Name: .... Index No. ....

School: ....Date: .... Candidate's Sign ....

232/3
PHYSICS
PAPER 3 (PRACTICAL)
FORM 4
MARCH / APRIL 2013
TIME: 2 ¹/₂ HOURS

ELDORET EAST INTER – SCHOOLS EXAMINATIONS – 2013

The Kenya Certificate of Secondary Education (K.C.S.E)

INSTRUCTIONS TO CANDIDATES

- Write your name and index number n the spaces provided above.
- Answer all the questions in the spaces provided in the question paper.
- You are supposed to spend the first 15 minutes of the 2 ½ hours allowed for this paper reading the whole paper carefully before commencing your work.
- Marks are given for a clear record of the observations actually made, for their suitability accuracy and the use made of them.
- Candidates are advised to record their observations as soon as they are made.
- Mathematical table and electronic calculators may be used.

FOR EXAMINER'S USE ONLY

Question 1	e(iii)	f	g	h
Maximum Score	9	5	3	3
Candidate's Score				
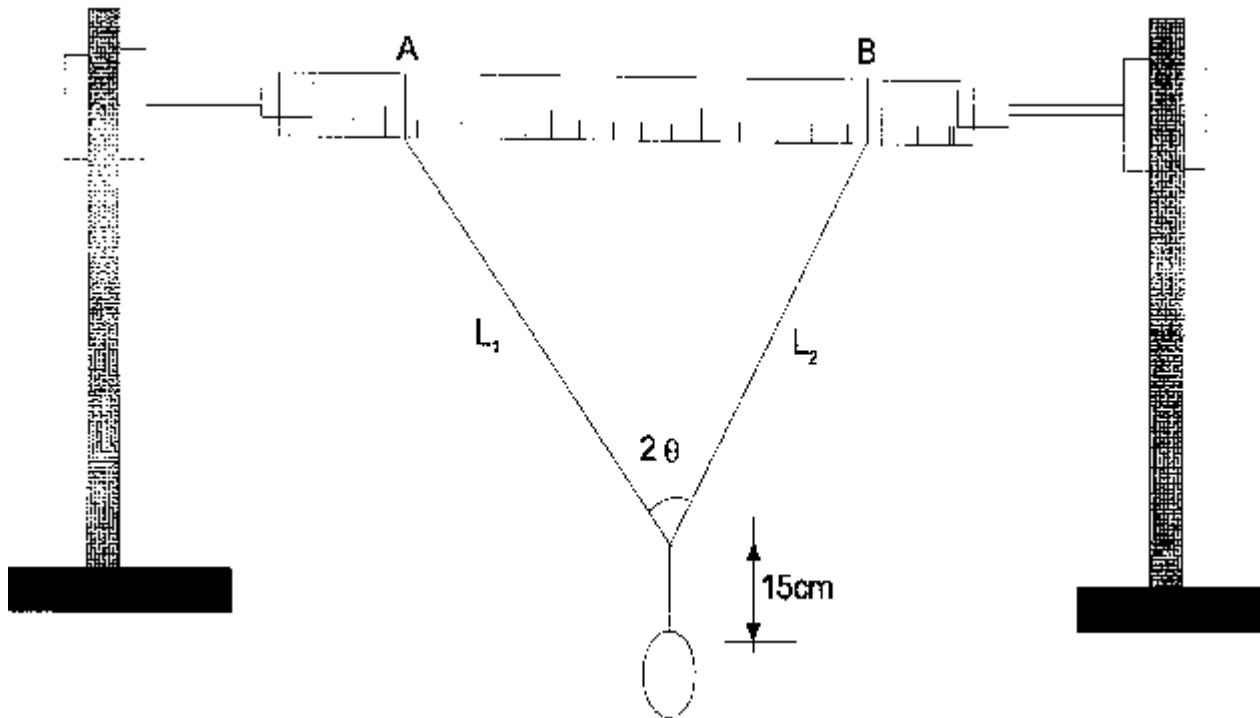
Question 2A	a(ii)	(vi)	(viii)	b	c
Maximum Score	1	5	5	2	2
Candidate's Score					

Question 2B		(iv)	(v)	**TOTAL**
Maximum Score		3	2	**40**
Candidate's Score				

1. You are provided with the following apparatus
   - A metre rule
   - Two stands
   - A pendulum bob
   - Some plasticine
   - Stop watch
   - Two pieces of strings (long and short one)

