

REGISTRATION CENTER NUMBER		CENTER NAME	
CANDIDATE'S FULL NAME			
CANDIDATE'S IDENTIFICATION NUMBER		SUBJECT CODE 0780	PAPER NUMBER 3 GROUP ONE
FOLD HERE			
FOR OFFICIAL USE ONLY (Candidate Random Code) ▶			
GENERAL CERTIFICATE OF EDUCATION BOARD General Certificate of Education Examination ADVANCED LEVEL			
SUBJECT TITLE PHYSICS	SUBJECT CODE 0780	GROUP NUMBER One	
EXAMINATION DATE:		JUNE 2024	

Duration: Two and a Half Hours

Enter the information required in the boxes above.

Do not write in pencil except for graphs.

If you have difficulty understanding the requirements of the questions, or other problems, you should ask the supervisor for advice.

Your results must be recorded in the spaces provided in this question book. Details of the theory behind the experiment and the evaluation of experimental errors are not required.

Credit will be given for a written account of the experiment. The account should only consider points extra to those in the questions such as techniques adopted to carry out the required procedure and special precautions taken to ensure accuracy. Calculators and formulae books are allowed. All steps must be shown in your workings.

Stations:

Candidates are advised to give a description of each test carried out, diagram(s) of the set up, relevant calculations and/or identification of device(s). Methods used should be very clear.

Additional answer paper and graph paper shall be provided only if it becomes necessary to do so.

At the end of the examination, fasten all your work securely together.

You are reminded of the necessity for good English and orderly presentation in your answers.

The approximate mark distribution is as follows:

Diagram, precautions and presentation	06 marks	Calculations	08 marks
Observations	20 marks	Stations (4)	40 marks
Graphs	06 marks	SBA	20 marks

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		SCORE	
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Signature: Date:		2	
Checked by:		SBA	
Signature: Date:		TOTAL	

Turn Over

GROUP 1

MAINSTREAM

1. You are provided with a number of resistors connected in a chain: One of the multimeters shall be used as a voltmeter and the other as a milliammeter. The voltmeter shall be set to the 20 V range and the milliammeter to the 200 mA when in use.
2. Measure the terminal p.d. of the battery provided and record its value, $V_o = \dots\dots\dots$ (2 marks)
3. Connect the battery, the resistor chain and the milliammeter in series.
4. Connect the voltmeter across the battery terminals with the positive lead connected to the positive terminal of the battery.
5. Use the open lead of the milliammeter (red lead) as a switch and make a closed circuit by connecting it to the second junction of the resistor chain. Then record the voltmeter and milliammeter readings V and I respectively.
 $V = \dots\dots\dots$ (1 mark)
 $I = \dots\dots\dots$ (1 mark)
6. Move the contact to the third and to the rest of the junctions in succession and repeat step 6 to obtain other values of currents and corresponding voltages. Record your values in a table

Table of Data

(20 marks)

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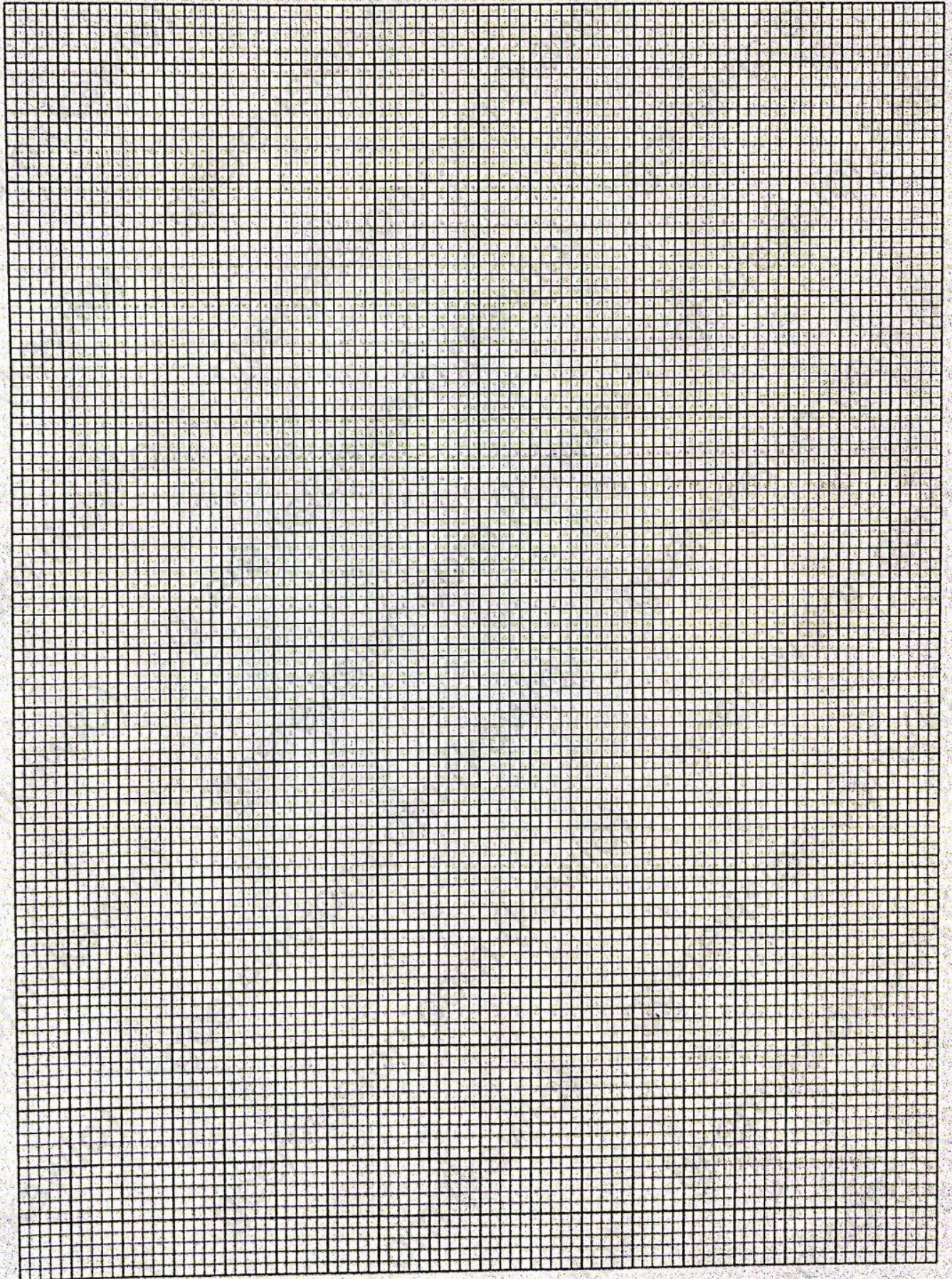
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8. Plot a graph of V on the vertical axis against I on the horizontal axis.

