

NAME _____ INDEX NO _____

CANDIDATE'S SIGNATURE _____

DATE _____

232/3
PHYSICS
PRACTICAL
PAPER 3
2 1/4 HOURS

GOLDEN ELITE EXAMINATIONS 2020

Kenya Certificate of Secondary Education

**PHYSICS
PRACTICAL
PAPER 3
2 1/4 HOURS**

INSTRUCTIONS

Answer all the questions in this paper

You are supposed to spend the first 15 minutes of the 2 1/4 hours allowed for this paper reading the whole paper carefully before starting your work.

Marks are given for clear record of the observations made, their suitability and accuracy and the use made of them.

Candidates are advised to record observations as soon as they are made

Mathematical table and electronic calculators may be used.

For Examiner's use only

QUESTION	TOTAL MARKS	CANDIDATE'S SCORE
1	20	
2	20	
	GRAND TOTAL	80 MARKS

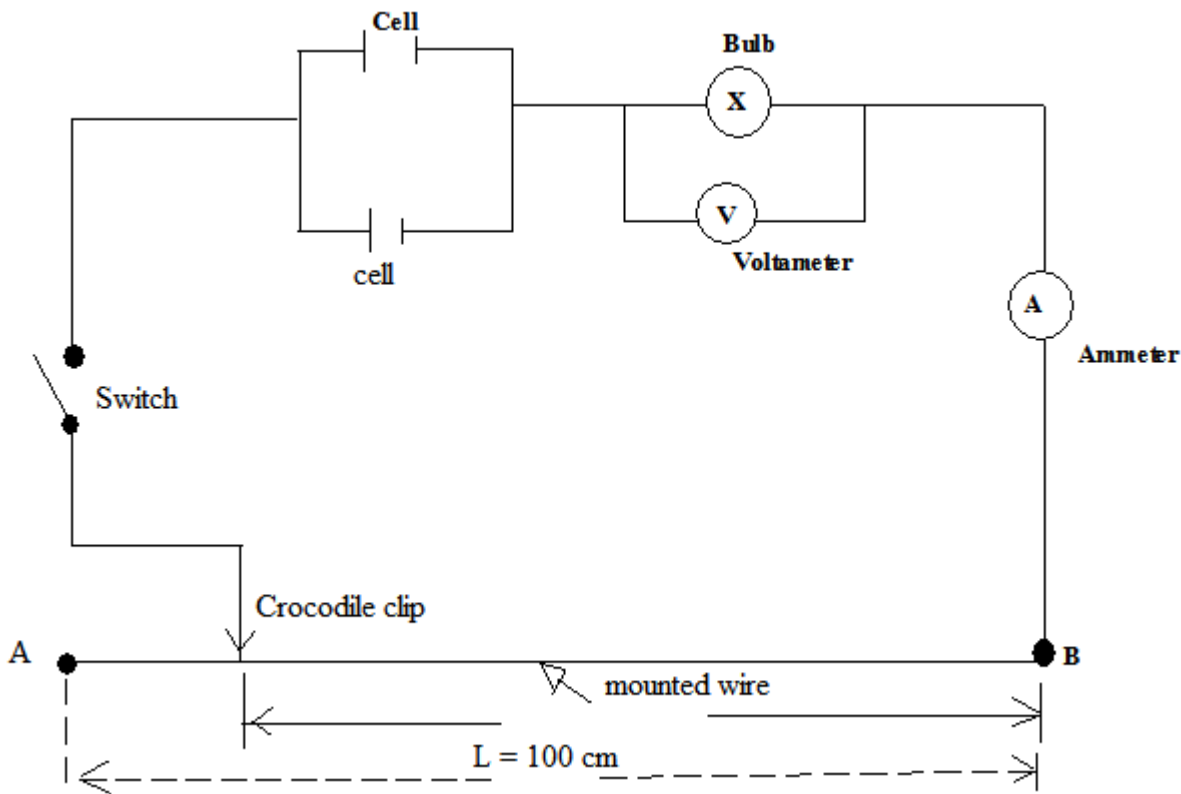
This paper consists of 7 printed pages

Question 1

You are provided with the following apparatus

- Two dry cells
- A cell holder
- A bulb
- A voltmeter
- An ammeter
- A switch
- A mounted resistance wire labelled AB

a) Set up the apparatus as shown in the circuit below.



b) With the crocodile clip at A (ie $L = 100\text{cm}$) take the voltmeter reading (V) and the ammeter reading (I). Record V and I in the table below.

