Name..... Index Number.....

232/3
PHYSICS PAPER 3
(Practical)
July / August 2011
$2^1/_4$ Hours

NAKURU NORTH JOINT EVALUATION

Instructions to Candidates

- *Write your name and index number in the spaces provided above*
- *Answer **ALL QUESTIONS** in the spaces provided in the question 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 commencing your work.*
- *Marks are awarded for clear record of the observations actually made, their suitability, accuracy and the use made of them.*
- *Candidates are advised to record their observations as soon as they are made.*
- *Mathematical tables and electronic calculators may be used.*

For Examiner's Use Only

Question 1

	b(v)	c(i)	c(ii)	c(iii)	d(i)	d(ii)	d(iii)	
Maximum score	8	5	1	2	1	1	2	
Candidate's score								

Question 2

	a(ii)	a (iii)	a(iv)	a(v)	a(vi)	b(iii)	b(iv)	b(v)	
Maximum score	6	5	2	1	1	3	1	1	
Candidate's score									

Question 1

You are provided with the following apparatus

- Two complete retort stands.
- A metre rule
- Two pieces of thread (120cm and 20cm)
- A stop watch or stop clock
- A piece of masking tape
- A peddling bob – (31.3g)
- A half metre rule
- A piece of masking tape

a) (i)

- Attach one end of string to the metre rule at the 10cm mark by fastening a loop of string tightly round the metre rule.
- Fix the string at this point with a piece of masking tape
- Tie the string in the second loop at 90cm mark. Fix this loop with another piece of masking tape.

ii) Attach the pendulum bob at the centre of the string – so that the centre of gravity of the bob is 15cm below the point of suspension (see figure 1 below.)

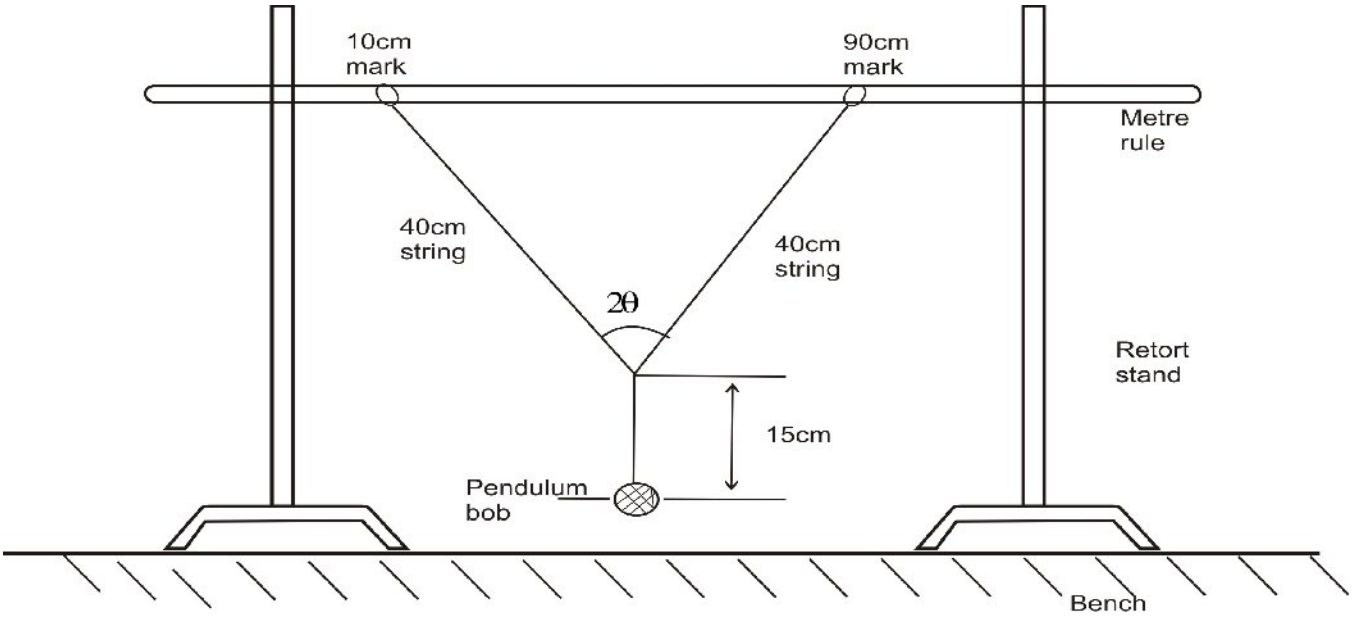


Figure 1

b) (i) Measure the angle 2θ

ii) Pull the pendulum bob towards you through a small distance release it and measure time "t" for 10 oscillations.

