

Name: Index No.

School: Date: Candidate's Sign

232/3
PHYSICS
PAPER 3 (PRACTICAL)
FORM 4
MARCH / APRIL 2013
TIME: 2½ HOURS

WESTERN ZONE JOINT EXAMINATIONS - 2013 (WEZOJE)

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

INSTRUCTIONS TO CANDIDATES

- Ñ Write your name admission number and class I the spaces provided
- Ñ Sign and write the date of examination in the spaces provided.
- Ñ Answer ALL the questions in the spaces provided in the question paper.
- Ñ You are supposed to spend the first 15 minutes of the 2½ hours allowed for this paper reading the whole paper carefully before commencing your work.
- Ñ Marks are given for a clear record of the observations actually made.
- Ñ Their suitability, accuracy, and the use made of them.
- Ñ Candidates are advised to record their observations as soon as they are made.
- Ñ Non - programmable silent electronic calculators and KNEC Mathematical tables may be used.

FOR EXAMINER'S USE ONLY

Question 1

	d	e	f	g(i)	g(ii)	i	j	k	l
Maximum Score	4	5	2	2	1	1	1	1	2
Candidate's Score									

TOTAL

Question 2

	e	f	g	h(i)	h(ii)	i	l	m	n(i)	n(ii)
Maximum Score	4	5	2	2	1	1	2	1	2	1
Candidate's Score										

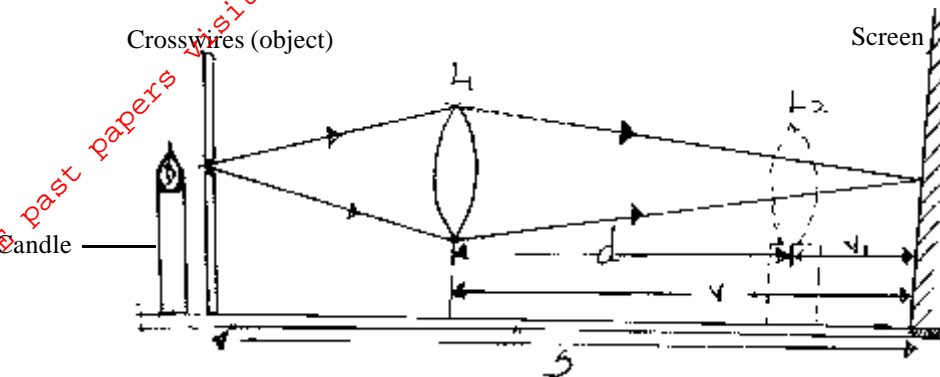
TOTAL

GRAND TOTAL

Q. 1 You are provided with the following apparatus;

- A candle (source of light illuminating cross wires mounted on a circular hole)
- A convex lens
- A lens holder
- One metre rule
- A white screen

Set the apparatus as shown in the diagram below



- a) Illuminate the object cross wires using the candle provided when the distance between crosswires and screen $S = 60\text{cm}$.

By moving the lens away from the crosswires obtain a focused clear image of the object (crosswires) on the screen. Measure and record the distance V , between the lens position L_1 and the clear image on the screen.

Keeping the distance S fixed i.e. $S = 60\text{cm}$ move the lens further away from the object until another sharp image but diminished image of the cross wires is obtained on the screen. Measure and record the distance between the new lens position L_2 and the sharp diminished image.