Length l(cm)	100	80	60	40	20	0
Voltage (V)						
Current I (A)						

(7 marks)

c) Repeat the procedure in (b) above for the lengths shown and complete the table above.

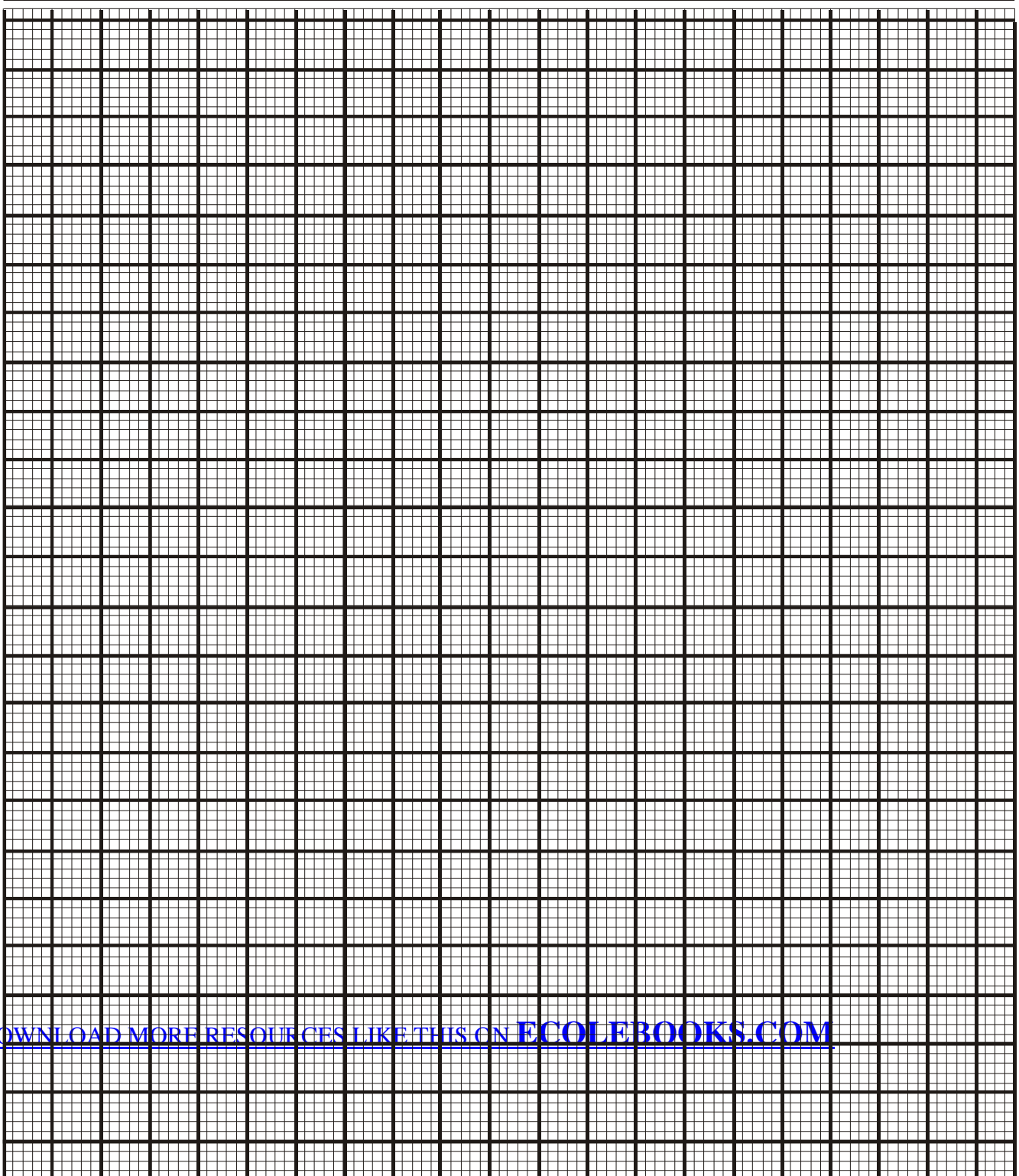
d) State the changes you observe on the bulb as L decrease from A. (2 marks)

