STUDENT NAME.:_____ **EXAMINATION NO.:**_____

KAMUZU BARRACKS COMMUNITY DAY SECONDARY SCHOOL

2023-24 MALAWI SCHOOL CERTIFICATE OF EDUCATION EXAMINATION – TERM I

PHYSICS

Subject Number: M164/II

December, 2023

Time Allowed: 2 h sessions
10:00 am onwards

PAPER II

(40 marks)

Practical

Instructions

1. **This paper contains 7 printed pages. Please check**.
2. Fill in your **Name** and **Examination Number** at the top of each page.
3. Answer **all** the **4** questions in the spaces Provided.
4. Use of electronic 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 number of question, you have answered.

Question Number	Tick if answered	Do not write in these columns	
1			
2			
3			
4			
	Total		

SECTION **A**

1. With the aid of a well labelled diagram, describe an experiment that can be done to show that liquids expand differently when heated with same amount of heat.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

(10 marks)

Continued/...

2. Design an experiment that can be used to verify the Hooke's law.

(10 marks)

Continued/…

SECTION **B**

3. You are provided with the following materials a spring, masses (50g, 100g, 150g, and 200g), a stop watch and a clamp stand.

a. Arrange the apparatus as shown in **Figure 1**below using the 50g mass.

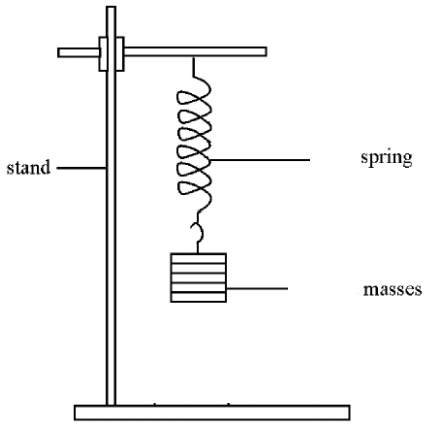


Figure 1

b. Pull the mass vertically downwards a few centimetres.

c. Release it so that if oscillates up and down and start the stop watch at the same time.

d. Record the time taken for **10 complete oscillations** in the table of results.

e. Work out the frequency of the oscillating spring in the table of results.

f. Repeat **b** to **e** using **100g**, **150g**, and **200g**.

