

NAME:

INDEX NO:.....

SCHOOL:

Candidate's signature:

Date:

232 / 3

PHYSICS

PAPER 3

JULY / AUGUST

(PRACTICAL)

2 ½ HOURS

MASINGA DISTRICT JOINT EVALUATION TEST - 2011

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

232 / 3

PHYSICS

PAPER 3

(PRACTICAL)

2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

- ❖ Write your name and index number in 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 and 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 | Maximum Score | Candidates Score |
|----------|---------------|------------------|
| 1 | 20 | |
| 2 | 20 | |
| Total | | |

This paper consists of 6 printed pages.

Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing.

QUESTION 1 (20 MARKS)

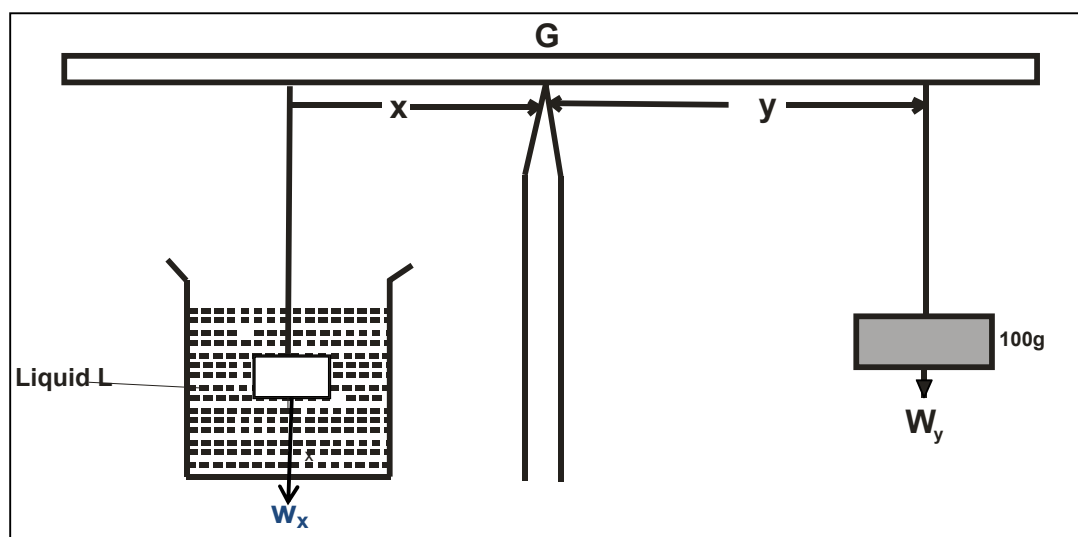
- a) Determine the volume V of one of the masses using the apparatus provided (3 Marks)

Record $V = \dots\dots\dots$

- b) i) Determine the center of gravity G of the metre rule and record it.

$G = \dots\dots\dots$ (1Mark)

- ii) Arrange the apparatus as shown in the diagram below such that $X=50\text{mm}$ from the pivot with 100g mass completely immersed in liquid L hang the other 100g mass from the metre rule and adjust its position until the system is in equilibrium as shown in the diagram.

