535/3
PHYSICS
PRACTICAL
Paper 3
10 August 2023
2 ¼ 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 of 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.

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1. **In this experiment, you will determine the volume V of a soda bottle top.**

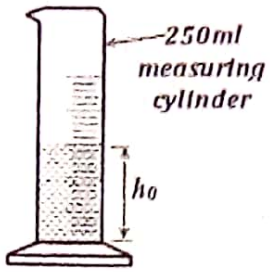

Fig. 1

(a) Pour water into a measuring cylinder up to the 250*ml* mark.

(b) Measure and record the height h_0 of the water level in the cylinder as shown in the figure 1.

(c) Carefully place a total of bottle tops, $N = 5$ into the cylinder.

(d) Measure the new height h of the water in the cylinder.

(e) Repeat procedures (c) to (d) for N =10, 15, 20, 25, 30 and 35.

(f) Record your results in a suitable table including values of $(h - h_0)$.

(g) Plot a graph of N (along the vertical axis) against $(h - h_0)$ (along the horizontal axis).

(h) Find the slope, S, of the graph

(i) Calculate the volume, V, of the soda bottle top from the expression

$$SV = \frac{400}{r} \qquad (Use\ \pi = 3.14)$$

(j) State any two sources of errors in this experiment.

2. **In this you will determine the constant p of lens provided.**

(a) Mount the lens provided and place it facing a window.

(b) Place the screen behind the lens and adjust it until a clear image of a distant object is obtained.

(c) Measure and record the distance, x, between the lens and the screen.

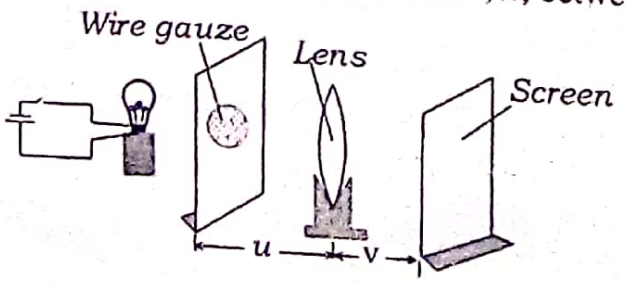

Fig.2

(d) Arrange the bulb, wire gauze, lens and screen as shown in figure 2.

(e) Adjust the lens so that the distance, u, between the wire gauze and the lens is equal to $5.0x$.

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(f) Close the switch and move the screen until a clear image of the wiregauze is obtained on the screen.

(g) Measure and record the distance, v, between the lens and the screen.

(h) Repeat procedures (e) to (g) for values of $u = 4.5x$, $4.0x$, $3.5x$, $3.0x$ and $2.5x$.

(i) Record your results in a suitable table including values of uv and $(u + v)$.

(j) Plot a graph of uv (along the vertical axis) against $(u + v)$ (along thehorizontal axis).

(k) Find the slope p of the graph.

3. In this experiment, you will determine resistance per metre of the wireprovided.

(a) Connect the circuit in the figure 3.

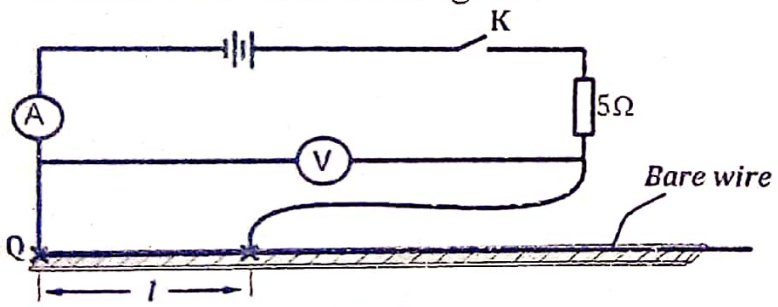

Fig.3

(b) Connect the end Q of the wire mounted on the metre rule to the circuitas shown.

(c) Starting with length $l = 0.200$ m, close the switch, K.

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

(e) Open switch, K.

(f) Repeat procedures (c) to (e) for values of $l = 0.300$, 0.400, 0.500, 0.600 and 0.700 m.

(g) Record your results in a suitable table including values of Il.

(h) Plot a graph of V (along the vertical axis) against Il (along the horizontalaxis).

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

(j) State any two sources of errors in this experiment.

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