FIRST NAME _____ SURNAME_____ CLASS___

2022 CHINSAPO CLUSTER MOCK

MALAWIC SCHOOL CERTIFICATE OF EDUCATION EXAMINATION

PHYSICS

Date__/__/2022 **PAPER II** **Subject Number: M164/II**

(40 marks) **Time Allowed: 2 hour sessions**

PRACTICAL **8:00 am onwards**

INSTRUCTIONS

1. This paper contains **7 pages. Please check**.
2. Before beginning, fill in your Examination Number and school name at the top of each page of the question paper.
3. Write your answers on the question paper in the spaces provided.
4. This paper consists of **two sections A and B.**
5. **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.
6. In section B there are two practical questions to be answered in 1 hour.
7. Marks for Section B will be given for observation, accuracy and interpretation of results.
8. 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.
9. In the table provided on this page, tick against the question number you have answered.

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SECTION A (20 marks)

1. With the aid of a well labelled diagram, describe an experiment that could be done to show that different liquids expand differently when heated equally.

(10 marks)

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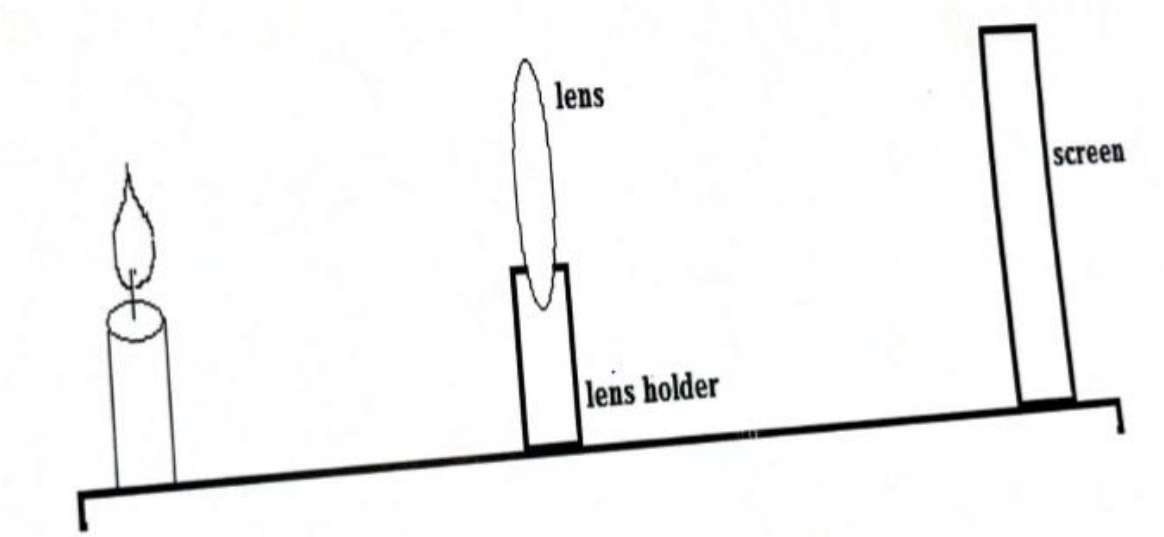
2. With the aid of a diagram describe an experiment that can be done to identify unknown substances A, B and C given that they are a diode, an insulator and a resistor but not necessary in that order.

_____(10 marks)

3. You are provided with a meter ruler, candle, matches, lens holder, convex lens and a white screen.
   a. Arrange the candle, convex lens and screen as shown below.

