



SOUTH EAST EDUCATION DIVISION

2024 MALAWI SCHOOL CERTIFICATE OF EDUCATION MOCK EXAMINATION

PHYSICS

To be given to the subject teacher on Friday, 15th March, 2024 by 7:00am.

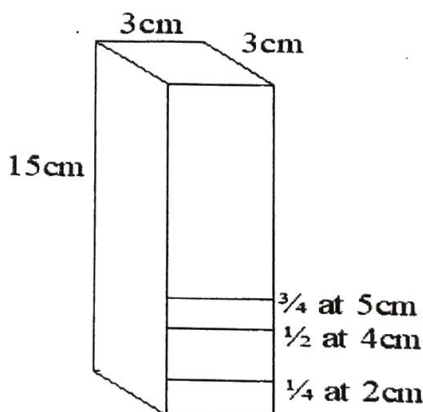
CONFIDENTIAL INSTRUCTION

Subject Number: M164/II

Question 3

Each candidate must be provided with the following materials;

- a 200ml / 250ml beaker
- 100ml beaker/small plastic container
- a plank 15cm by 3cm by 3cm. **Mark a line at the stated lengths.**



- water
- triple beam balance or kitchen digital balance (to be used by 5 students)
- waster / a piece of tissue paper

Question 4

Each candidate must be provided with the following materials

- a candle
- matches
- convex lens (focal length 15 cm)
- lens holder
- 1 meter ruler
- white screen

Note: Do not reveal the contents of the confidential instructions to any unauthorized person(s).

END OF CONFIDENTIAL INSTRUCTIONS.

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EXAMINATION NO.: _____



SOUTH EAST EDUCATION DIVISION

2024 MALAWI SCHOOL CERTIFICATE OF EDUCATION MOCK EXAMINATION

PHYSICS

Friday, 15th March

Subject Number: M164/II

Time Allowed: 2 hour sessions

10:00 am onwards

PAPER II

(40 marks)

Practical

Instructions:

1. This paper contains 7 printed pages.

Please check.

2. Write your **Examination number** at the top of each page.

3. Answer **all** the **four** questions in the spaces provided.

4. Use of scientific calculators is allowed.

5. The maximum number of marks for each answer is indicated against each question.

6. In the table provided on this page, **tick** against the question number you have answered.

7. Hand in your paper to the invigilator when time is called to stop writing.

| Question number | Tick if answered | Do not write in this column | |
|-----------------|------------------|-----------------------------|--|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| | | | |

CANDIDATE NAME:

2024

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M164/II

SECTION A (20 Marks)

1. Describe an experiment that could be conducted to investigate the effect of amplitude on frequency of an oscillating pendulum.

(10 marks)

Continued/..

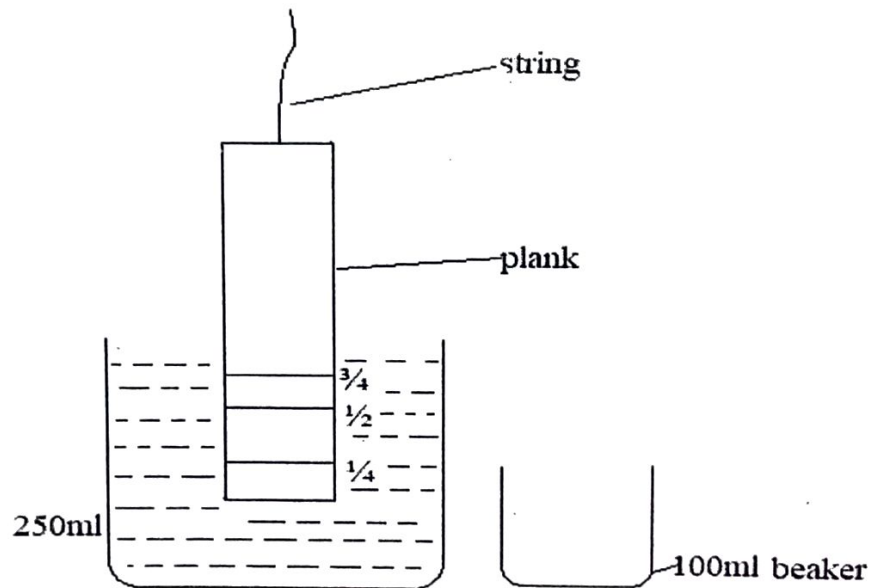
2. With the aid of a well labelled diagram, describe an experiment that could be done in order to determine the relationship between voltage and current across a bulb given 4 cells.

