Name:……..……Admission No……..……...

232/3 Candidate's Signature:……..……..

PHYSICS PRACTICAL

Paper 3 Date:……..……..…..

2018

2 ½ hours

FORM THREE

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

PHYSICS
PRACTICAL
Paper 3
2 ½ hours

INSTRUCTIONS TO CANDIDATES

(a) Write your name and admission number in the spaces provided above.
(b) Sign and write the date of examination in the spaces provided above.
*(c) Answer **ALL** the questions in the spaces provided in the question paper.*
*(d) 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.*
(e) Marks are given for a clear record of the observations actually made, their suitability, accuracy and the use made of them.
(f) Candidates are advised to record their observations as soon as they are made.
(g) Non-programmable silent electronic calculators may be used.
*(h) **This paper consists of 8 printed pages**.*
*(i) **Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing**.*
*(j) **Candidates should answer the questions in English**.*

For Examiner's Use Only

Question 1

	c	d(i)	(ii)	(iii)	(iv)	f	g	
Maximum Score	7	4	2	2	2	1	2	20
Candidate's Score								

Total ☐

Question 2

	b	e	f	g	h	i	k	k	m	
Maximum Score	1	6	4	2	2	2	1	3	2	20
Candidate's Score										

Total ☐

GRAND TOTAL ☐

Question 1.

PART A

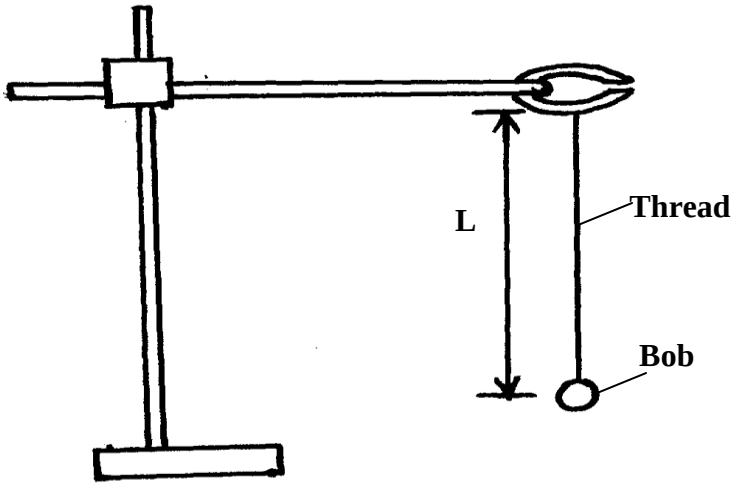
You are provided with the following

- A pendulum bob
- A stop watch
- A metre rule
- A retort stand,boss and champ
- A piece of thread about 1.1m long

Proceed as follows.

a) Set up the apparatus as shown in figure 1 below.