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e) Plot a graph of voltage against length (cm) (5 marks)



- f) What physical quantity does the slope of the graph represent at any given point. (2 marks)
- g) From your graph determine the value of voltage at length $L = 70\text{cm}$. (2 marks)
- h) Use your graph to describe how the physical quantity in (e) above is affected as the current increases. Explain why. (2 marks)

Question 2

You are provided with the following apparatus

- A complete stand
- Copper wire (wire length about 30cm)
- A stop watch
- A protractor
- A meter rule
- Corked optical pin

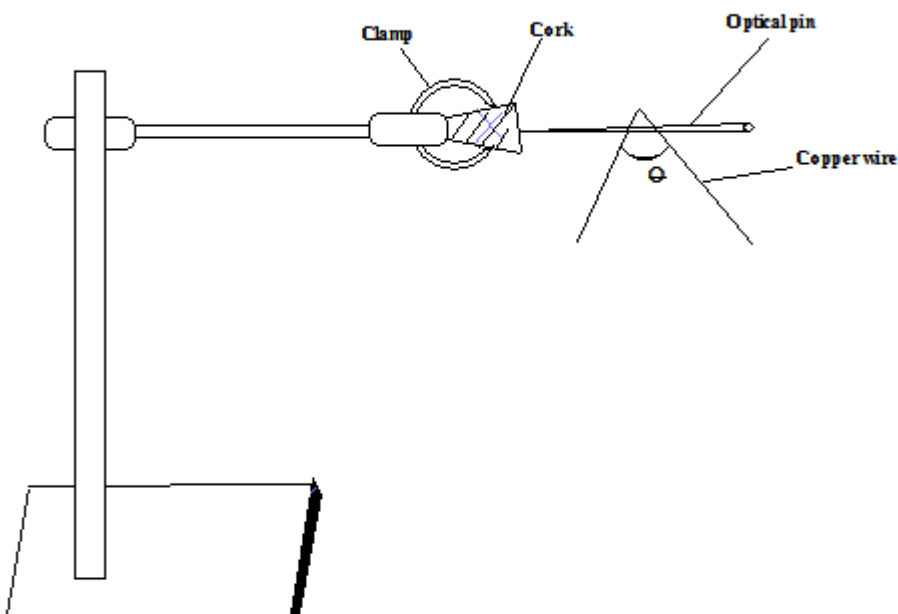
Procedure

- a) Measure the length L of the copper wire.

$L = \dots\dots\dots$ m

(1 mark)

- b) Bend the wire to form an angle Θ of 60° , suspend it from the corked optical pin as shown in the diagram below.



c) Give it a small displacement so that it oscillates about a point on the pin. Measure the time, t (s) for 10 oscillations of the wire.

$t = \dots\dots\dots$ (s) (1 mark)