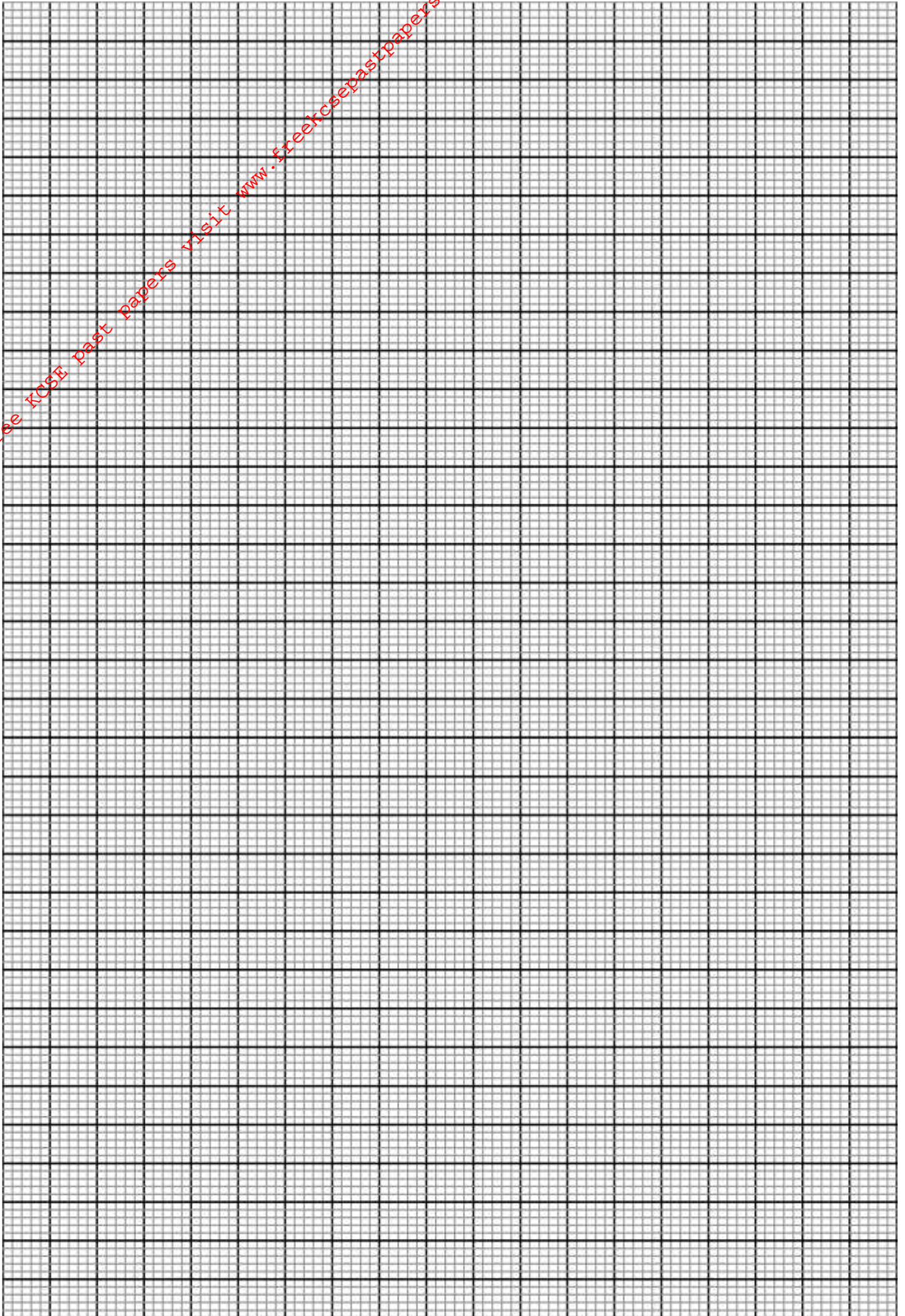
Record this as V_1 . Repeat the procedure for other values of S shown in the table. Complete the table (8marks)

S (cm)	60	65	70	75	80	85	90
V (cm)							
V_1 (cm)							
$d = V - V_1$ (cm)							
S^2 (cm ²)							
d^2 (cm ²)							
$S^2 - d^2$ (cm ²)							

iii) Plot a graph of $s^2 - d^2$ against S

(5marks)

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iv) Determine the gradient (k) of the graph

(3marks)

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v) Given that $K = 4f$ where f is the focal length of the lens used, determine the value for f .

(2marks)

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vi) State the advantage the method used above to determine the focal length of a lens has over the other methods.

(1mark)

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vii) Focus the window frame or any distant object and obtain a rough estimate of the focal length of the lens.