Fig 1



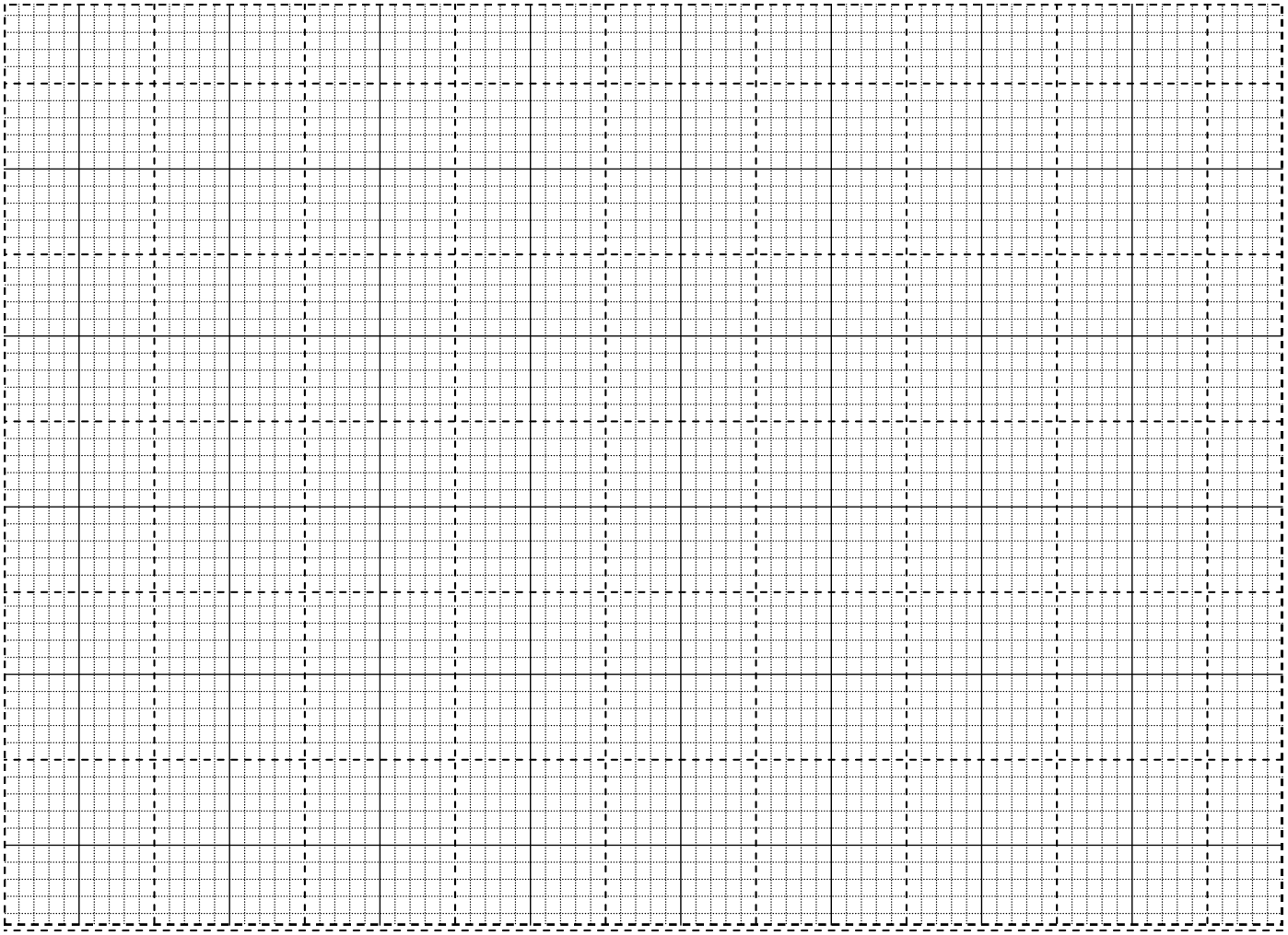
(b) Set the length,**L**, to be 1.0m. Displace the bob slightly through a small angle measure and record in table 1 the time ,**t**, for 10 complete oscillations.

(c) Repeat the procedure in (b) for other values of l as shown in table 1. Complete the table

Table 1.

Length ,**L** (m)	1.0	0.9	0.8	0.7	0.6	0.5
Time **t** for 10 oscillations (s)						
Period,T = t/10s						
Frequency, f (Hz)						
$F^2(Hz)^2$						
$\frac{I}{L}$ (m^{-1})						

d(i) plot a graph of f^2 (y-axis) against 1/L (4mks)



(ii) Determine the slope of the graph. (2mks)

(iii) Given that the equation of the graph is

$$F^2 = \frac{g}{4\pi^2 L}$$

Determine the value of g. (2mks)

(iv) Use your graph to determine the value of **T** when **I/L** = 1.5 m^{-1} (2mks)