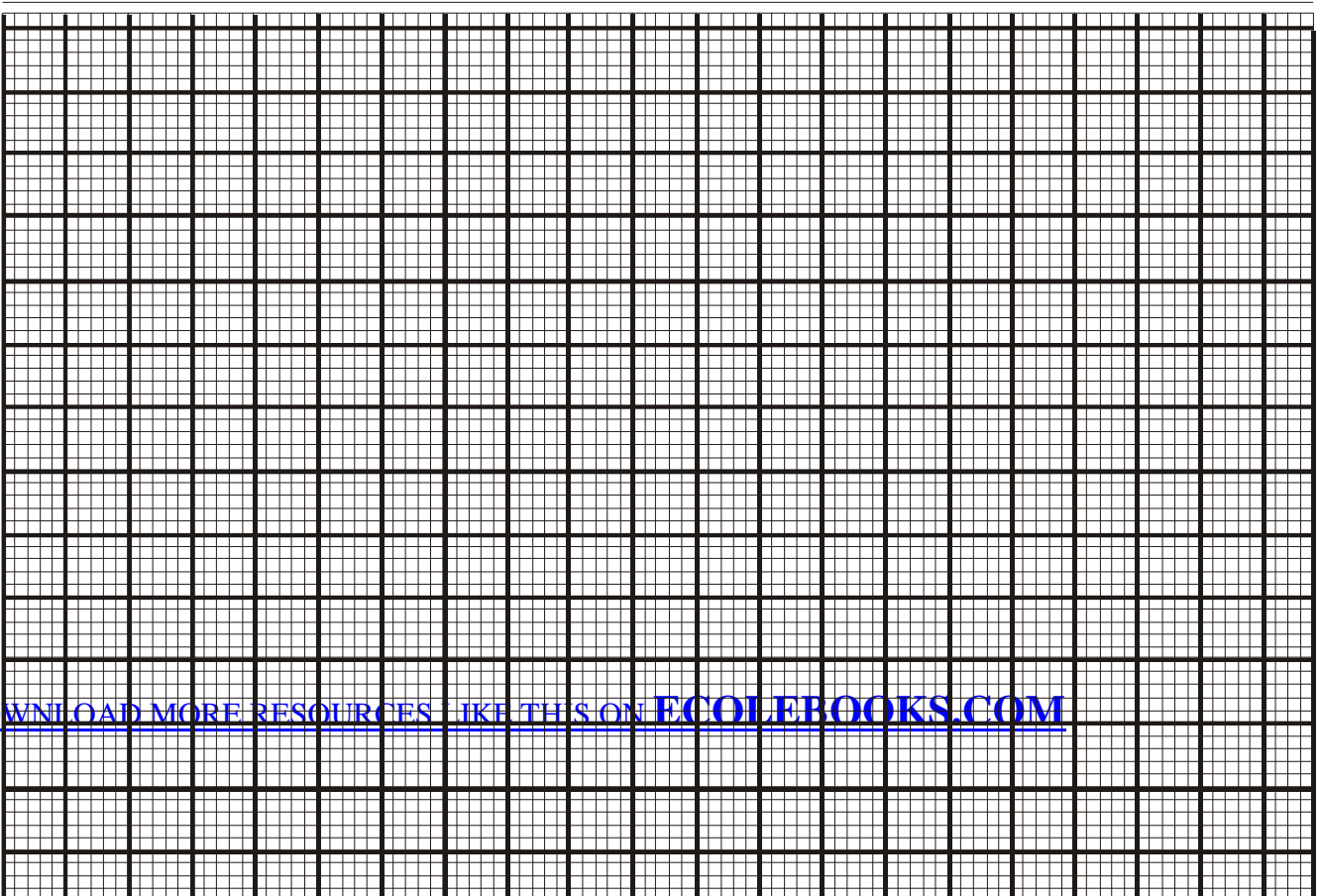
d) Repeat the procedure (b) above for the values of $\Theta = 70^\circ, 80^\circ, 90^\circ, 100^\circ, 110^\circ$.

e) Record and complete the results in the table below.

Θ ($^\circ$)	60	70	80	90	100	110
$\text{Cos } \frac{1}{2}\Theta$						
Time for 10 oscillations, t (s)						
Periodic time T (s)						
T^2 (s^2)						
$\frac{1}{T^2}$ (s^{-2})						

(7 marks)

f) On the grid provided, plot a graph of $\frac{1}{T^2}$ (s^2) against $\text{Cos}\frac{1}{2}\Theta$. (5 marks)



g) Determine the slope.

(3 marks)

h) Given that the graph is related by the equation $T^2 = \frac{8\pi^2 L}{g} \cos^2 \Theta$, determine the value of constant g .

(3 marks)