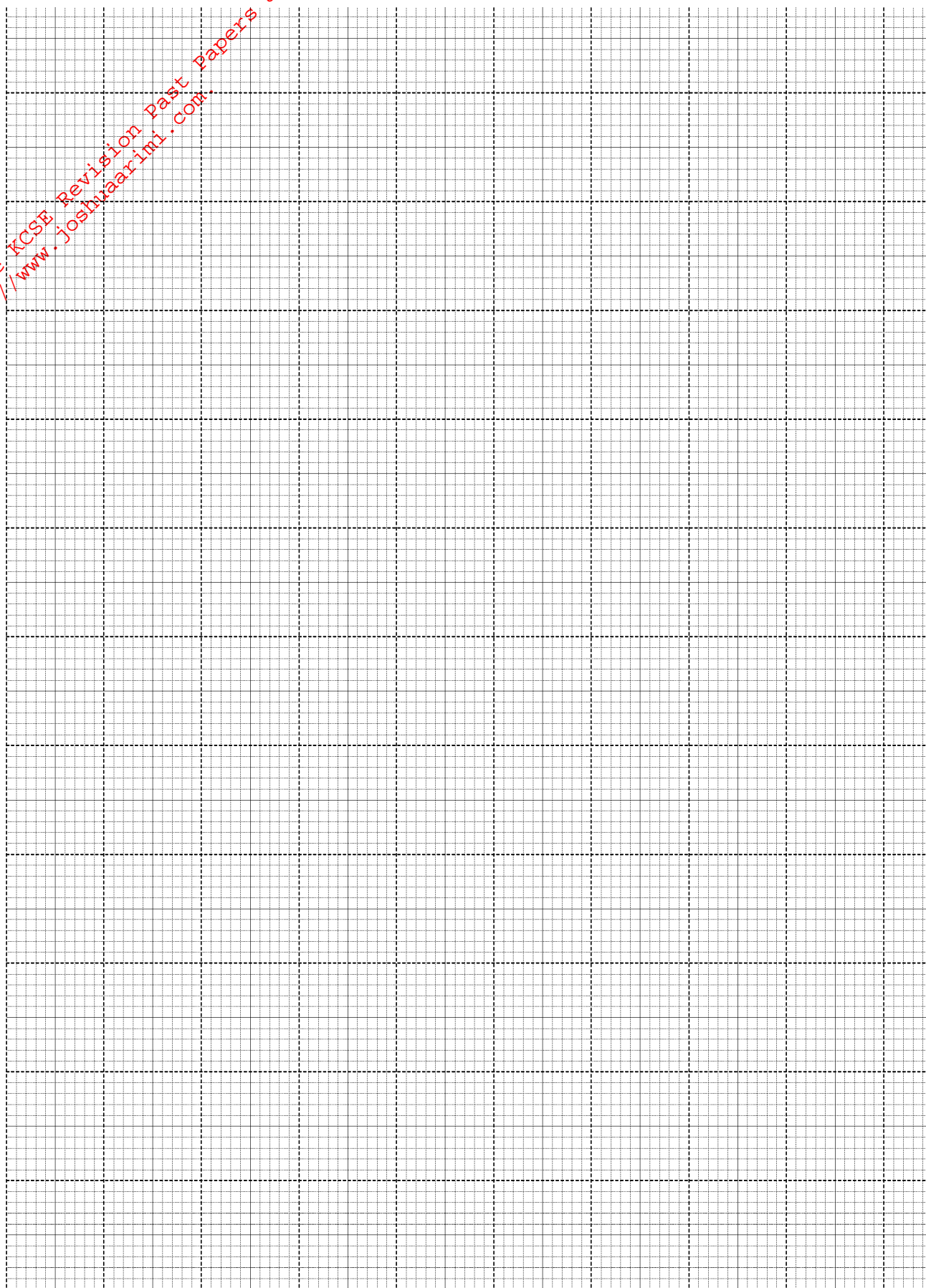


Repeat the procedure above with the following values of X and fill the table.

NB: During each experiment, ensure that the position of the pivot does not change. (3Marks)

| | | | | | | |
|--------|----|-----|-----|-----|-----|-----|
| X (mm) | 50 | 100 | 150 | 200 | 250 | 300 |
| Y (mm) | | | | | | |

iii) Plot a graph of Y against X.