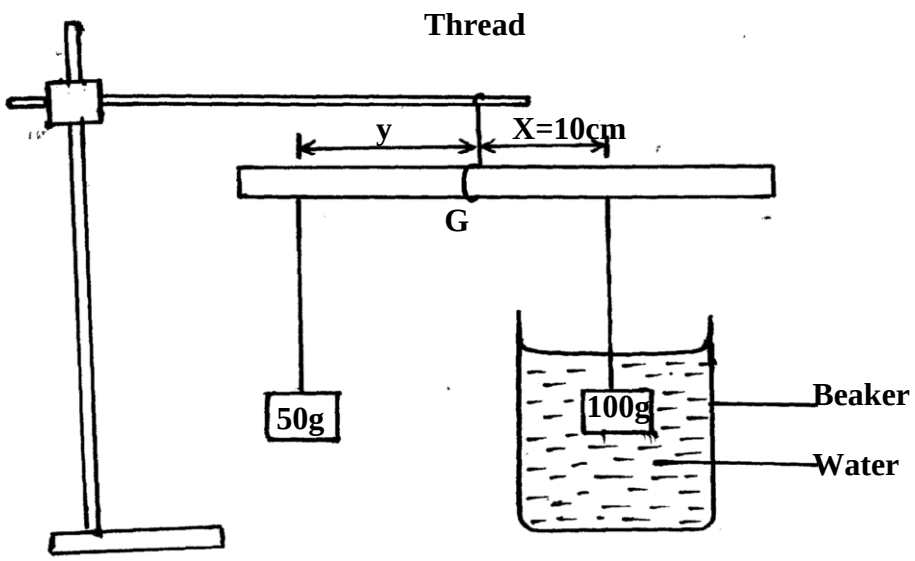
PART B

You are provided with the following
A metre rule
A retort stand, bass and clamp
500ml beaker ¾ full of water
100g mass
50 Mass
Three pieces of thread.

Proceed as follows

(e) Using a piece of thread suspend the metre rule from the clamp on the stand and adjust the position of the thread until the metre rule balances horizontally. Note this position **G** of the metre rule.

(f) Suspend the 100g mass from the metre rule such that x = 10cm from **G**. with the 100g hang the 50g mass from the metre rule and adjust its position until the metre rule balances once more.



Record the value of y

Y=……..cm (1mk)

(g) Use the principle of moments to determine the weight w1 of the 100g mass in water hence determine the upthrust Uw in water (Take g= 10N/Kg)

W_1=……. (1mk)

U_w (1mk)

Question 2

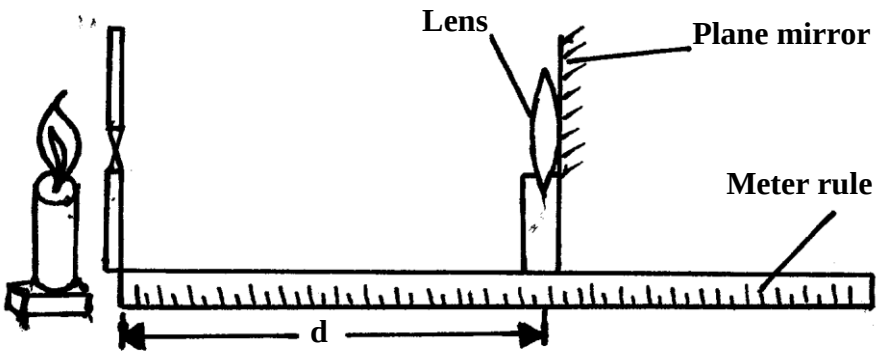
Part A

You are provided with the following

A candle
A plane mirror
A metre rule
A biconvex lens
A lens holder
A cardboard with cross wire at its centre
A white screen
Some cellotape

Proceed as follows:

A (a) Attach the plane mirror to the lens using the cellotape.
Arrange the apparatus as shown in the figure below.