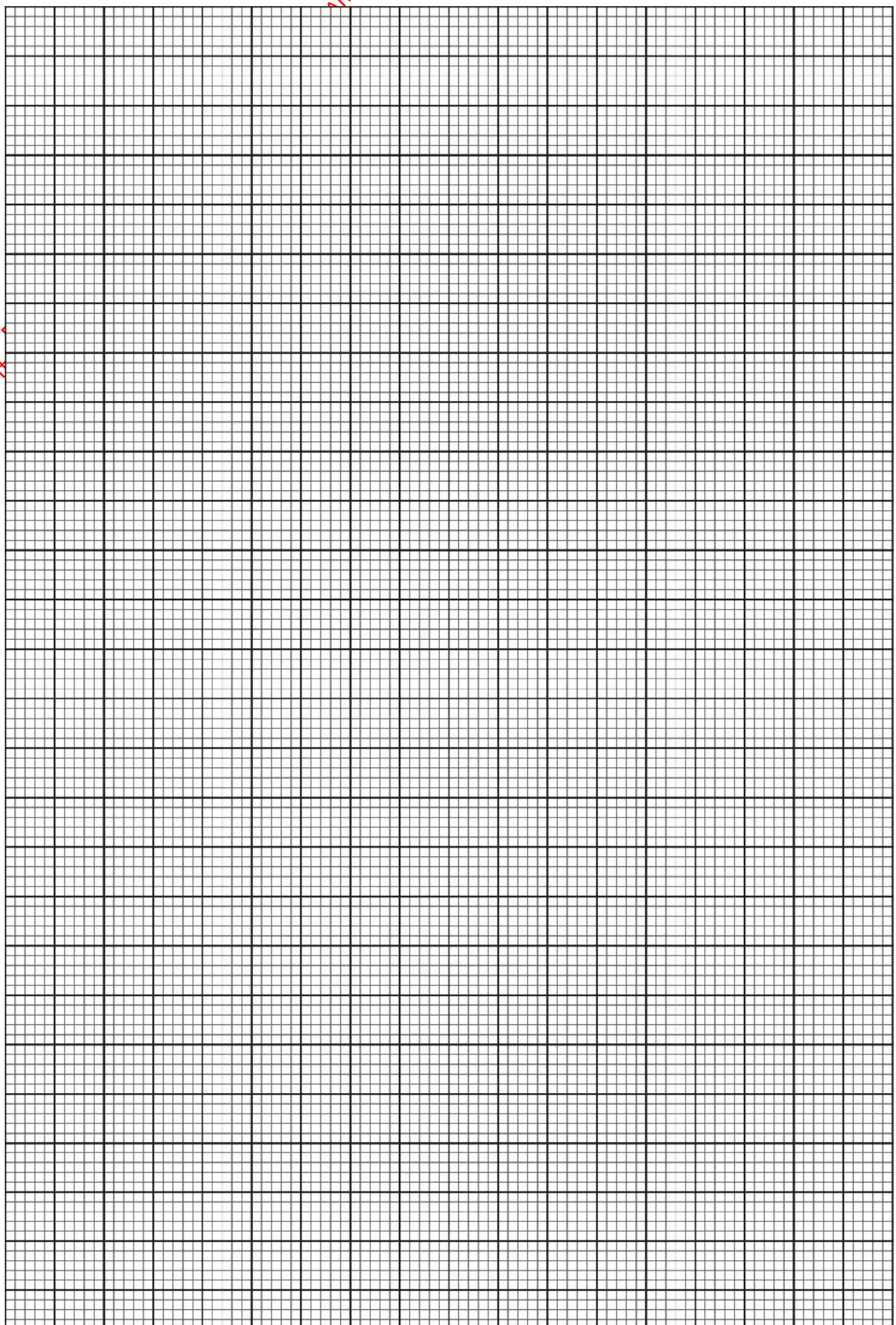
iii) Remove the masking tape; slide the loops to the 12cm and 88cm marks. Refix the masking tape. Measure the angle 2θ and time "t" as before

iv) Report (iii) above with the loops at 15cm and 85cm, 20cm and 80cm, 25cm, and 75cm. 30 and 70cm, 35cm and 65cm marks.

