

ST. MARY'S SECONDARY SCHOOL.

2025 MALAWI SCHOOL CERTIFICATE OF EDUCATION

MOCK 2 EXAMINATIONS



Subject Number: M164/II

Time allowed: 2-hour sessions

01:00 pm onwards

PHYSICS II (practical)**(40 marks)****Thursday, 22nd May, 2025****Instructions:**

- This paper contains 7 printed pages. Please check.**
- Before beginning, write your **Full Name** at the top of each page of the question paper.
- This paper contains **two** sections, **A** and **B**.
- Section **A** consists of **two** descriptive questions on practical work to be answered in 1 hour. Marks will be given for accurate and orderly presentation of facts supported by relevant diagrams.
- In section **B** there are **two** practical questions to be answered in **1 hour**. Marks for section **B** will be given for observation, accuracy and interpretation of results.
- You should spend **30 minutes** on each question. The 30-minute period allowed for each question includes **3 minutes** to tidy up the apparatus and have it checked by the supervisor.
- Write your answers on the question paper.
- In the table provided on this page, **tick** against the question number you have answered.

Question number	Tick if answered	Do not write in these columns	
1			
2			
3			
4			
TOTAL MARKS			

SECTION A: (20 marks)

Answer **both** questions in this section in the spaces provided.

1. With an aid of a well labelled diagram, describe an experiment that can be carried out to show that pressure of a fixed mass of gas is directly proportional to its absolute temperature at constant volume.

[illegible]

(10 marks)

NAME: _____ FORM 4: _____

2. Given a uniform 1 meter ruler of unknown mass, a standard 200g mass and a wedge, with an aid of a labelled diagram, describe an experiment that could be done to determine the mass of the ruler.

[illegible]

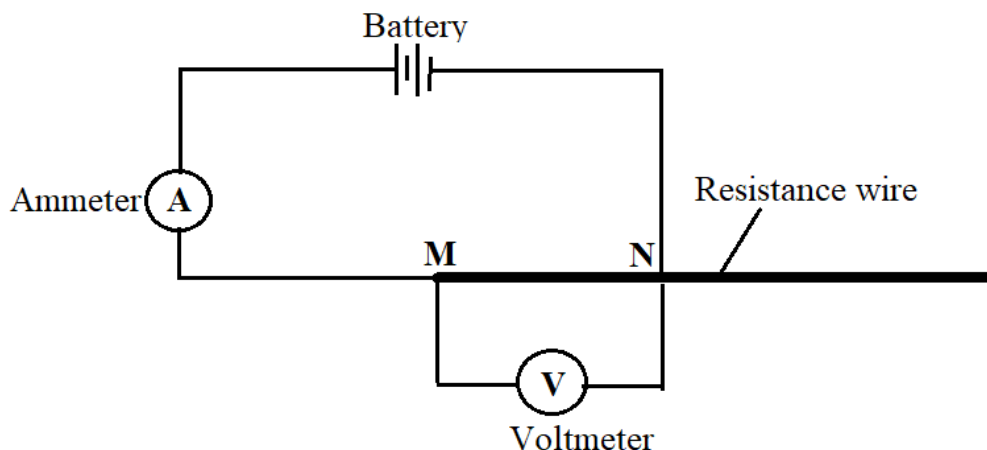
(10 marks)

SECTION B: (20 marks)

Answer **both** questions in this section in the spaces provided.

3. You are provided with a voltmeter, an ammeter, a resistance wire, 2 cells in a holder and 5 connecting wires.

- a. Connect a circuit as shown in the figure below:

