

535/3
PHYSICS
PRACTICAL
PAPER 3
July/August
2¼ hours



WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

PHYSICS PRACTICAL

Paper 3

2hours 15 minutes

INSTRUCTIONS TO CANDIDATES:

- Answer question 1 and one other question. You will not be allowed to start with the apparatus for the first 15 minutes.
- Marks are given mainly for a clear record of the observations actually made and use made of them. Whenever possible candidates should put their observations in a suitable table drawn in advance, as soon as they are made.
- An account of the method of carrying out the experiment is not required.
- Graph papers may be provided.
- Mathematical tables and silent non-programmable calculators may be used.

1. In this experiment you are to determine the relative density of a rubber bung.

- Tie a loop of thread on the solid W .
- Balance the metre rule on the knife edge note the position, P , when the metre rule balances horizontally.
- Keeping P at the knife edge, hang W at the point $m = 5.0\text{cm}$ mark, from end A of the metre rule. Place W_1 on the metre rule from end B and adjust the position of W_1 , until the metre rule balances horizontally. See figure 1.

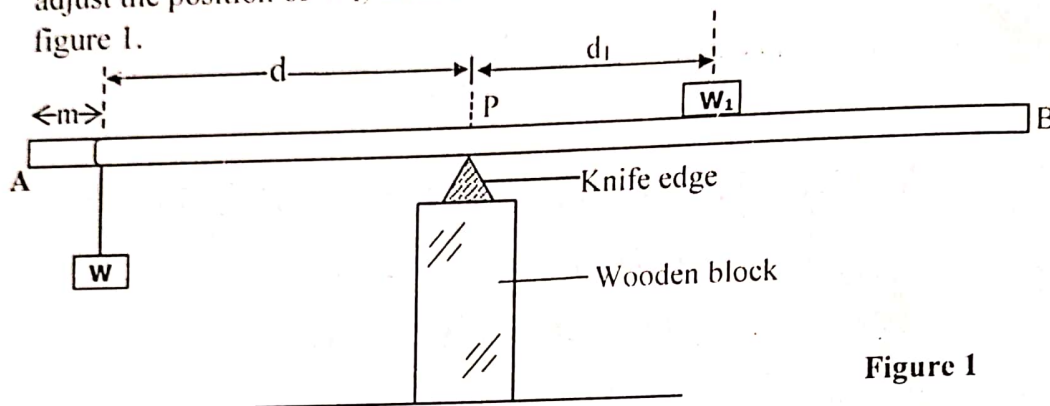


Figure 1

- Measure and record, d and d_1
- Repeat steps (c) and (d) for $m = 10.0\text{cm}$, 15.0cm , 20.0cm , 25.0cm and 30.0cm .

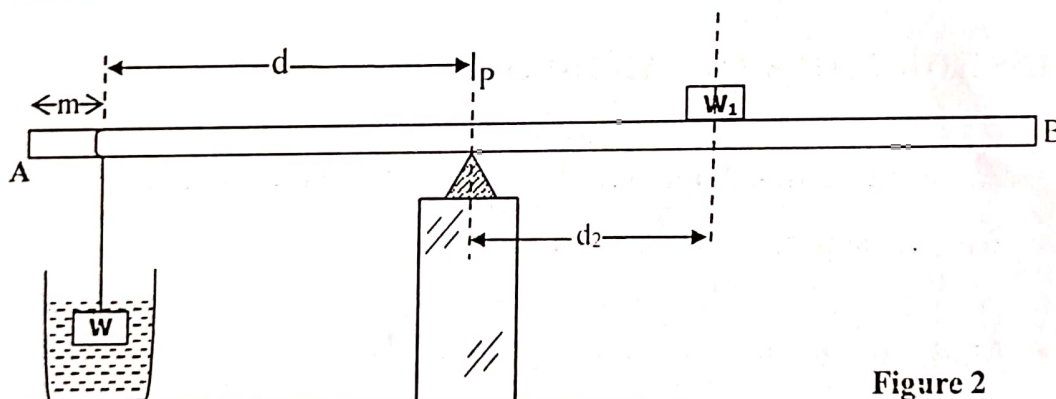


Figure 2

- Starting again with W at $m = 5.0\text{cm}$, place a beaker of water in position so that W hangs totally immersed in the water, and not touching the sides of the beaker.
- Adjust W_1 until the metre rule balances horizontally again. See figure 2.
- Measure d_2 .
- Repeat procedure (f) to (h) for $m = 10.0\text{cm}$, 15.0cm , 20.0cm , 25.0cm and 30.0cm .
- Tabulate your results in a single table including values of $(d_1 - d_2)$.
- Plot a graph of d_1 against $(d_1 - d_2)$.
- Determine the slope d_r of graph.