v) Enter all your results in the table below. (8mrks

	10 and 90	12 and 88	15 and 85	20 and 80	25 and 75	30 and 70	35 and 65
2θ							
θ							
$Cos\theta$							
t(s)							
$T = \frac{t}{10}(s)$							
$T^2(S^2)$							

c) i) Plot a graph of T^2 (y-axis) against $Cos\theta$ (5mrks)



ii) Find the intercept on the T^2 axis. (1mrk

iii) Find the slope of your graph. (2mrks

d) i) Measure the length L of the pendulum bob when $2\theta = 0$ in metres. (1mrk

ii) Using your graph, determine the period T of the pendulum when $2\theta = 0$. (1mrk

iii) Using the formular

$T^2 = \frac{KL}{g}$ where K = 39.48

Determine the value of g. (2mrks

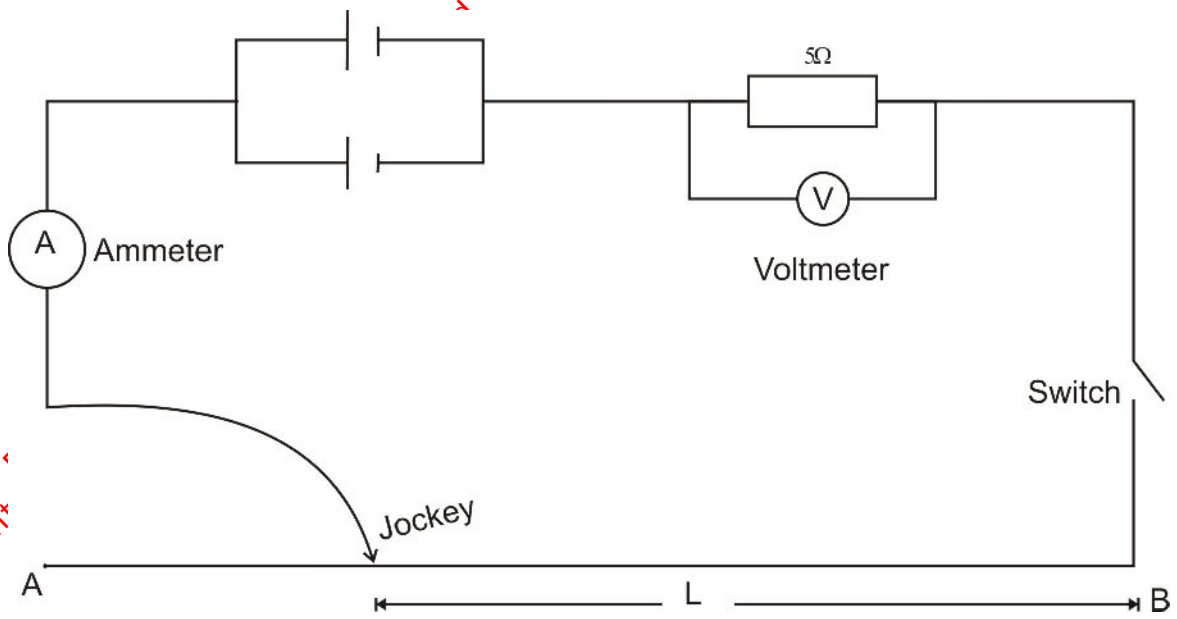
Question 2

You are provided with the following

- Two dry cells
- A nichrome wire, 1m long labelled AB
- Eight connecting wire, one of the length 70cm having a Jockey
- A Carbon resistor 5Ω
- An ammeter (0 – 1.0A)
- A voltmeter (0 – 3V)
- A switch
- Two one cell holders