Table of Results

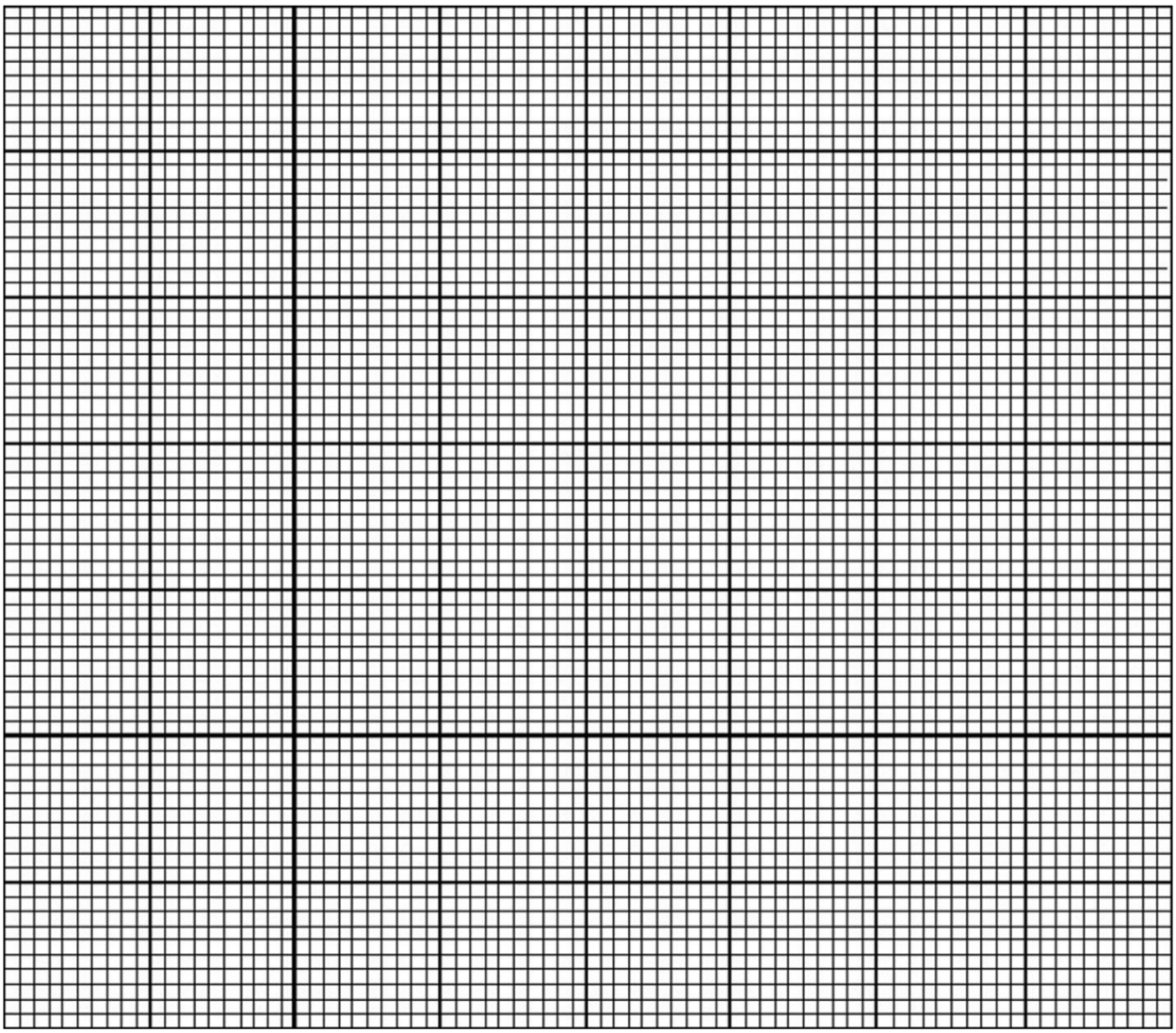
Mass (g)	Time taken for 10 complete oscillations (s)	Frequency (Hz)
50		
100		
150		
200		

(4 marks)

Continued/…

3. (Continued)

g. Plot a graph of frequency against mass.



(5 marks)

h. Use the graph to find the frequency of a 120g mass.

_____

(1 mark)

Continued/…

4. You are provided with **4** cells, a switch, an ammeter, **4** connecting wires, a bulb and a cell holder.

a. Arrange the apparatus as shown in **Figure 2** below using a single cell.

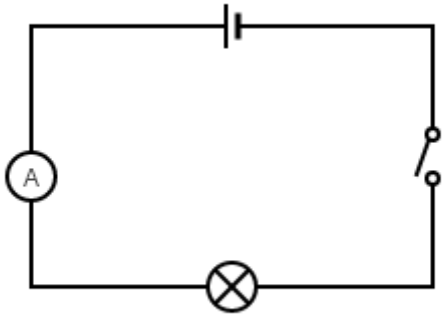


Figure 2

b. Close the switch.

c. Read and record the ammeter reading in the table provided.

b. Repeat steps **b** and **c** using **2**, **3** and **4** cells connected in series.