Proceed as follows;

a) Attach one end of the length of string to the metre rule at 10cm mark. Mark by use of a sliding loop of string round the meter rule.

b) Fix the string at this point with the small bob of plasticine.

c) Tie the string in a second loop at 90cm mark so that the string is stretched taught between the two marks.

d) Fix this loop with a small plasticine. Attach the pendulum bob to the centre of the string so that the centre of gravity is 15cm below the point of suspension.

e) If the attachments of the pendulum bob to the pieces does not produce a V-shape squeeze the string at the knot between the thumb and the fore finger.
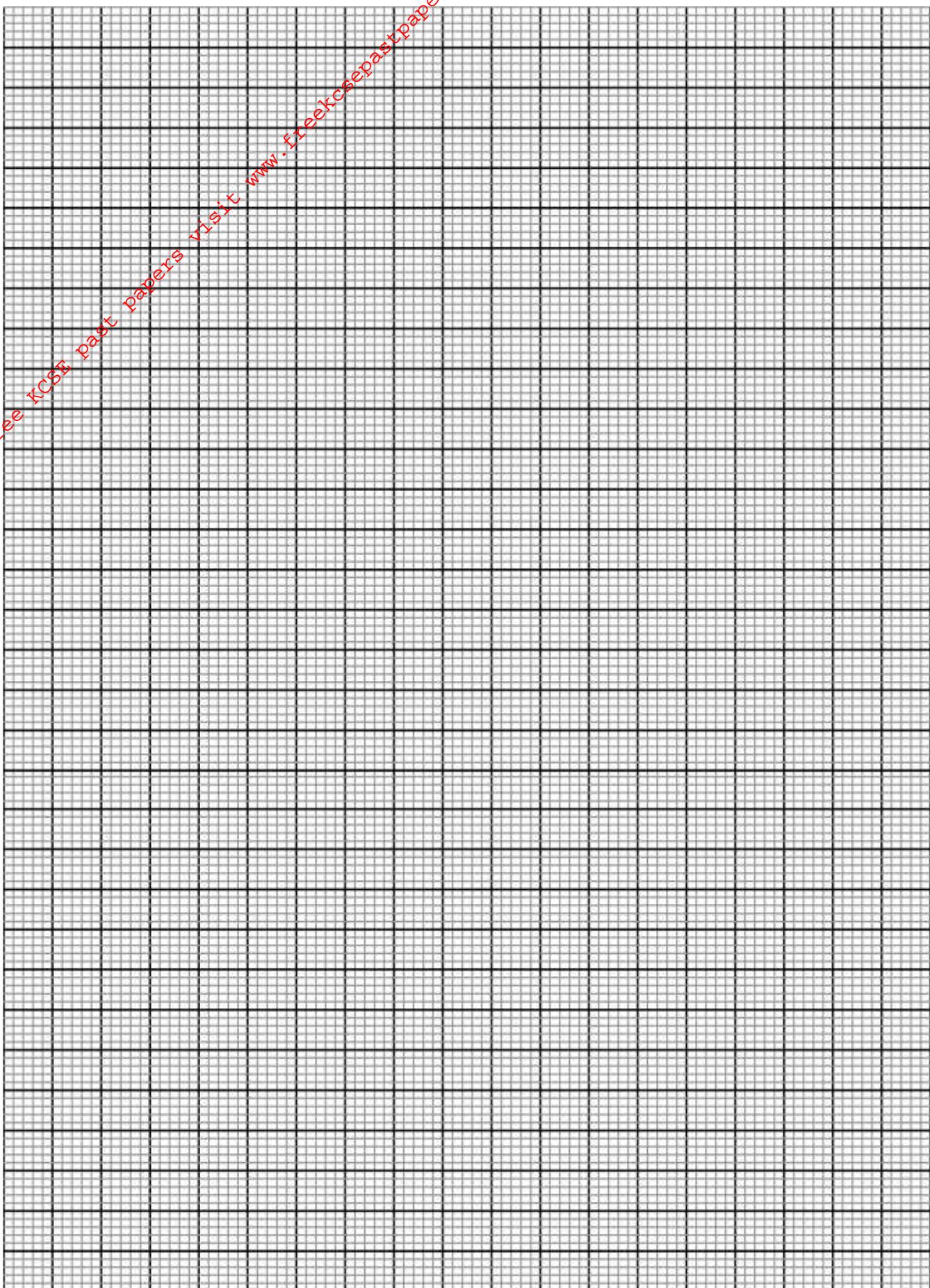
i) Measure the angle 2θ

ii) Pull the pendulum bob towards you through a small distance, release it; measure the time (t) of the motion by timing 10 oscillations.

iii) Remove the plasticine at B and slide the loop towards A by 4cm and repeat (ii) above for other distances AB as shown in the table below.