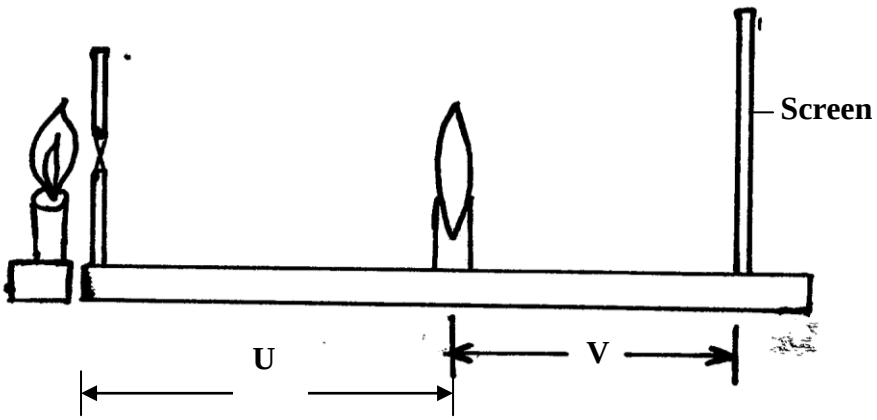


Ensure that the candle flame is at the same height as the cross wires.

(b) Place the cardboard with the cross wires at the 0 cm mark. Move the lens along the metre rule until a sharp image of the cross wires is formed along side the object cross wires. Measure the length, d

D=…….cm (1mk)

(c) Now set the apparatus as shown below



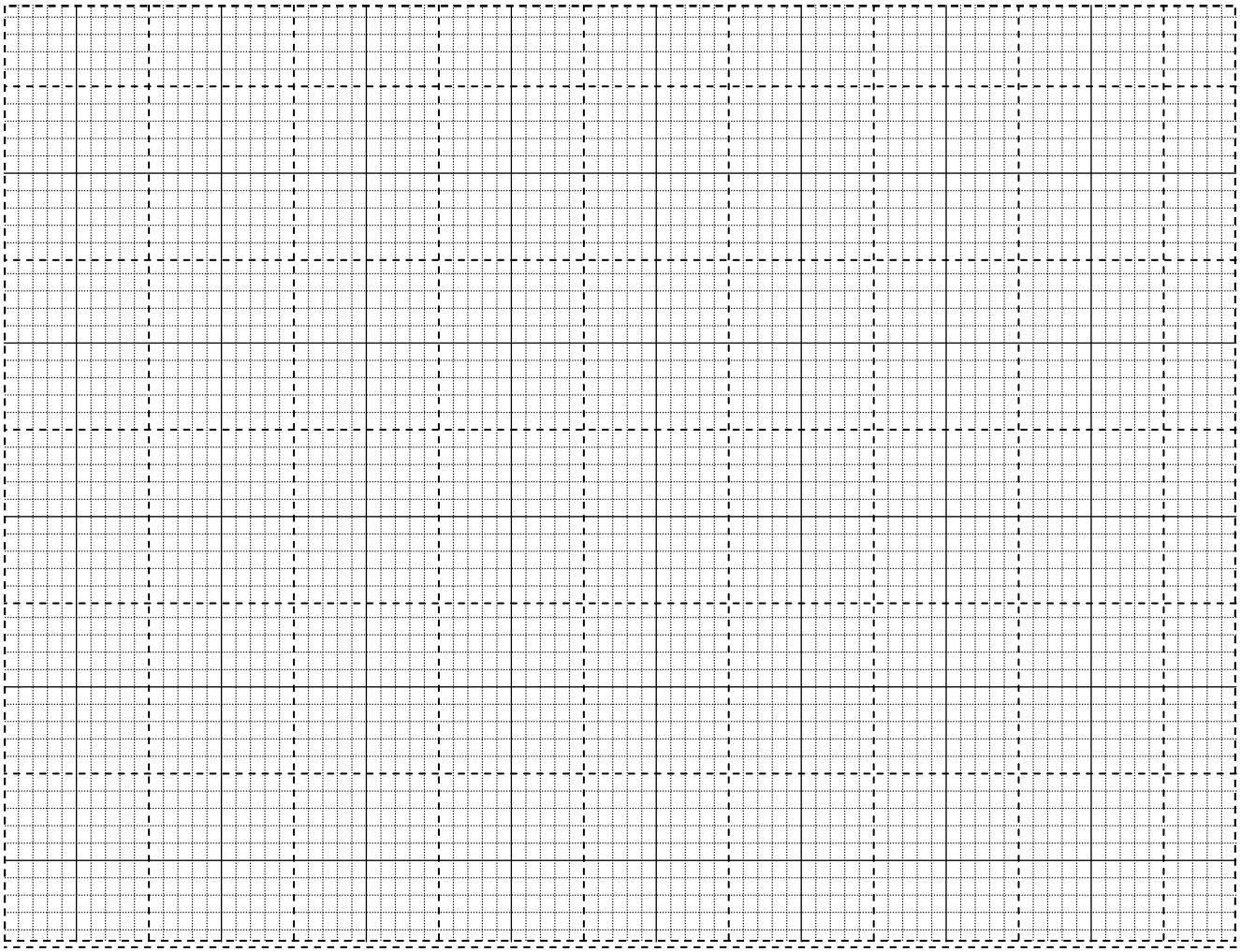
(d) Set u = 20cm and adjust the screen until a clear image of the cross wires appears on the screen. Measure the distance ,V and record in the table Z below.