30 marks

2. In this experiment you are to determine the relationship between the angle of incidence i and the angle of reflection r .
- Fix the white sheet of paper provided on the soft board using drawing pins.
 - Draw a line **AB** on the sheet of white paper.
 - Draw a line, **OP**, meeting **AB** as in fig. 2.

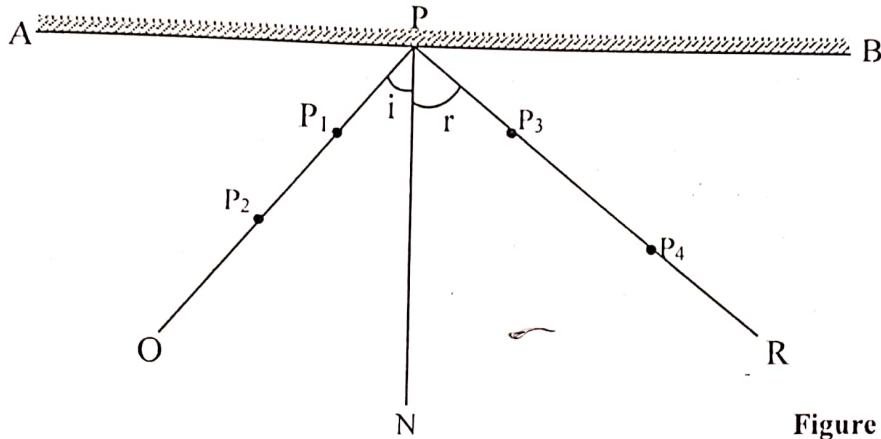


Figure 3

- Put a plane mirror with the back edge on the line **AB**. Let it stand vertically.
- Stick optical pins **P₁** and **P₂** along **OP**, view the images of **P₁** and **P₂** in the mirror.
- Stick pins **P₃** and **P₄** such that they are in lines with the images of **P₁** and **P₂**. See fig.3
- Remove the mirror and pins from the paper.
- Draw a straight line through the holes **P₃** and **P₄** to meet line **AB**.
- Draw a perpendicular line to **AB** at **P**. then measure and record angles i and r .
- Repeat steps **c**, **d**, **e**, **f**, **g**, and **h** for $i = 10^\circ, 20^\circ, 30^\circ, 40^\circ, 50^\circ$ and 60° and measure corresponding angle r .
- Record your results in a suitable table.
- Plot a graph of i against r .
- Determine the slope, **E** of the graph.

30 marks

Turn Over

3

3. In this experiment you will determine resistivity of a wire Z.

(a) Connect up the circuit as shown in figure 4.

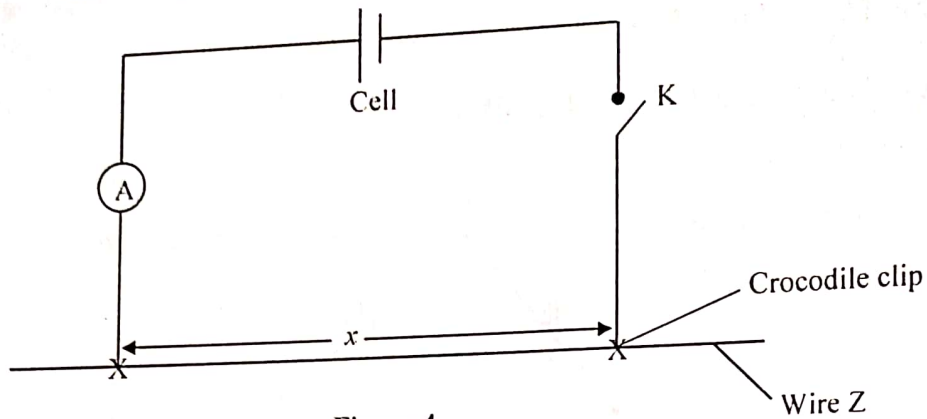


Figure 4

- (b) Adjust x to 0.25m.
- (c) Close switch K.
- (d) Read and record the reading I of the ammeter.
- (e) Open switch K.
- (f) Repeat the procedures (b) to (e) for values of $x = 0.35, 0.45, 0.55$ and 0.65m .
- (g) Record your results in a suitable table including values of $\frac{1}{I}$.
- (h) Plot a graph of $\frac{1}{I}$ against x .
- (i) Determine the slope G of the graph.
- (j) Calculate the resistivity ρ of wire Z from $\rho = 1.6 \times 10^7 G$.

30 marks

END