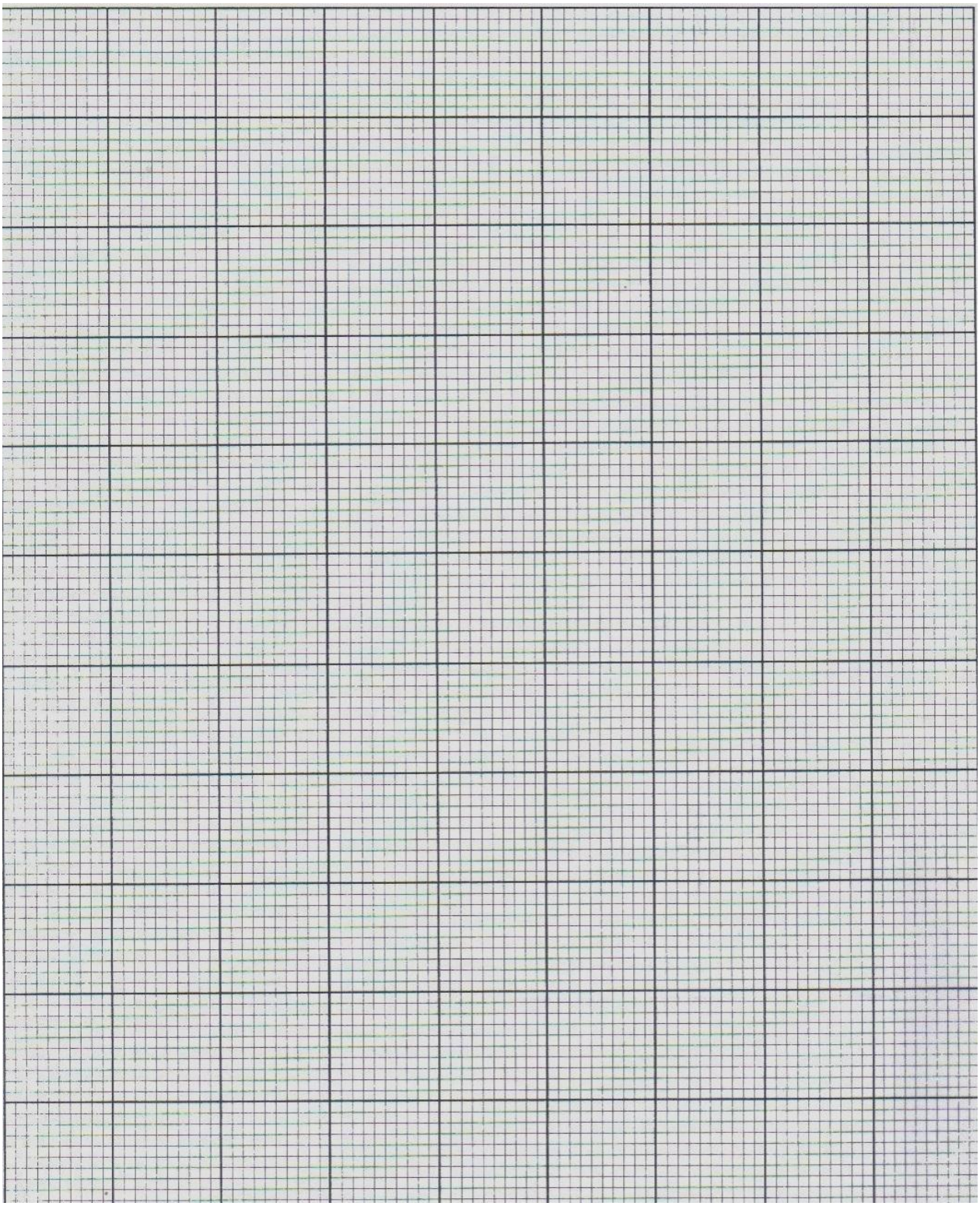


   b. Light the candle
   c. With the candle at 25cm from the lens, produce a well-focused image of the flame on the screen.
   d. Measure and record the image distance in the table of results.
   e. Repeat steps (c) and (d) for the object distances shown in the table.

Object distance (u in cm)	Image distance (v in cm)	(u + v) in cm
12.5		
15		
20		
25		
30		
40		

(6 marks)

   f. Plot the graph of u + v against u.



(5 marks)

g. Determine the focal length of the lens.

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4. You are provided with the following materials: Voltmeter, ammeter, 5 connecting wires, 20cm nichrome wire and 3 1.5V cells.
   a. Arrange the apparatus as shown in the figure below:

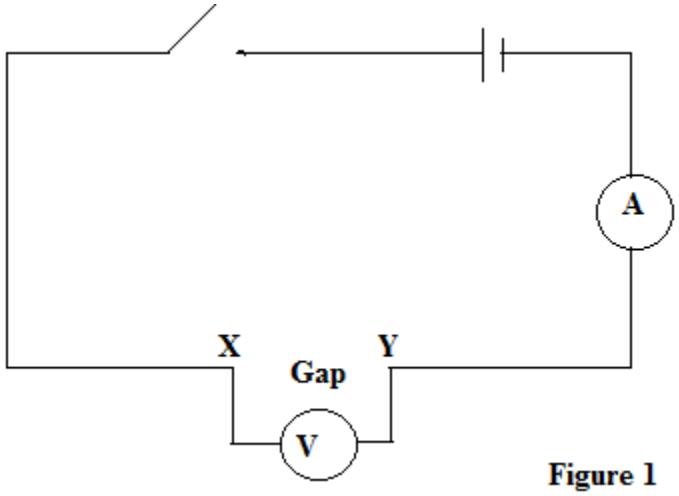


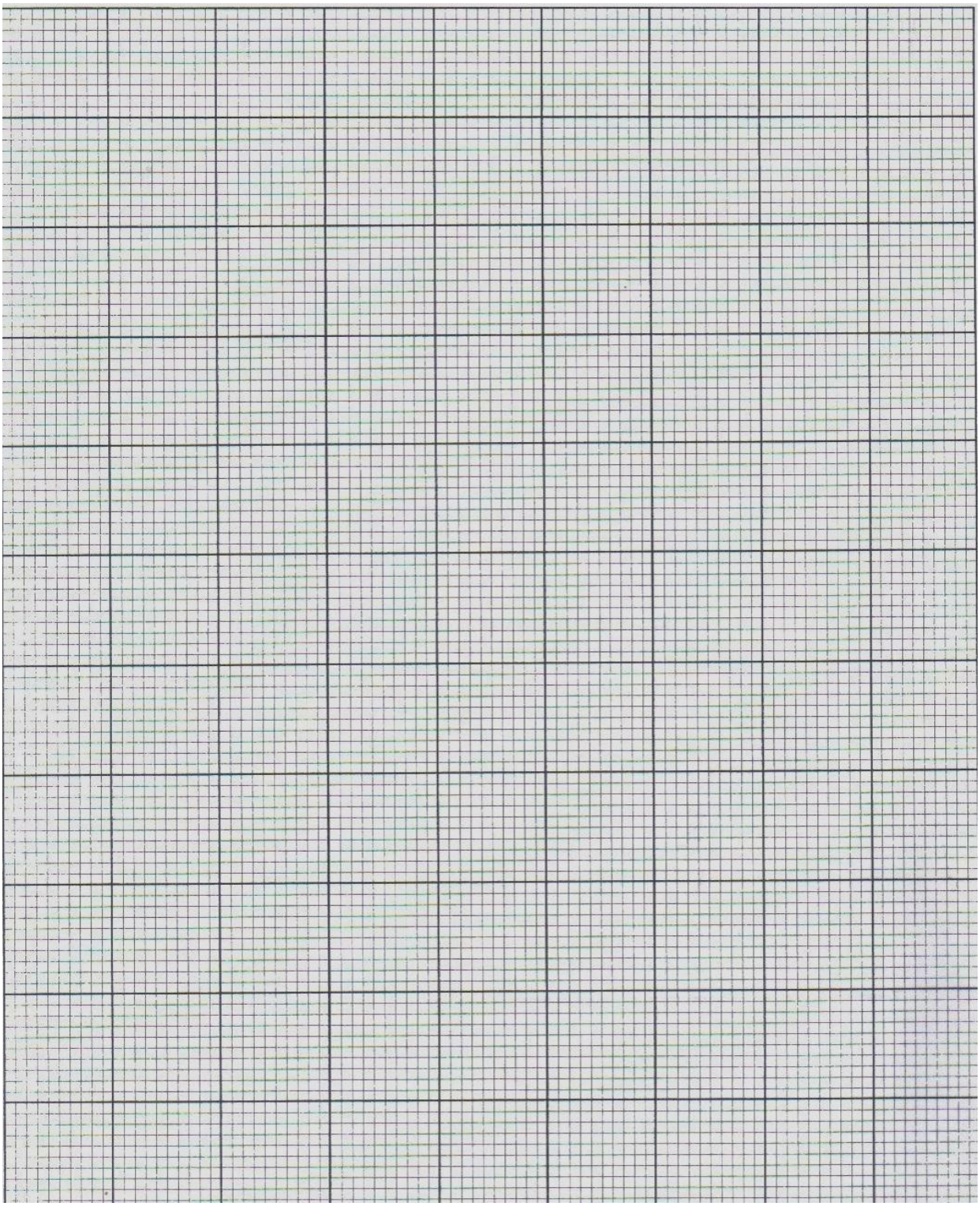
Figure 1

   b. Connect the 20cm nichrome wire on the gap XY
   c. Starting with one cell, close the switch and record the ammeter and voltmeter readings in the table.
   d. Repeat step C with 2 and 3 cells and record the ammeter and voltmeter readings in the table.

Number of cells	Current (Ampere)	Voltage (volts)
1		
2		
3		

(4 marks)

   e. Plot the graph of voltage against current. (4 marks)



f. From the graph determine the resistance of 20cm nichrome wire. (2 marks)

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END OF QUESTION PAPER