HRS 30 MINUTES**

**GATUNDU SOUTH FORM FOUR JOINT EVALUATION EXAMINATION 2018**

## INSTRUCTIONS

- **Write you name, index number in the space provided above.**
- **Use the first 15 minutes of 21/2 hrs to study the questions properly.**
- **Marks are given for clear records of the observation accurately made, their suitability and the use made of them.**

**FOR EXAMINERS USE ONLY**

| QUESTION | MAX. SCORE | CAND. SCORE |
|---|---|---|
| 1 | 20 | |
| 2 | 20 | |
| Total | 40 | |

**QUESTION ONE**

You are provided with the following;
-a mounted wire gauge labelled N
-a voltmeter
- A ammeter
- A switch
- two dry cell and a cell holder
- At least six connecting wires two with crocodile clips.
- a micrometer screw gauge.

Procedure

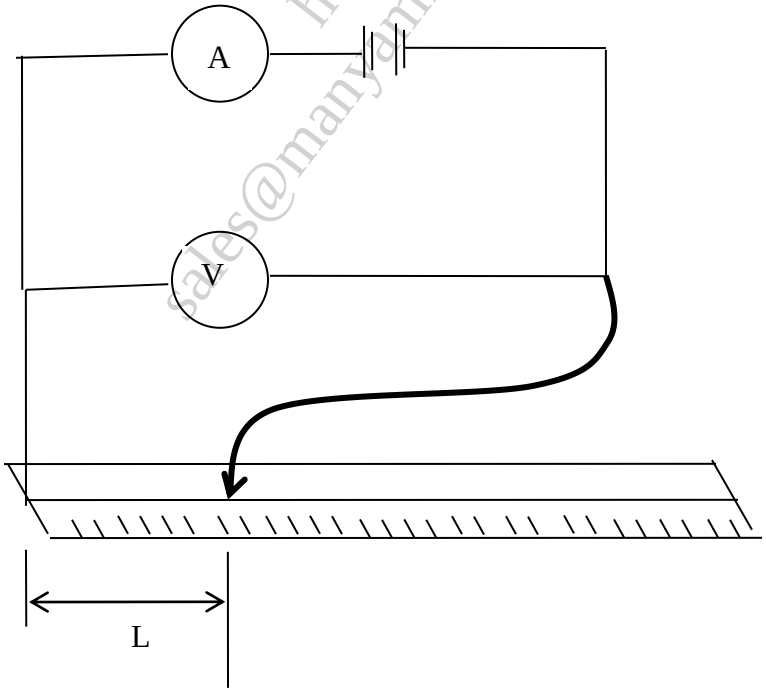
a. Using the a micrometer screw gauge determine the diameter d of the wire at some three different points

$d_1$ = ……mm, $d_2$ = ……mm, $d_3$ = ……mm

dav = ……..……..m. (2mks)

b. Calculate the cross sectional area A of the wire in $m^2$ (2mks)

c. Set up the circuit as shown below.



d. Vary the length by using the crocodile clip along the wire from ( L = 0) and record the voltmeter and the ammeter in the table below. (5mks)

| Length L (cm) | 0 | 20 | 30 | 40 | 60 |
|---|---|---|---|---|---|
| Current I (A) | | | | | |
| Voltage V (V) | | | | | |

e. Plot the graph of voltage V against current I (5mks)

f. Calculate the internal resistance of the cell (4mks)

g. From the graph determine the EMF of the battery. (2mks)



**QUESTION TWO**

This question has two parts A and B. answer both parts.

**PART A**

You are provided with the following:

- A meter rule
- Two identical 100g masses
- About 200ml of liquid L in 250ml beaker
- Three pieces of thread, each about half metre long.
- Stand with clamps
- Tissue paper.

Proceed as follows:

(a) Using a stand and one piece of thread, suspend the metre rule in air such that it balances horizontally.

Record the position of the centre of gravity. G.

G = _____ mm (1mk)

NOTE: The metre rule should remain suspended at this point through out the experiment.

(b) Set up the apparatus as in figure 2 below.

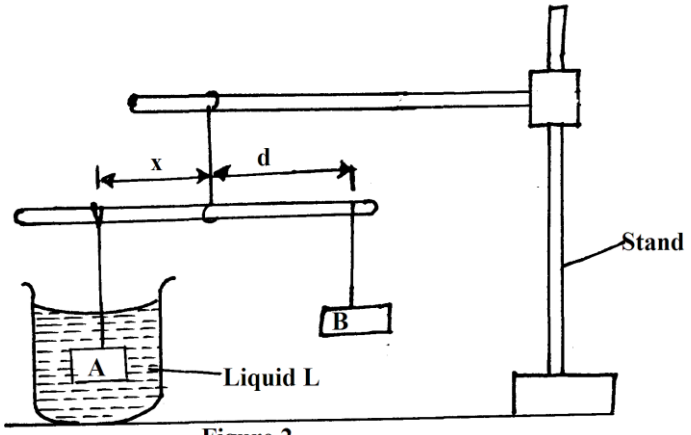


Figure 2

Suspend the mass A at a distance x = 50mm. adjust the position of mass B until it balances mass A immersed in liquid L.

Record the distance d, of mass B from the pivot.

Repeat the same process for other values of x in table 2 below and complete the table. (3 mks)

| x(mm) | 50 | 100 | 150 | 200 | 250 | 300 |
|---|---|---|---|---|---|---|
| x(cm) | | | | | | |
| d(cm) | | | | | | |



(c) Plot a graph of d (y axis) against x (cm). (5mks)

d) Determine the slope, S of the graph. (2mks)

(e) Given $S = \frac{F}{W}$, where F is the apparent weight of object A in the liquid L and W is the actual weight of A, find:-

(i) The value of F. (2mks)

(ii) The upthrust, U (3mks)



**PART B**

You are provided with the following:

- A concave mirror with holder
- A screen
- A meter rule
- A candle
- A match box (to be shared)

Proceed as follow:

(f) Set up the apparatus as in figure 3 below.

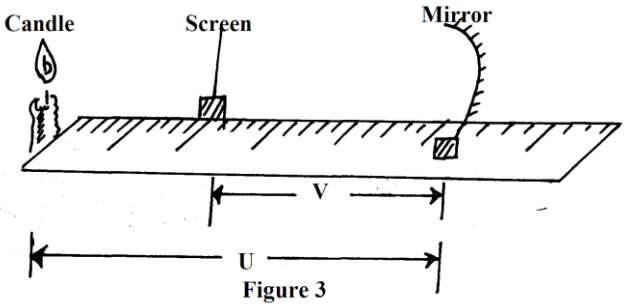


Figure 3

(g) Put the object at a distance u = 30cm from the mirror. Adjust the position of the screen until a sharp image is formed on the screen. Record the distance V.

(h) Repeat procedure (b) above for the distance u = 40cm and record the new distance V. complete the table 3 below. (2mks)

| U(cm) | V(cm) | $M=^{v}/_{u}$ | (m+1) |
|---|---|---|---|
| 30 | | | |
| 40 | | | |

(i) Given $f = \dfrac{V}{(m+1)}$, calculate the values of f hence determine the average value $f_{av}$: (3mks)