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**535/3**

**PRACTICAL  
PHYSICS  
(Paper 3)**

**August 2019**

2¼ hours

**JINJA JOINT EXAMINATIONS BOARD**

**Uganda Certificate of Education**

**MOCK EXAMINATIONS 2019**

(PRACTICAL PHYSICS)

**Paper 3**

2 hours 15 minutes

**INSTRUCTIONS TO CANDIDATES:**

*Answer* ***question 1*** *and* ***one*** *other question.*

*Any additional question(s) answered will* ***not*** *be marked.*

*You will* ***not*** *be allowed to start working with the apparatus for the* ***first quarter*** *of an*

*hour.*

*Marks are given mainly for a clear record of observations actually made, for their*

*suitability and accuracy, and for the use made of them.*

*Candidates are required to record their observations as soon as they are made. Wherever 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.*

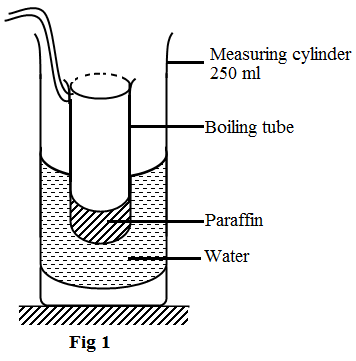
*Squared papers are provided.*

*Mathematical tables and silent non-programmable calculators may be used.*

*For each question, candidates will be required to select suitable apparatus from the equipment provided.*

1. In this experiment, you will determine the density of the paraffin and the mass M of the boiling tube provided.

1. Pour water into a 250ml measuring cylinder to about one third of its capacity.
2. Read and record the volume V0 of water in the measuring cylinder
3. Tie a piece of thread round the neck of the boiling tube leaving the two ends of the thread free to enable you lower the tube or pull it out of the measuring cylinder.
4. Carefully lower the empty boiling tube into the water in the measuring cylinder and leave to float.
5. Read and record the new water level, V, in the measuring cylinder.
6. Measure volume Vp=10cm3 of paraffin.
7. Using the free ends of the thread, partially pull out the boiling tube and pour the paraffin into it.
8. Lower the boiling tube and content into the measuring cylinder as shown in the figure 1 below.



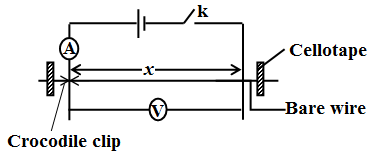
1. Read and record the new water level V.
2. Repeat procedures (f) to (i) for total volume of paraffin Vp=15, 20, 25, 30, and 35cm3.
3. Record your results in a suitable table including values of Vw=V-VO
4. Plot a graph of Vw against Vp
5. Determine the slope , of the graph
6. Find the intercept M on the Vw axis

***DISMANTLE THE SET UP***

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



1. Fix the mirror provided in a holder.
2. Focus a distant object to get a sharp image onto a white screen.
3. Measure and record the distance f1, between the mirror and the screen*.*
4. Arrange the torch bulb, the mirror, the screen, the dry cells, and the switch as shown in the figure 2.
5. Adjust the distance **d** of the torch bulb from the mirror to 25.0cm.
6. Close Switch K.
7. Adjust the position of the white screen to obtain a sharp image of the filament of the bulb on it.
8. Open switch K
9. Measure and record the distance V of the white screen from the mirror.
10. Repeat procedures (e) to (i) for values of d=30.0, 35.0, 40.0, 45.0, and 50.0cm.
11. Record your results in a suitable table including values of and.
12. Plot a graph of and.
13. Find the intercept C1 on axis and C2 on axis.
14. Calculate the value of f2  from the expression f2=(+)
15. Hence calculate the focal length f from the expression 2f=f1+f2

3. In this experiment, you will determine the diameter, d, of the bare wire, *w*, provided.

1. Connect the circuit as shown in figure **3**.
2. Starting with length, close switch, *K*.
3. Read and record the voltmeter reading, *V*, and the ammeter reading, *I*.
4. Open switch, *K*.
5. Repeat the procedures (b) to (d) for values of and.
6. Enter your results in a suitable table including values of IX
7. Plot a graph of V against IX
8. Find the slope, ***s***, of the graph.
9. Calculate the diameter in metres of the bare wire from the expression d

**DISMANTLE THE SET UP**