

**535/3  
PHYSICS  
PRACTICAL  
Paper 3  
July, 2023  
2<sup>1</sup>/<sub>4</sub>**

**INTERNAL MOCK EXAMINATIONS**

**Uganda Certificate of Examinations**

**S.4 PHYSICS PRACTICAL**

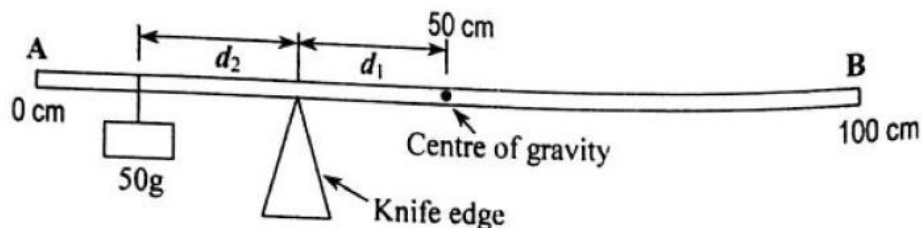
**Paper 3**

**2 Hours 15 Minutes**

**INSTRUCTIONS:**

- Answer all the questions in this paper.
- For each question, candidates are required to select suitable apparatus from the equipment provided.
- You are **not** allowed to start working with the apparatus for the **first quarter** of an hour.
- Marks are awarded mainly for a clear record of observations actually made, for their suitability and accuracy and for the correct use of them.
- Candidates are reminded to record the observations as soon as they are made.
- Where possible, candidates should put their observations and calculations in a suitable table drawn in advance.
- An account of the method of carrying out the experiment is not required.
- Graph papers are provided.

1. In this experiment, you will determine the mass  $M$  of a metre rule provided.

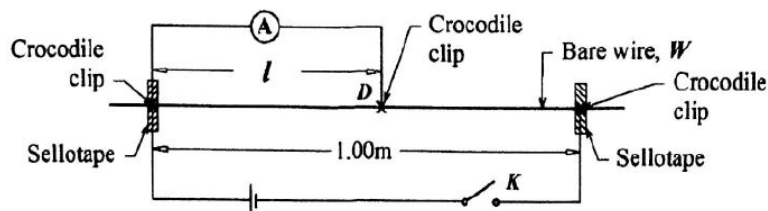


- (a) Hang the 50g mass provided from the 5cm mark from end A of the rule.
- (b) Balance the rule so that it rests horizontally on the knife edge. Read and record the distance  $d_1$  from the 50cm mark to the knife edge and  $d_2$  from the mass to the knife edge.
- (c) Repeat the procedure (b) with the mass hanging from 10, 15, 20, 25, 30 and 35cm marks from A.
- (d) Tabulate the value of  $d_1$  and  $d_2$  in a suitable table.
- (e) Plot a graph of  $d_2$  (vertical axis) against  $d_1$  (horizontal) axis.
- (f) Find the slope  $S$  of your graph.
- (g) Calculate the mass  $M$  of the rule from;

$$M = 50S$$

2. In this experiment, you will determine the internal resistance  $r$  of the cell provided.

- (a) Fix the bare wire  $W$  on the bench using pieces of sellotape.
- (b) Connect the circuit shown in the figure below.



- (c) Adjust the position of the crocodile clip  $D$  so that  $l = 0.300m$ .
- (d) Close switch  $K$ .
- (e) Read and record the ammeter reading  $I$ .
- (f) Open switch  $K$ .
- (g) Repeat the procedures (c) to (f) for values of  $l = 0.400, 0.500, 0.600, 0.700$  and  $0.800m$ .
- (h) Record your results including values of  $\frac{1}{I}$ .
- (i) Plot a graph of  $\frac{1}{I}$  (along the vertical axis) against  $l$  (along the horizontal axis).
- (j) Find the slope  $S$  of the graph.
- (k) Read and record the intercept  $C$  on the  $\frac{1}{I}$  axis.
- (i) Calculate the internal resistance  $r$  from;

$$r = \frac{-4.27(C + S)}{S}$$

\*\*\* END \*\*\*