Table (a)   (9marks)

Length from A to B(cm)	80	76	72	68	64	60
Time for 10 oscillations(s)						
Periodic time T(s)						
$T^2(s^2)$						
2θ						
θ						
$\cos\theta$						

f)   Plot a graph of T^2 against $Cos\theta$.   (5marks)

g)   Find the slope 's' of the graph   (3marks)

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h)   Given that $k = \dfrac{1.6\pi^2}{S}$, find k   (3marks)
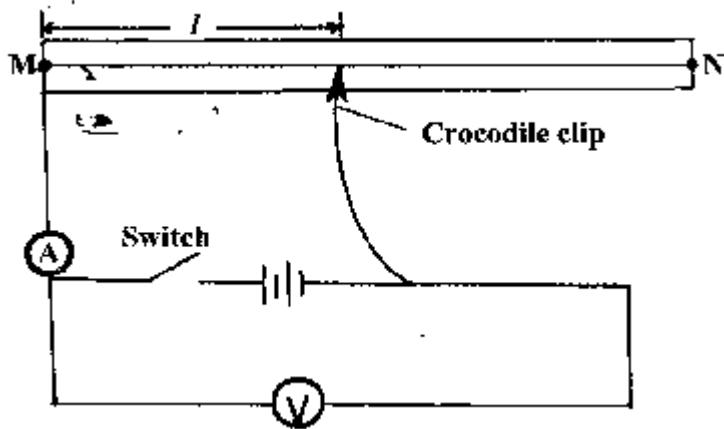
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2.   a) You are provided with the following apparatus:

- Resistance wire fitted on a scale labeled MN
- Switch
- Voltmeter
- Ammeter
- Two dry cells
- Six connecting wires

i)   Set – up the apparatus as shown in the figure below;

ii) Remove the crocodile clip from the resistance wire MN and close the switch. Record the voltmeter reading.

Y = ……………………………………… V   (1mark)

