

P510/3
PHYSICS
PRACTICAL
Paper 3
24 July 2014
2½
hours

ENTEBBE JOINT EXAMINATION BUREAU

Uganda Certificate of Education PHYSICS

PRACTICAL

Paper 3

2 hours 15 minutes

INSTRUCTIONS TO CANDIDATES:

*Attempt **question one** and **one** other question of your choice.*

Candidates are not allowed to use the apparatus or write for the first 15 minutes.
Graph papers are provided

Marks are given mainly for clear record of the observations actually made, for their suitability and accuracy, and for the use made of them.

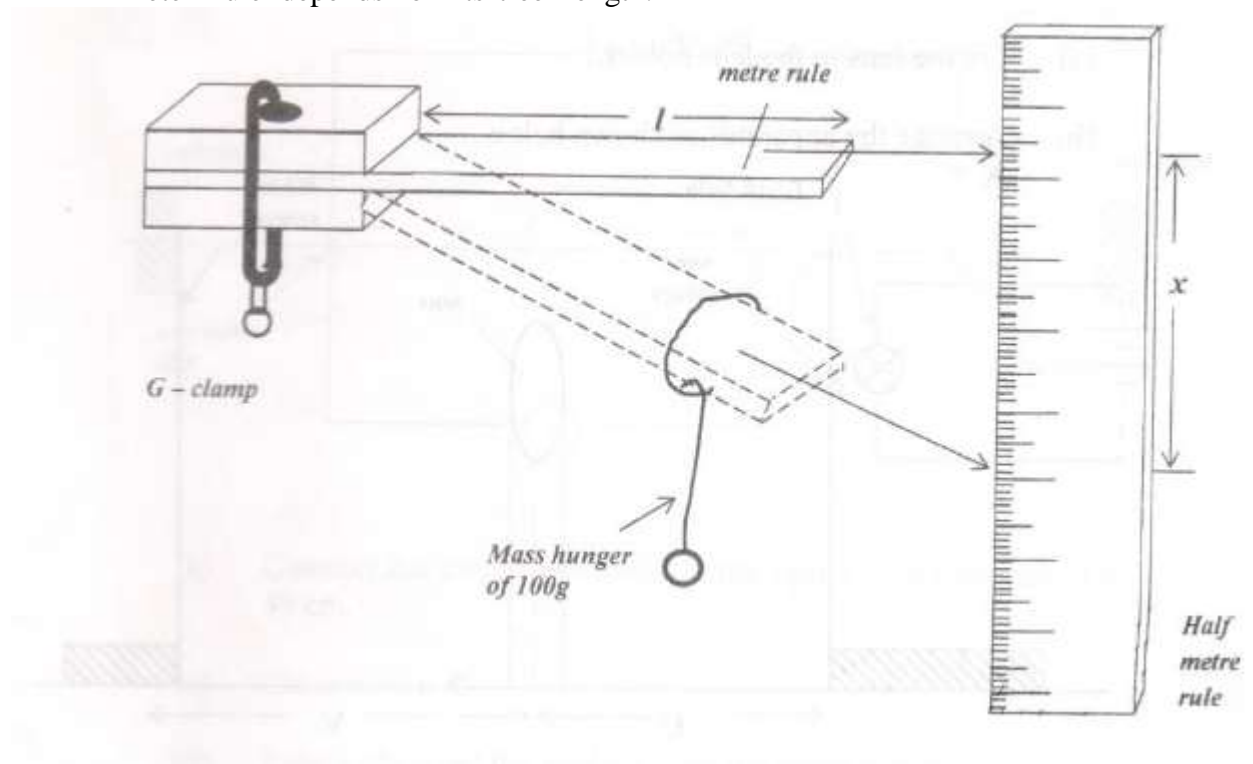
Mathematical tables and non-programmable scientific electronic calculators may be used.

Write on one side of the answer sheet only.

Candidates are expected to record on their scripts all their observations as these observations are made and to plan the presentation of the records so that it is not necessary to make a fair copy of them. The working of the answers is to be handed in.