(6 marks)



Turn Over

9. Calculate the slope of your graph and state its significance.

(6 marks)

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10. Draw a diagram of your set up.

(2 marks)

11. Precautions

(1 mark)

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General presentation of work

(1 mark)

(Total 40 marks)

STATIONS

Station 1:

You are provided with a wooden bar, a balance and a Vernier caliper. Determine the ratio of volume to mass of wood.
Diagram

Method

(2 marks)

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Observations

(2 marks)

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Calculations

(2 marks)

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Precautions

(2 marks)

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Conclusion

(2 marks)

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(Total 10 marks)

Turn Over

Station 2: Thermal Physics

You are provided with two beakers, a measuring cylinder, a thermometer, about 50 g of a liquid x at room temperature and 50 ml of hot water at about 70 °C. Determine the specific heat capacity of liquid x.

Diagram

(2 marks)

Procedure

(2 marks)

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Observations

(2 marks)

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Precautions

(2 marks)

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Conclusion

(2 marks)

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(Total 10 marks)

Station 3: Simple harmonic motion

You are provided with a helical spring, a standard mass, a stop watch and a clamp and stand. Determine the period of oscillation of the mass spring oscillator in the vertical plane.

Diagram (2 marks)

Method (2 marks)

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Observations (2 marks)

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Calculations (2 marks)

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Precautions (1 mark)

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Conclusion (1 mark)

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(Total 10 marks)

Turn Over

Station 4: Properties of matter

You are provided with a stopwatch, a ball bearing tied to a long thin string, three liquids A, B, and C in 3 tall measuring cylinders. Use this apparatus to classify the liquids in order of increasing viscosity.

Diagram (2 marks)

Method (2 marks)

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Observation (2 marks)

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Precautions (2 marks)

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Conclusion (2 marks)

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(Total 10 marks)

STOP

GO BACK AND CHECK YOUR WORK

REGISTRATION CENTER NUMBER		CENTER NAME	
CANDIDATE'S FULL NAME			
CANDIDATE'S IDENTIFICATION NUMBER		SUBJECT CODE 0780	PAPER NUMBER 3 Group Two
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GENERAL CERTIFICATE OF EDUCATION BOARD General Certificate of Education Examination ADVANCED LEVEL			
SUBJECT TITLE PHYSICS		SUBJECT CODE 0780	GROUP NUMBER Two
		EXAMINATION DATE:	JUNE 2024

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Duration: Two and a Half Hours

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Stations:

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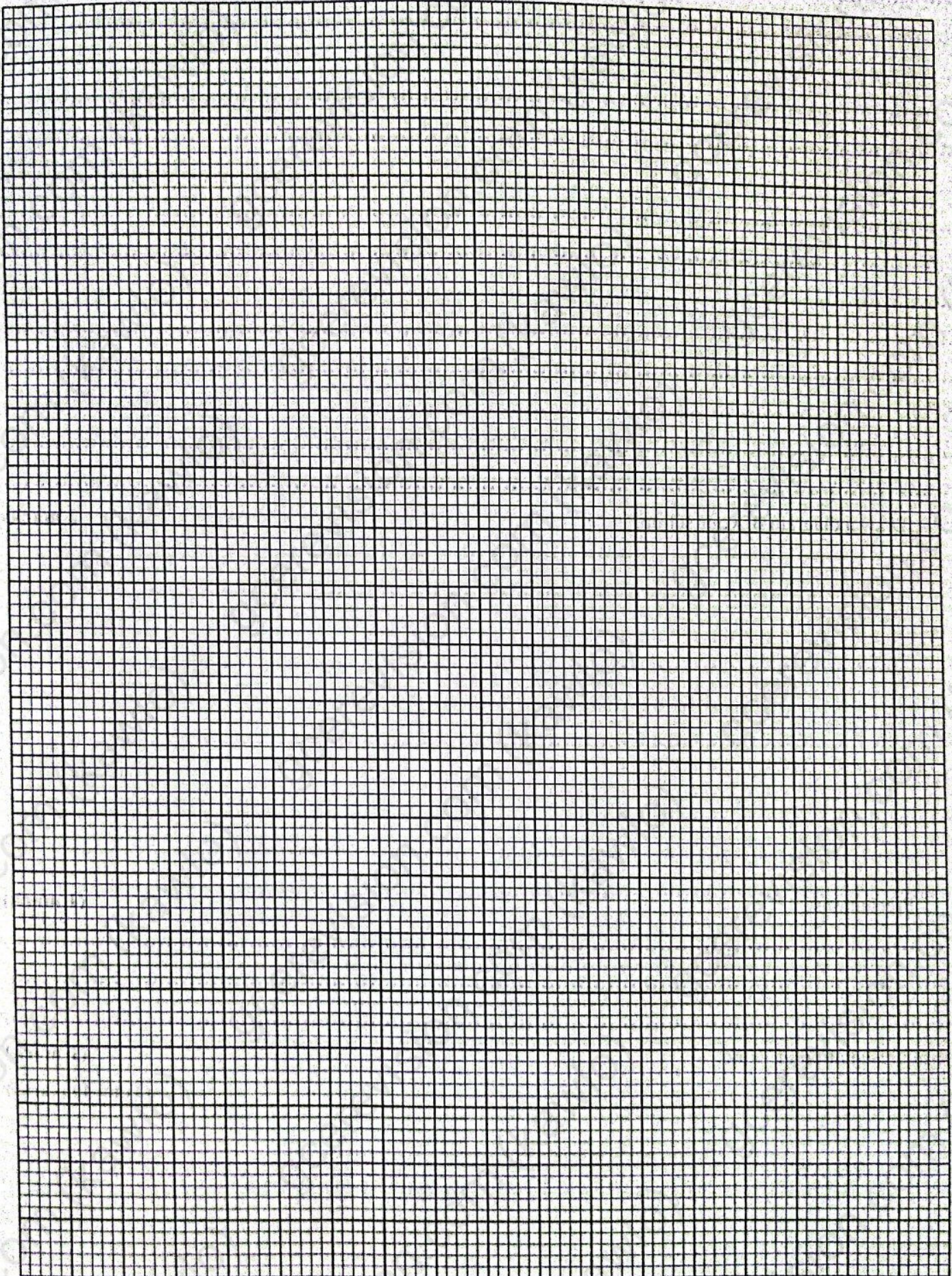
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Signature: Date:		TOTAL	

Turn Over

8. Plot a graph of V on the vertical axis against I on the horizontal axis.

(6 marks)



Turn Over

STATIONS

Station 1: Determination of density

You are provided with a wooden bar, a balance and a Vernier caliper. Determine the density of wood in the bar.
Diagram

Method

(2 marks)

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Observations

(2 marks)

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Calculations

(2 marks)

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Precautions

(2 marks)

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Conclusion

(2 marks)

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(Total 10 marks)

Turn Over

Station 2: Thermal Physics

You are provided with a beaker, water at about 70°C , a piece of solid, tissue paper, a measuring cylinder a balance and a thermometer. Determine the specific heat capacity of the solid.

Diagram

(2 marks)

Procedure

(2 marks)

Observations

(2 marks)

Precautions

(2 marks)

Conclusion

(2 marks)

(Total 10 marks)

Station 3: Simple harmonic motion

You are provided with a helical spring, a standard mass, a stopwatch and a clamp and stand. Determine the frequency of oscillation of the mass spring oscillator in the vertical plane.

Diagram

(2 marks)

Method

(2 marks)

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Observations

(2 marks)

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Calculations

(2 marks)

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Precautions

(1 mark)

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Conclusion

(1 mark)

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(Total 10 marks)

Turn Over

Station 4: Properties of matter

You are provided with a stopwatch, a ball bearing tied to a long thin string, three liquids A, B, and C in 3 tall measuring cylinders. Use this apparatus to classify the liquids in order of decreasing viscosity.

Diagram

(2 marks)

Method

(2 marks)

Observation

(2 marks)

Precautions

(2 marks)

Conclusion

(2 marks)

(Total 10 marks)

STOP

GO BACK AND CHECK YOUR WORK