iii) Attach the crocodile clip to the resistance wire such that l = 10cm

iv) Record the voltmeter and ammeter readings in the table below.
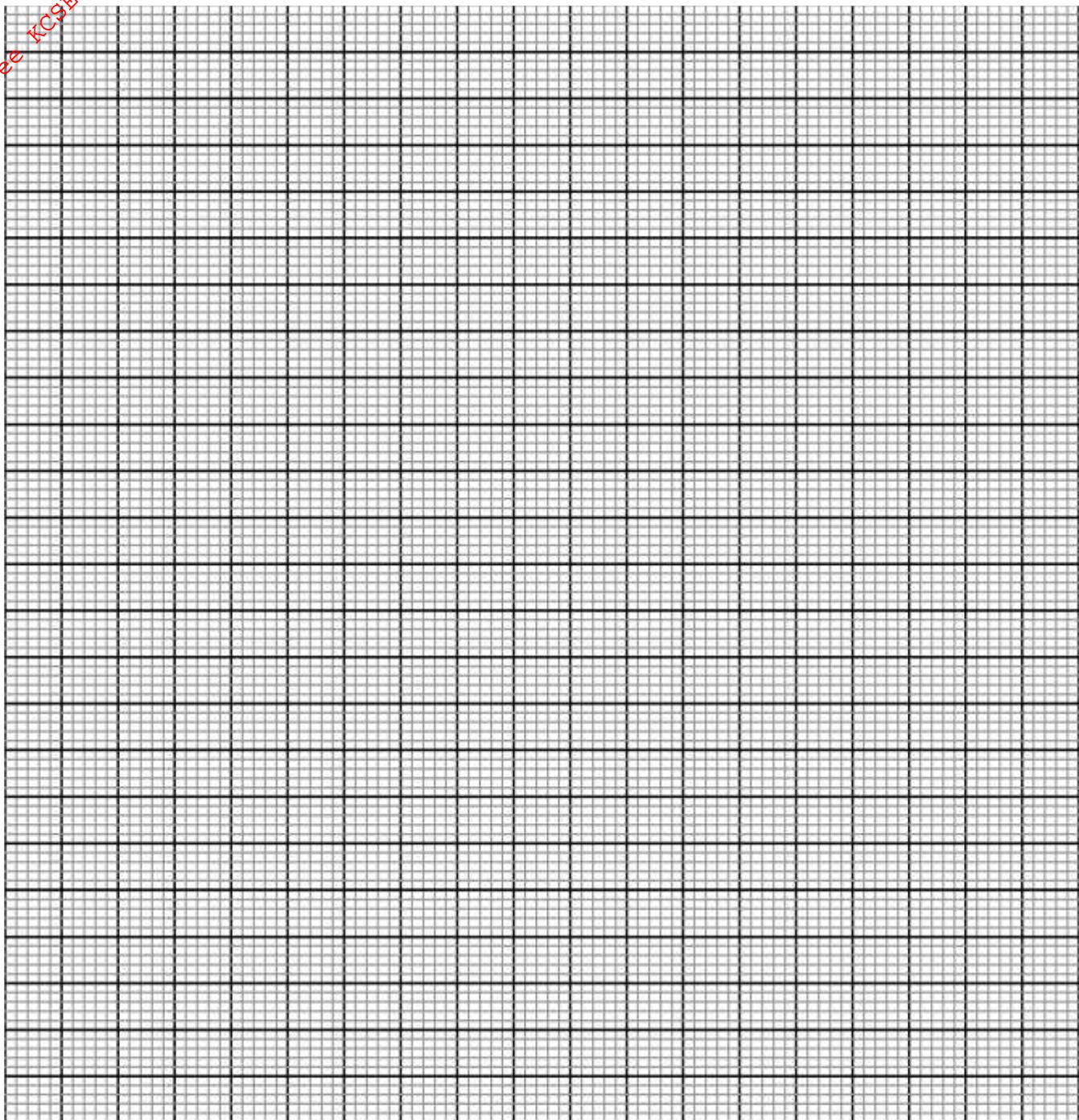
v) Repeat the procedure in (iii) and (iv) for l = 20cm, 30cm, 50cm and 80cm

vi) Complete the table below;

Length, l = cm	10	20	30	50	80
Current I (A)					
p.d V(v)					
Y - V					
$\dfrac{V}{y - v}$					
$\dfrac{V}{I}$					

vii)   a) Plot a graph of $\left(\dfrac{V}{Y - V} \right)$ (vertical axis) against R.   (5marks)

b) Determine the slope m of the graph (2marks)

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c) The graph is given by the equation

$$\frac{V}{Y-V} = \frac{MR}{5} + d$$

Determine the value of m and d. (2marks)

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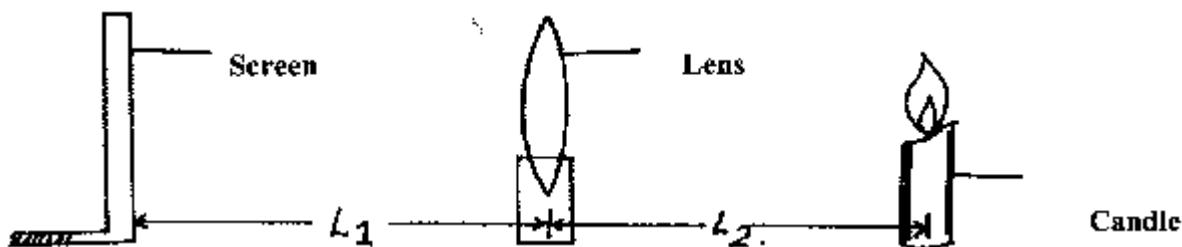
Question 2 (b)

You are provided with the following set of apparatus
- A metre rule
- A white screen
- A candle
- Lens and lens holder

Procedure

i) Set up the apparatus as shown

ii) Starting with $L_1 = 30cm$, adjust the position of the candle in order to obtain a sharp image on the screen. Record the value of L_2.

iii) Repeat the procedure for $L_1 = 60cm$

iv) Fill and complete for values of L_1/L_2 below.

(3marks)

L_1cm	L_2(cm)	$\frac{L_1}{L_2}$
30		
60		

v)   Given the equation $f = \dfrac{L_1}{M+1}$ where $m = \dfrac{L_1}{L_2}$

Determine the value of focal length f,   (2marks)

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