2014 0 - PH- III Entebbe Joint Examination Bureau: Physics Practical Turn Over

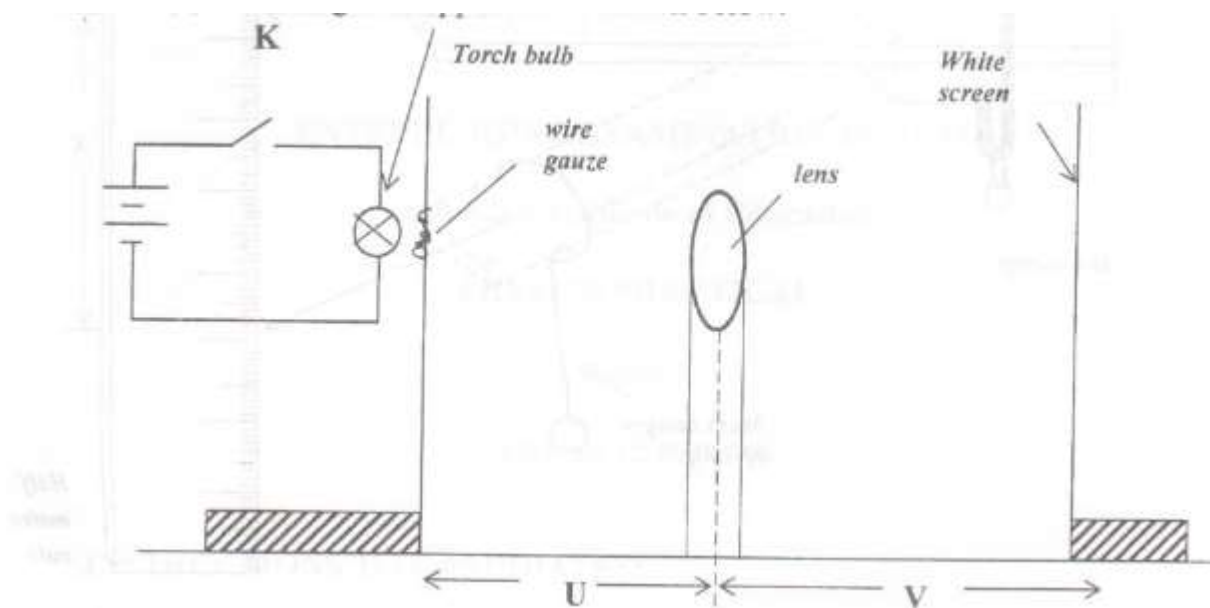
1. In this experiment you will determine how the depression of a clamped meter rule depends on its free length.



- Clamp a metre rule firmly to the bench with the graduated face upwards such that the free length $l = 40$ cm.
- Read and record the position P_0 on the vertical half meter rule.
- Hang a mass 100g at a distance of 4.0 cm from the free end of the meter rule.
- Read and record the new position of the pointer, P_1 . Find depression x .
- Repeat procedures (a) to (d) for values of $l = 50$ cm, 60 cm, 70 cm, 80 cm and 90 cm.
- Record your results in a suitable table including l and $10 \log_{10} x$.
- Plot a graph of $10 \log_{10} X$ against $10 \log_{10} l$.
- Find the slope, S of the graph.

2. In this experiment, *you* will determine the focal length of the lens provided.

- (a) Fix the lens in the lens holder.
- (b) Arrange the apparatus as shown below.



- (c) Place the illuminated wire gauze at a distance $V = 20$ cm from the lens.
- (d) Close switch K .
- (e) Adjust the position of the screen until a clear image is obtained on the screen.
- (f) Measure and record the distance V of the screen from the lens. (g)

Open switch K

- (h) Repeat procedures (c) to (g) for object distance $V = 25$ cm, 30 cm, 35 cm, 40 cm and 45 cm.

- (i) Record your results in a suitable table including values of V/u

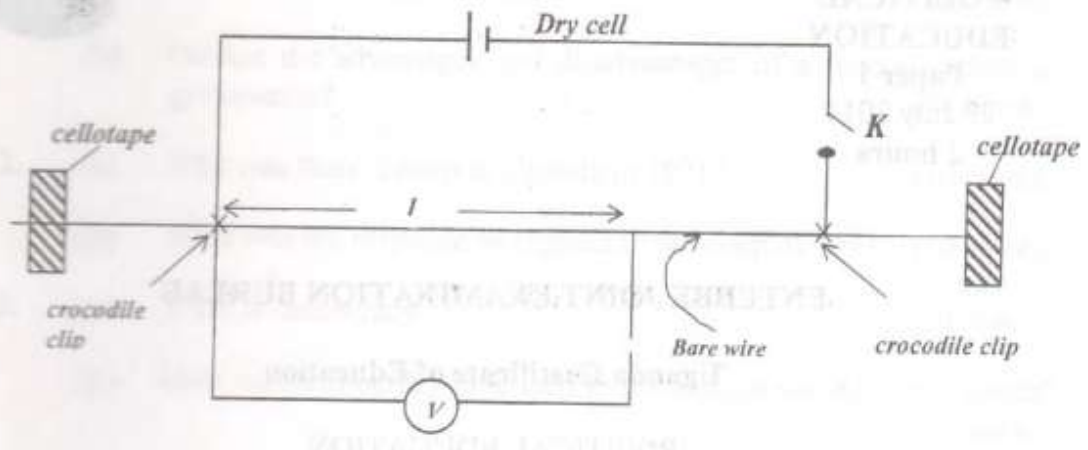
U) Plot a graph of V/u against V

- (k) Find the slope, S of the graph.

- (l) Calculate f from $f = \frac{1}{S}$

3. In this experiment you will determine a constant Φ of the wire provided.

a Fix the wire provided firmly on the bench.



(b) Connect the circuit as shown in the figure above starting with $l = 30$ cm.

Close switch K

(d) Read and record the reading, V of the voltmeter.

(e) Open switch K

(f) Repeat procedures (c) to (e) for values of $l = 40$ cm, 50 cm, 60 cm, 70 cm.

(g) Record your results in a suitable table including values of I/V and I/l

(h) Plot a graph of I/V against I/l

(i) Find the slope, S of the graph.

(j) Determine the intercept C on the I/V axis.

(k) Calculate the constant of the wire Φ from the expression:

$$\Phi = \frac{100C}{S}$$

END