(10 marks)

Continued/...

SECTION B (20 Marks)

3. You are provided with 250ml beakers filled with water, a plank labelled $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$, a 100ml beaker and a beam balance.
- Weigh the mass of the empty 100ml beaker on a beam balance and record the mass as m_1
 - Slowly immerse the $\frac{1}{4}$ full of the plank into the 250ml beaker as shown in **Figure 1** below;

**Figure 1**

- Collect the overflow in the 100ml beaker and re-weigh it on the beam balance as m_2
- Find the mass of the overflow water by subtracting m_1 from m_2 i.e. $(m_2 - m_1)$ and record it in the table of results provided.
- Repeat procedures b, c and d with $\frac{1}{2}$ and $\frac{3}{4}$ full of the plank.
- Table of results

Mass of empty beaker, m_1 _____ g (1 mark)

Table of results

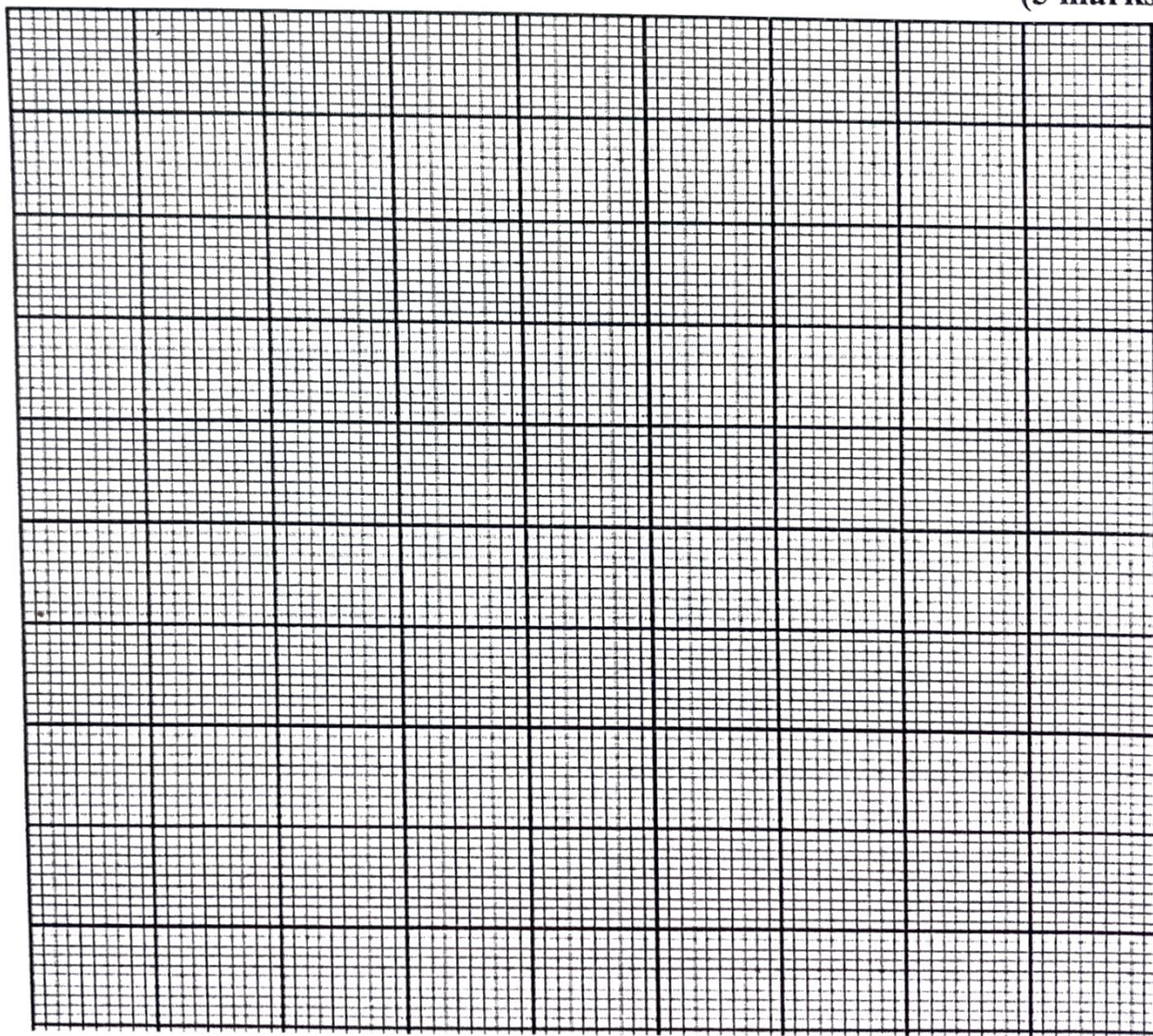
| Portion of plank immersed | Mass of overflow water ($m_2 - m_1$) | Weight of the overflow water ($100\text{g} = 1\text{N}$) |
|---------------------------|--|--|
| $\frac{1}{4}$ | | |
| $\frac{1}{2}$ | | |
| $\frac{3}{4}$ | | |