(e) Repeat the procedure (d) for other values of u and complete the table.

U (cm)	20	25	30	35	40	50
V (cm						
M= $\frac{v}{u}$						

(6mks)

(f) Plot the graph of m (y-axis) against V (4mks)



(g) Determine the slope of the graph (2mks)

(h) Given that the equation for the graph is given by the equation

$m = \frac{v}{n} - 1$ where **n** is a constant, determine the value of **n**. (2mks)

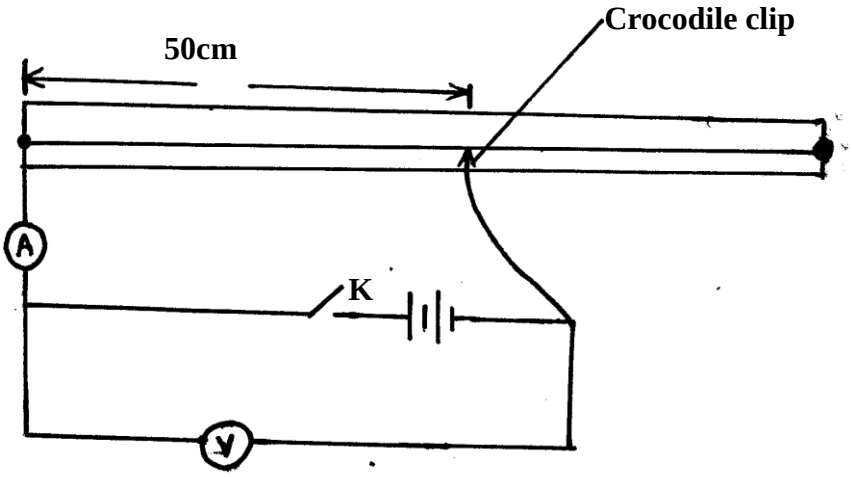
(i)Find the value of **n** when **m** = **o** = (1mk)

Part B

You are provided with the following
Resistance wire mounted on a millimeter scale
A voltmeter
An ammeter
Two new dry cells
Six connecting wires , at least two with crocodile clips
A switch.

Proceed as follows

(i)Set up the circuit as shown in the figure below



(k) Remove the crocodile clip from the resistance wire **PQ** and close the switch **k**. Read and record the voltmeter reading **E**

E =…… volts (1mk)

(l) Attach the crocodile clip to the resistance wire such that l= 50cm. Read and record the voltmeter and ammeter reading when the switch is closed.

Voltmeter reading , V = ……..volts (1mk)

Ammeter reading, I …… (1mk)

(m) Given that $v = \frac{MR}{E-V}$ where $\frac{R}{5} = \frac{V}{I}$ (2mks)

Determine the value of **m**.