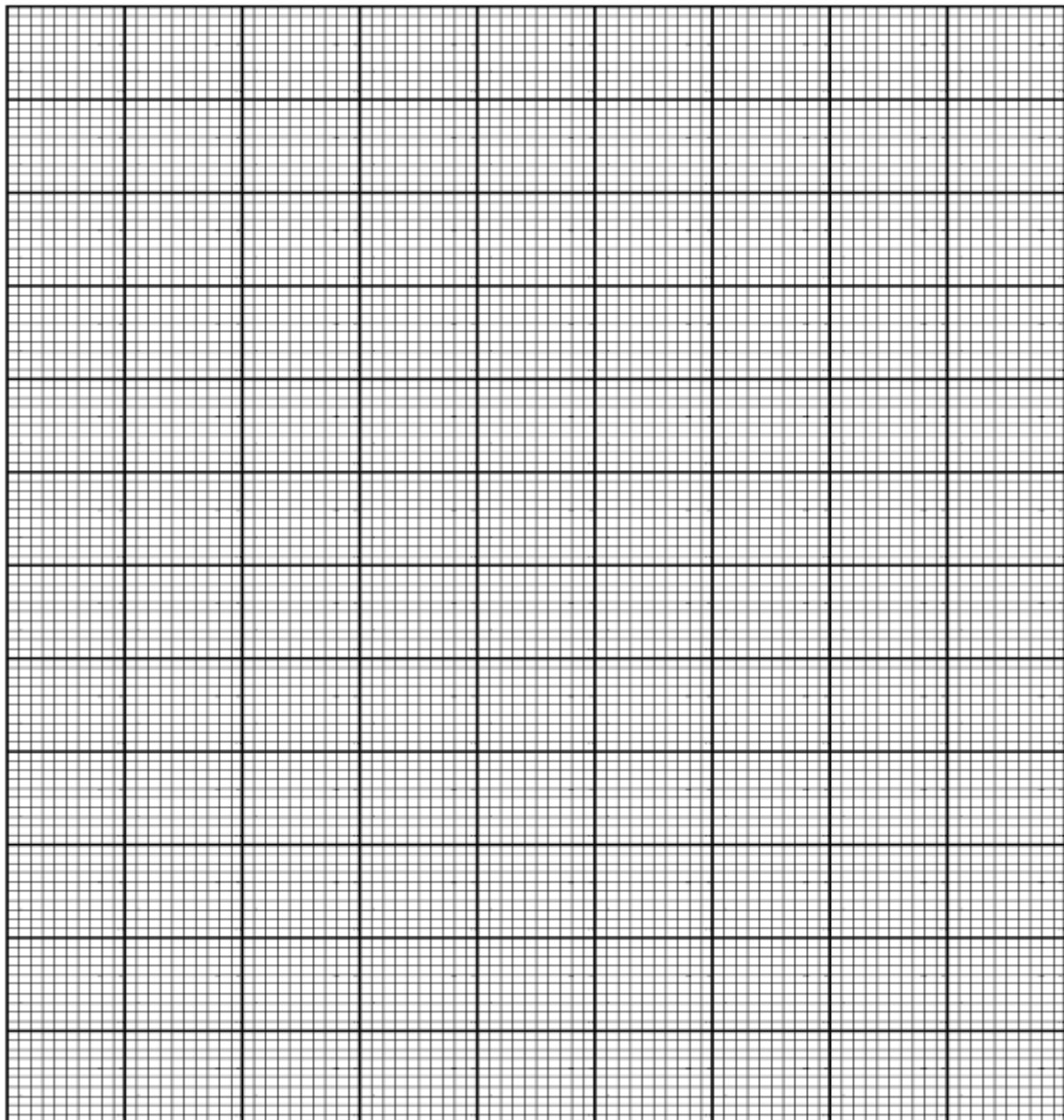


- b. Move the crocodile clip **N** along the length of the resistance wire until the ammeter reads **0.9A**.
- c. Take the voltmeter and measure the voltage across the length **MN** and record your results in the table below.
- d. Move the crocodile clip **N** further along the length of the resistant wire until the ammeter now reads **0.7A**.
- e. Again, measure voltage across the length **MN** using the voltmeter and record.
- f. Repeat steps **b** and **c** for ammeter readings of **0.5A**, **0.4A** and **0.3A** and record your results in the table below.

Ammeter reading (A)	0.9	0.7	0.5	0.4	0.3
Voltmeter reading (V)					

(4 marks)

- g. Disconnect the circuit.
- h. On the graph paper provided, plot a graph of voltage against current.



(4 marks)

- i. From the graph, determine the voltage when the current is zero (0A).

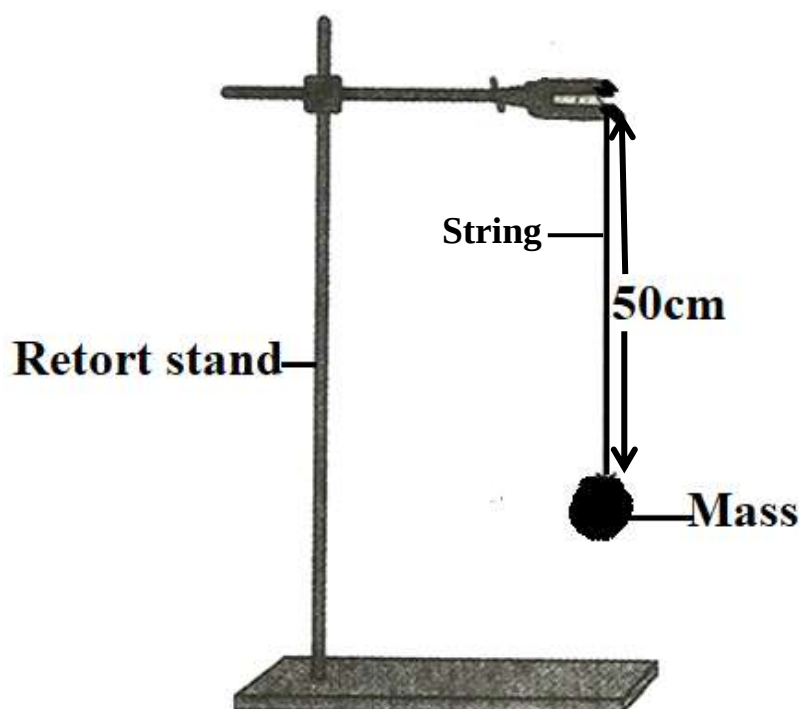
(1 mark)

- j. What name is given to the voltage found in step (i) above?