(3 marks)

- Plot a graph of weight of displaced water against the portion of the plank immersed.

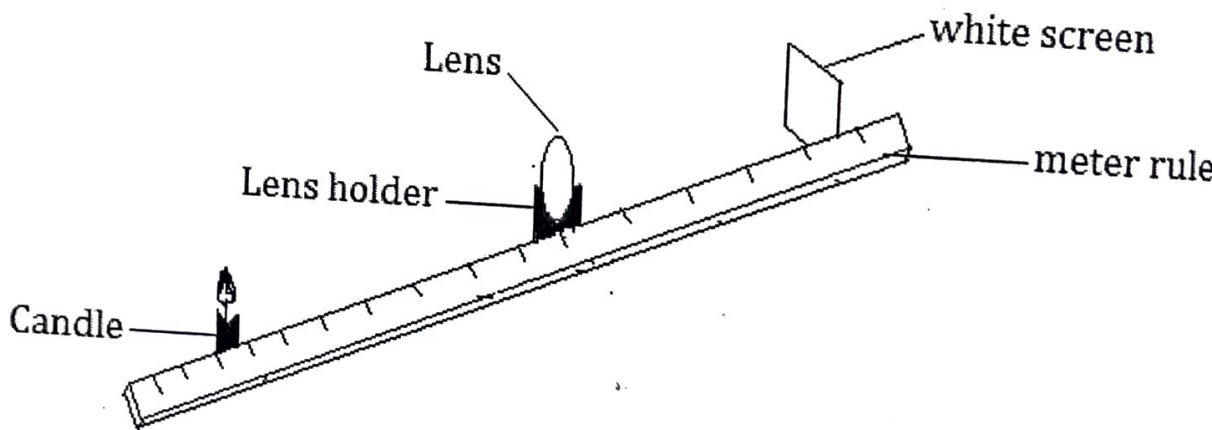
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(5 marks)



- h. From the graph, deduce the relationship between the weight of displaced fluid and the portion of plank immersed. (1 mark)

4. You are provided with a candle, matches, convex lens, lens holder, meter rule and white screen.
- a. Arrange the apparatus as shown in **Figure 2** below;