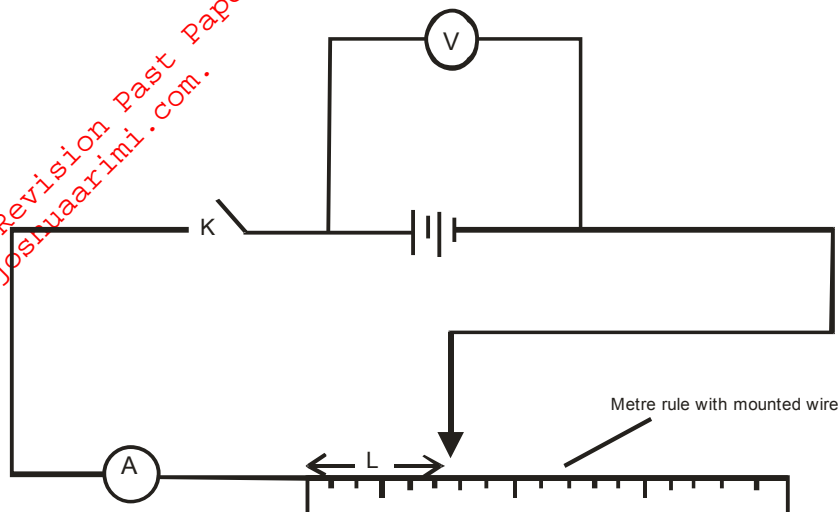
iv) Determine the slope S of the graph.

v) The slope S is given by the equation $S = \frac{W_Y - W_X}{W_Y}$ where W_X is the apparent weight of the mass in liquid L and W_Y is the actual weight. Calculate the value of W_X and the upthrust U . (3 Marks)

vi) Hence determine the density of the liquid L (3 Marks)

QUESTION 2

- a) Connect the circuit as shown in the figure below.

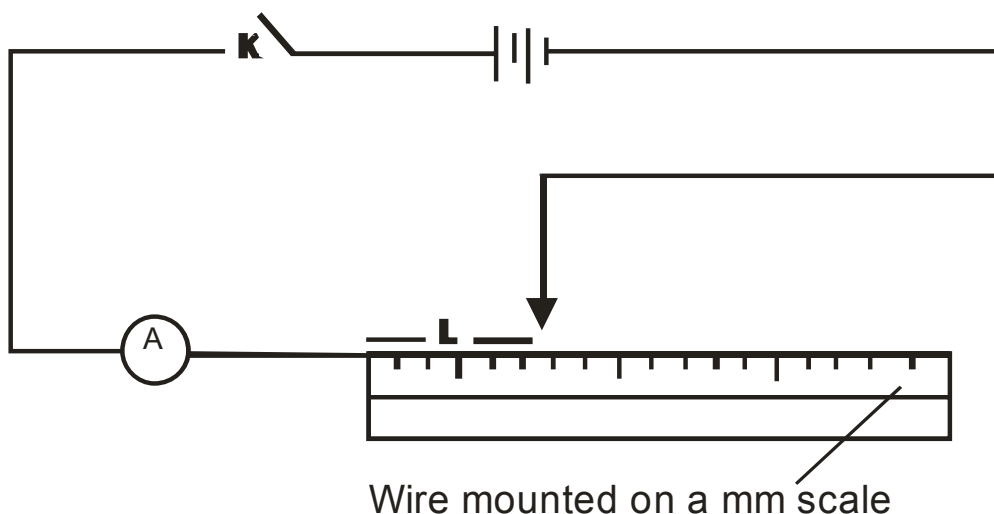


Record the Emf, E of the cells.

(1 Mark)

$E = \dots\dots\dots$ volts

- b) Disconnect the voltmeter and connect the circuit as shown in the figure below.



- c) Adjust the length L of the wire to 0.1m, close the switch k , and read the value of current and record in the table below.

| Length L (m) | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
|-----------------|-----|-----|-----|-----|-----|-----|-----|
| Current I (A) | | | | | | | |
| $-(A^{-1})$ | | | | | | | |