(1mark)

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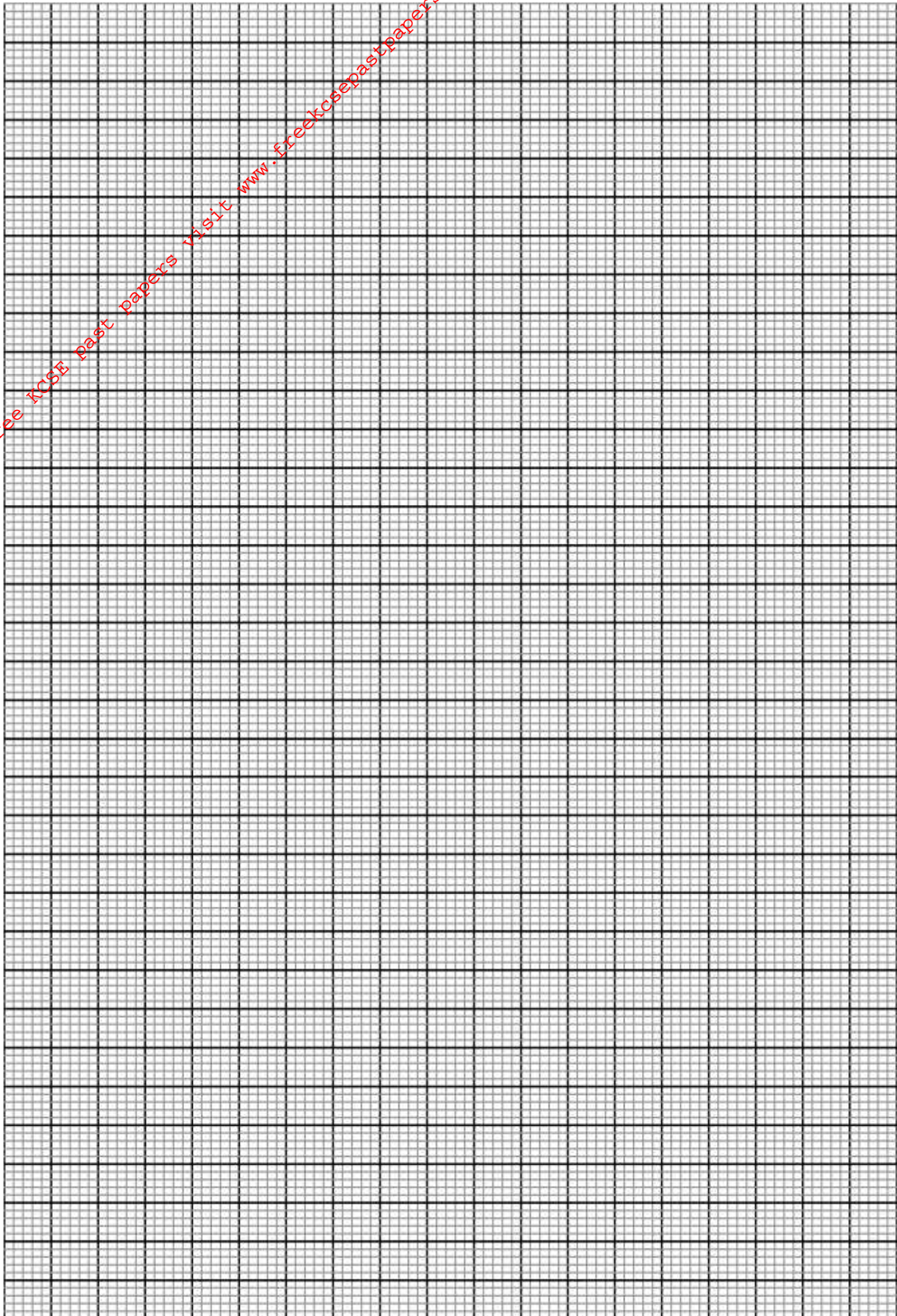
Q.2 You are provided with the following

- Dry cell
- An ammeter 0 – 0.25A
- A voltmeter 0 – 2.5v
- A mounted resistance wire XY
- 6 connecting wires
- A jockey or crocodile clip
- A switch

Proceed as follows:

d) On the grid provided, plot a graph of V (y-axis) against L .

(5marks)



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e) Determine the slope M of the graph. (3marks)

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f) The E.M.F of the cell from which current is being drawn is $E = v + Ir$.
Use the equation to determine

i) E.M.F of the cell (2marks)

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ii) The internal resistance of the cell. (2marks)

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