(1 mark)

4. You are provided with a string, 1 meter-ruler, stopwatch, clamp and clamp-stand and 4 masses (50g, 100g, 150g and 200g)

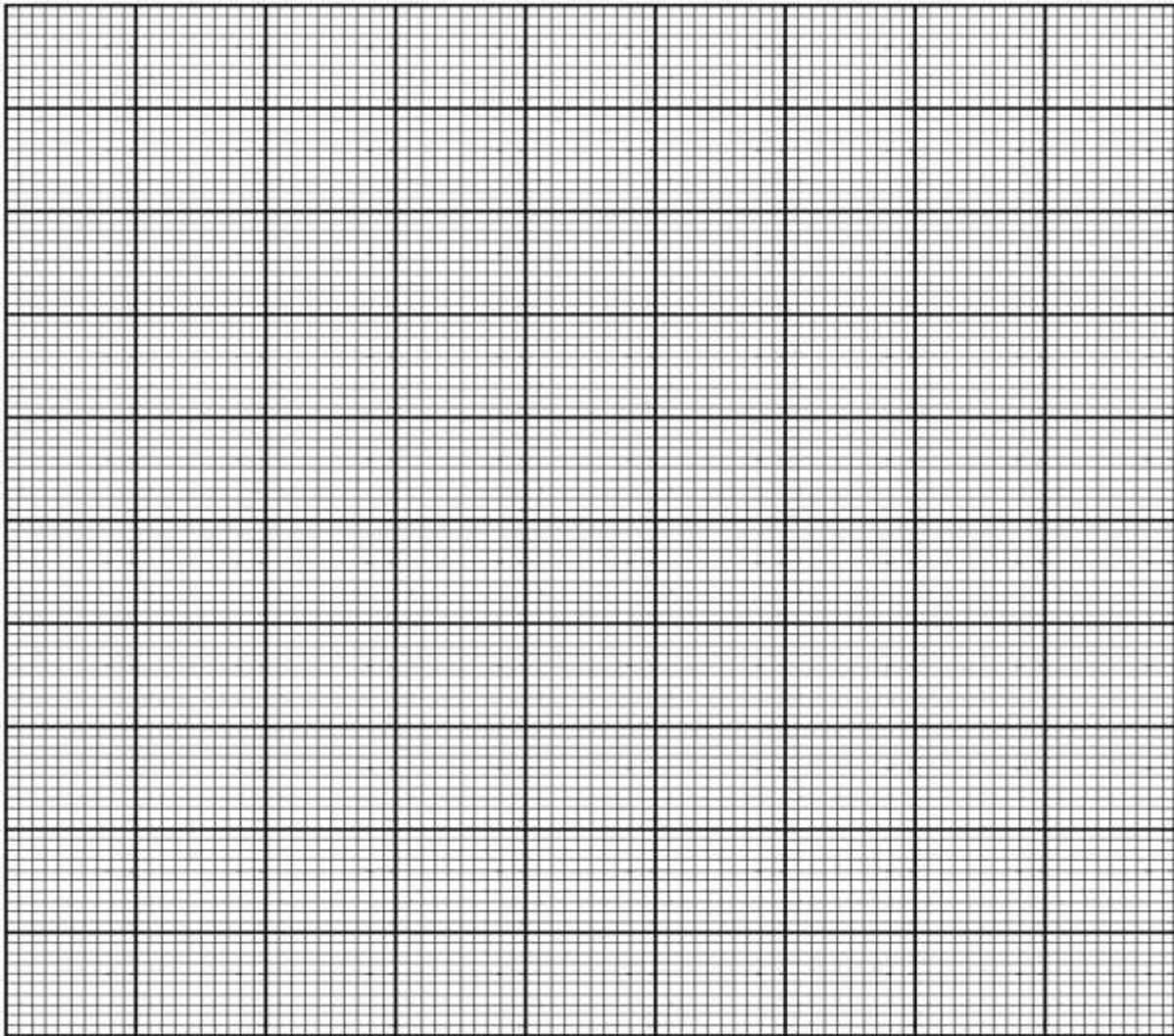
- a. Tie the 50g mass to the string and arrange the apparatus as shown in the figure below:



- b. Slightly pull the mass to one side and let it freely swing.
c. Note and record the time taken to make **10** complete oscillations.
d. Repeat steps **b** and **c** using **100g**, **150g** and **200g** masses and record your results in the table below.

Mass (g)	Time for 10 oscillations	$frequency = \frac{\text{number of oscill.}}{\text{time}}$
50		
100		
150		
200		

- e. Complete the table by filling in the missing values of frequency.
f. On the graph paper given below, plot a graph of frequency of the pendulum against the mass.



(4 marks)

- g. From the graph, describe how mass affects frequency of the oscillating pendulum.

(1 mark)

- h. Give any **one** variable that has been kept constant in this experiment.

(1 mark)

END OF QUESTION PAPER.

NB: This paper contains 7 printed pages. Please check!