Table of Results

Number of cells	Current (A)	Voltage (V)
1		
2		
3		
4		

(4 marks)

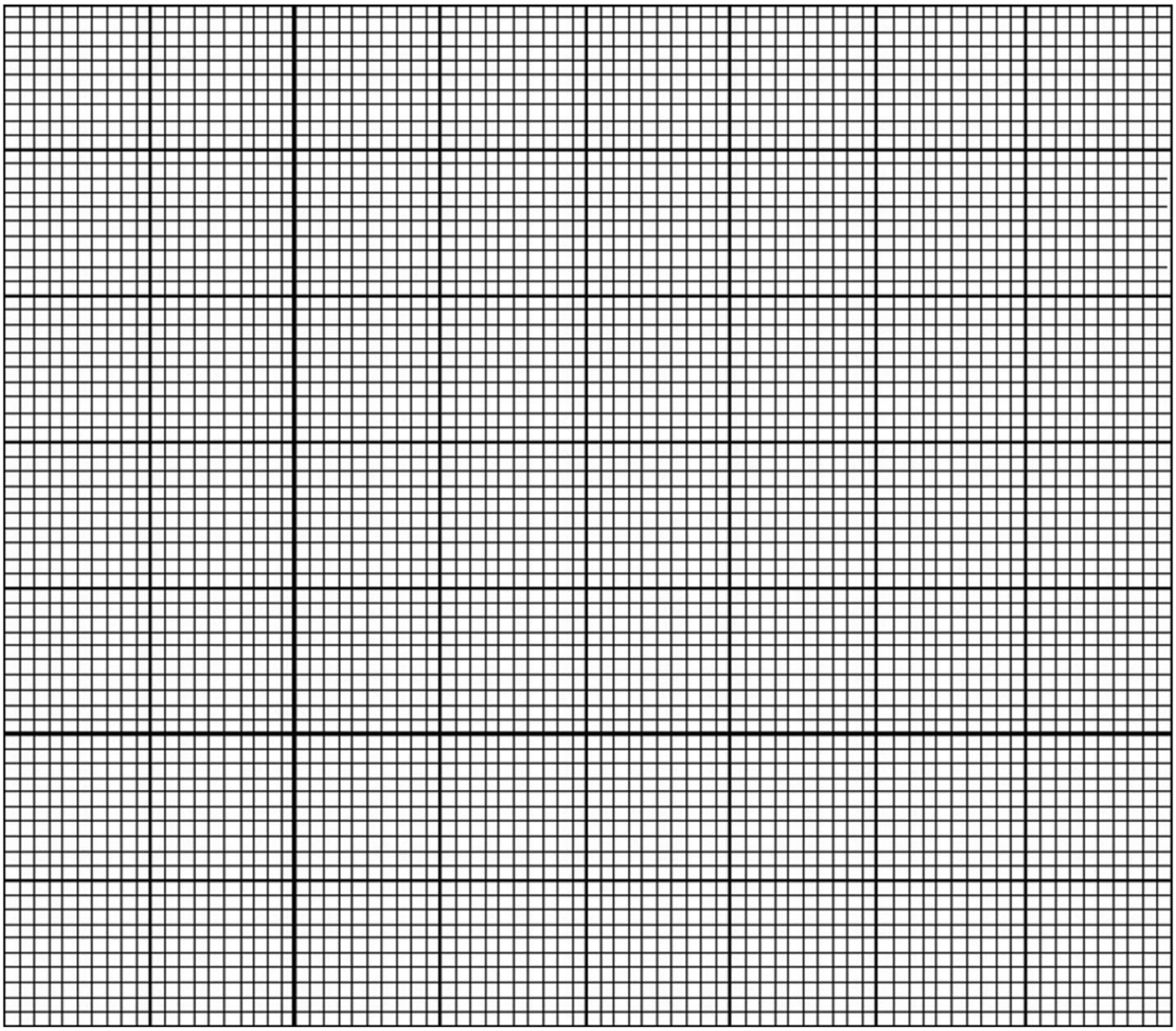
e. Assuming that each cell is **1.5v**, complete the table by filling in the voltage values.

(2 marks)

Continued/…

4. (Continued)

f. Plot a graph of voltage against current.



(3 marks)

g. Using the graph, find resistance of the bulb.

_____

(1 mark)

END OF QUESTION PAPER

NB: This paper contains 7 printed pages.