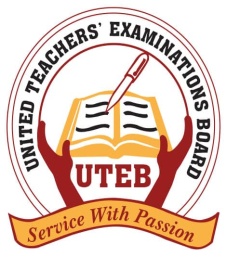
**535/3**

**PHYSICS**

**Paper 3**

**Jul./Aug. 2019**

**2 ¼ Hours**

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**UTEB JOINT MOCK EXAMINATIONS, 2019**

**Uganda Certificate of Education**

PHYSICS

**Paper 3**

2 hours 15 minutes

**INSTRUCTIONS TO CANDIDATES:**

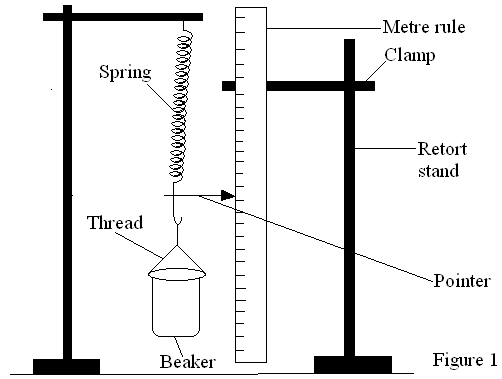
* Answer Question **1** and **one** other question. You will **not** be allowed to start working with the apparatus for the first quarter of an hour.
* Marks are given mainly for a clear record of the observations actually made, for their suitability and accuracy, and for the use made of them.
* Candidates are reminded to record their observations as soon as they are made.
* Whenever 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, slide rules and silent non-programmable calculators may be used.

**Turn Over**

1. In this experiment you will determine the relative density of **paraffin** provided.

**(30 marks)**

1. Clamp the metre rule vertically.
2. Suspend the spring with a pointer on the clamp besides the metre rule.
3. Suspend a beaker from the spring using a thread as shown in the figure 1 below.



1. Record the initial position of the pointer on the metre rule.
2. Pour of water into the beaker and record the new position of the pointer.
3. Find the extension produced and record your results in a suitable table.
4. Repeat procedures (e) to (f) for and of water.
5. Remove the beaker, empty and dry it.
6. Repeat procedures (c) to (g) for and of paraffin.
7. Find the extension produced in each case in step (i) and record your results in a suitable table.
8. Plot a graph of against.
9. Determine the slope of the graph.
10. Determine the relative density of paraffin given that:

Relative density of paraffin

1. In this experiment you will determine the refractive index, n, of the glass slab.
2. Fix the plain sheet of paper provided onto the soft-board.
3. Place the slab on the sheet of paper with its largest face facing you.
4. Trace the outline of the slab and then remove it.
5. Draw a line **AB** (**B** marked about 2cm from **Q**) making an angle of 600 with **QT**.
6. Fix two pins **P1** and **P2** vertically on AB.
7. Draw a line MN parallel to RS at a distance , X=1.0cm.
8. Replace the slab and place mirror with its reflecting face facing RS on MN as shown below.

**x**

**M**

**N**

**R**

**S**

**t**

**B**

**600**

**P3**

**y**

**C**

**Q**

**T**

**P1**

**P4**

**P2**

**A**

1. Looking through the face **QT** of the slab, fix two pins **P3** and **P4**so that they appear to be in line with the image of **P1** and **P2**.
2. Remove the slab and the mirror and draw a line through **P3** and **P4** to meet QT at **C**.
3. Measure the length, y**,** of **BC**.
4. Repeat produces **(f)** and **(j)** for values of x= 1.5,2.0,2.5,3.0,3.5 and 4.0cm.
5. Tabulate your results including values of **xy**, and **I = .**
6. Plot a graph of **I** against **xy**.
7. Find the **I**-intercept, **c,** of the graph.
8. Measure thickness, **t,** of the slab.
9. Calculate the refractive index ,**n**, of the material of the slab from the expression,

**NB: Hand in your tracing paper together with the rest of your work.**

1. In this experiment, you will determine the internal resistance of the dry cell provided.  **(30 marks)**
2. Connect the circuit shown in figure **3**.

*V*

Fig**. 3**

*K*

1. Close switch, K .
2. Read and record the voltmeter reading, E.
3. Disconnect the circuit and connect the circuit shown in figure **4**, with .

=1.00 m

Fig**. 4**

*K*

*V*

*l*

*Crocodile clip*

*Cellotape*

*Crocodile clip*

*Cellotape*

*Crocodile clip*

1. Starting with length,, close switch *k*.
2. Read and record the voltmeter reading V.
3. Open switch,*K.*
4. Repeat the procedures (e) to (g) for values of and
5. Record your results in a suitable table.
6. Plot a graph of against .
7. Find the slope, s, of the graph.
8. Calculate the internal resistance, , of the cell from the expression