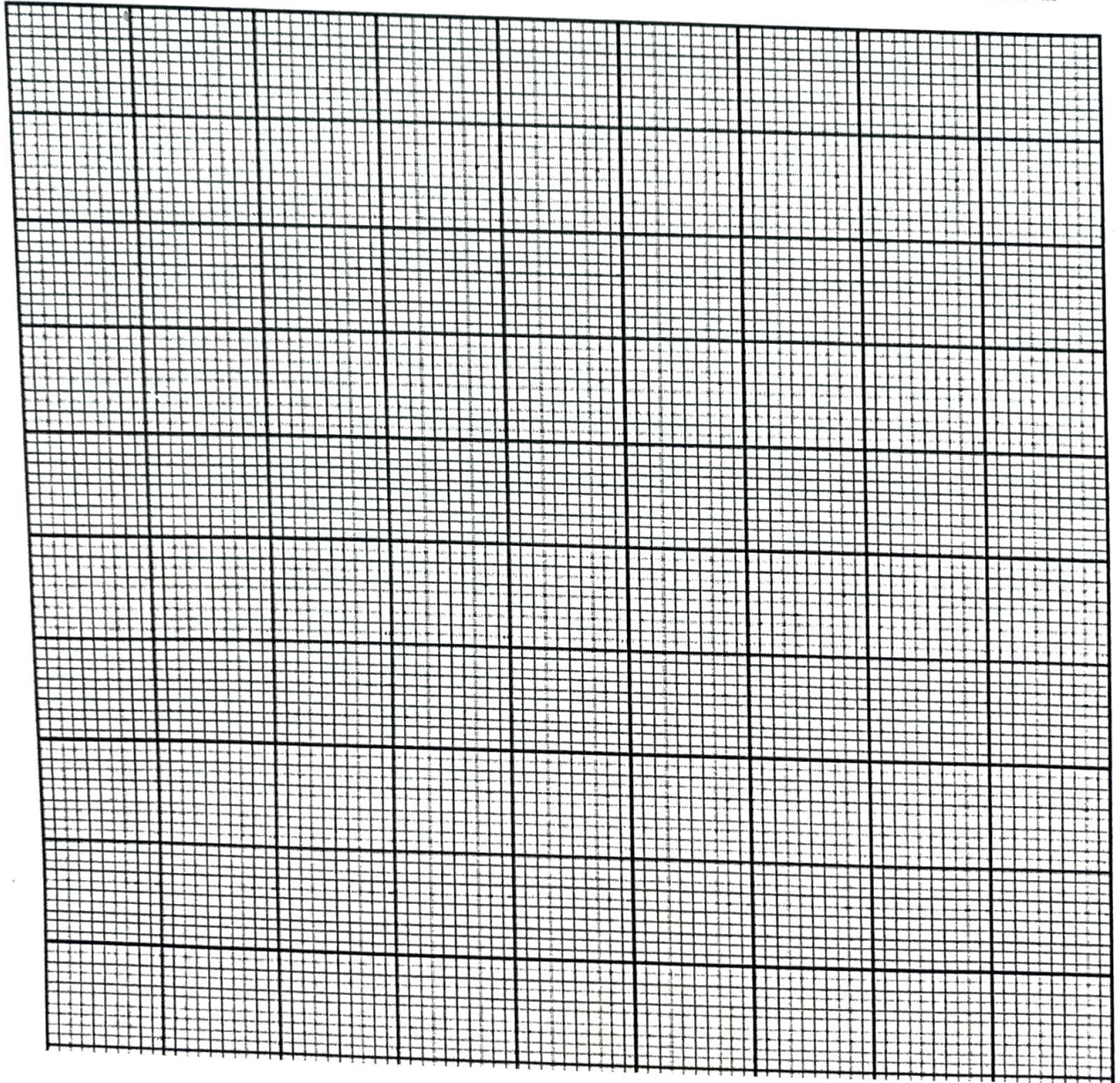
**Figure 2**

- b. Light the candle.
- c. Move the object (candle) until it is 20cm away from the lens.
- d. Move the screen until a clear image of the object (candle) is formed on the screen.
- e. Measure the image distance, v and record it in the table of results.
- f. Repeat steps *c* to *e* for object distances, u shown in the table of results.
- g. Complete the $1/v$ and $1/u$ columns of the table of results

| Table of Results | | | |
|------------------------------|-----------------------------|-------|-------|
| Object distance, u (cm) | Image distance, v (cm) | $1/v$ | $1/u$ |
| 20 | | | |
| 25 | | | |
| 40 | | | |
| 50 | | | |

- h. Plot a graph of $1/v$ against $1/u$.

(4 marks)



- i. Use your graph to determine the focal length of the lens. (4 marks)

A large, empty rectangular box with rounded corners, intended for the student to draw a graph or show calculations.

END OF QUESTION PAPER

(2 marks)

NB: This paper contains 7 printed pages.