4 Marks

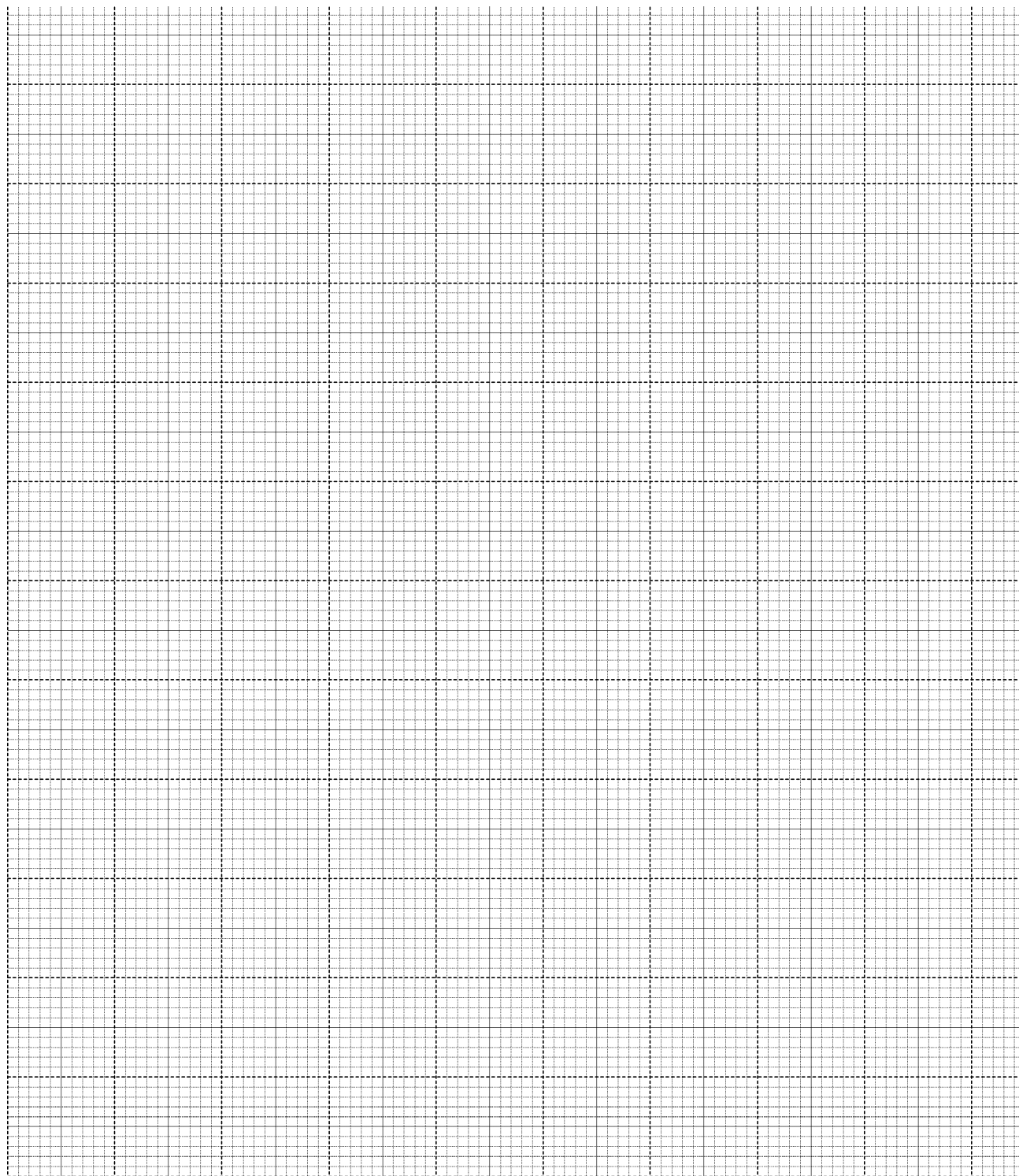
2Marks

- d) Repeat the procedure in (c) above for the value of lengths of L given in the table above.

e) Calculate the values of $\frac{1}{f}$ and record in the table.

f) On the grid provided plot a graph of $\frac{1}{f}$ (Y- axis) against L

(5 Marks)



g) Determine the gradient of the graph

h) i) Measure the diameter of the wire in three points used.

$d_1 = \dots\dots\dots d_2 = \dots\dots\dots d_3 = \dots\dots\dots$

$= \text{————} = \dots\dots\dots$ (1 Mark)

ii) Determine the cross section area, A of the wire (1 Mark)

i) From the equation $- = - + -$

Determine

i) the value of K (2 Marks)

ii) the value of Q (1 Mark)