Proceed as follows

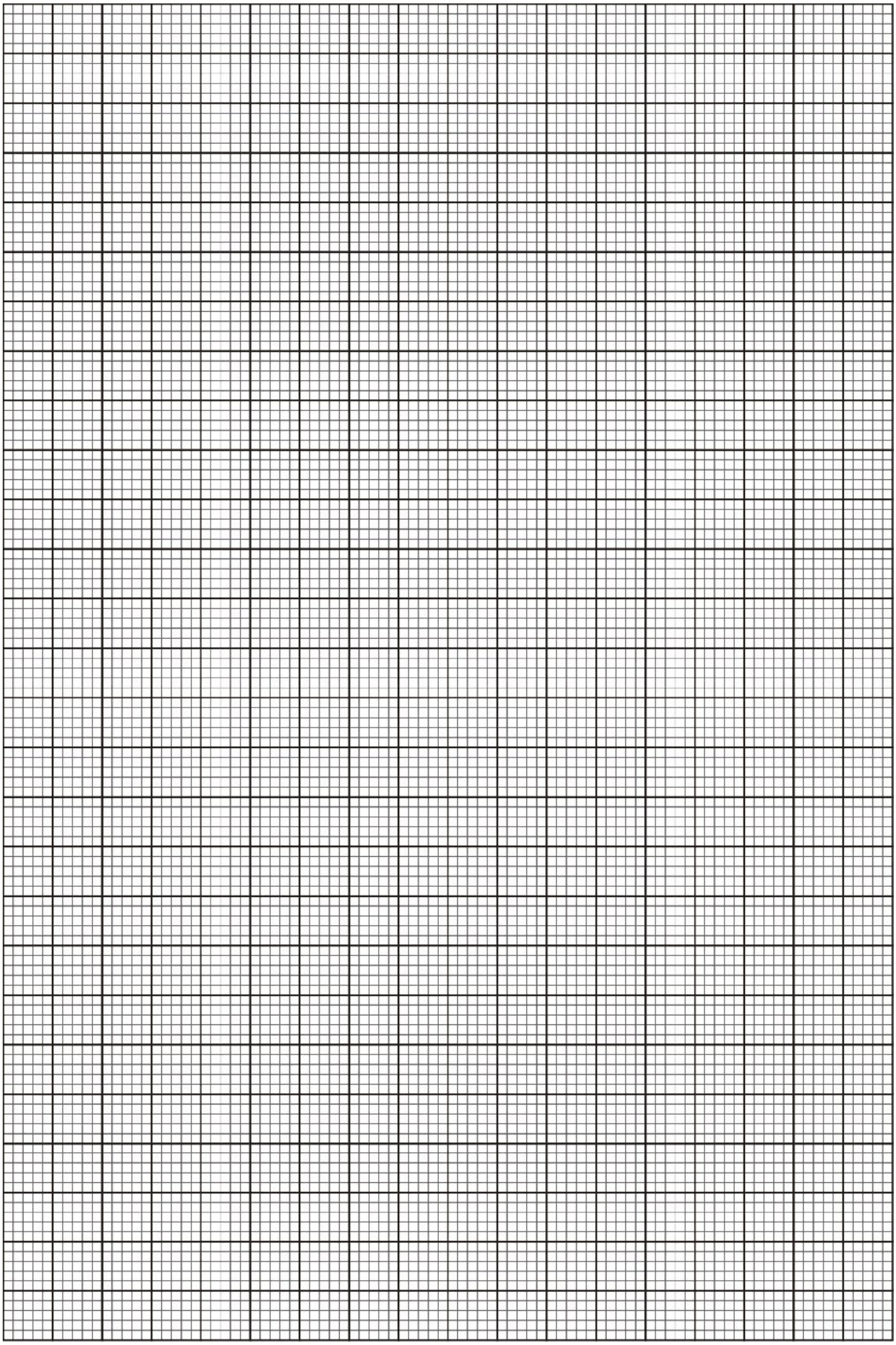
a) i) Set up the circuit below.



ii) With the jockey at A ie L = 100cm, record the voltmeter reading V and the ammeter reading I
Repeat the reading for L= 80, 60, 40, 20 and 0cm and enter your results in the table below. (6mrks

L(cm)	100	80	60	40	20	0
P.d V(volts)						
Current I (A)						

iii) Plot a graph of P.d(V)(y – axis) against the ammeter reading I. (5mrks



iv) Determine the slope of your graph when V= 0.5volts. (2mrks

v) What physical quantity does the slope in (iv) represent. (1mrk

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vi) What happens to this physical quantity named in (V1) above as the current increases. (1mrk

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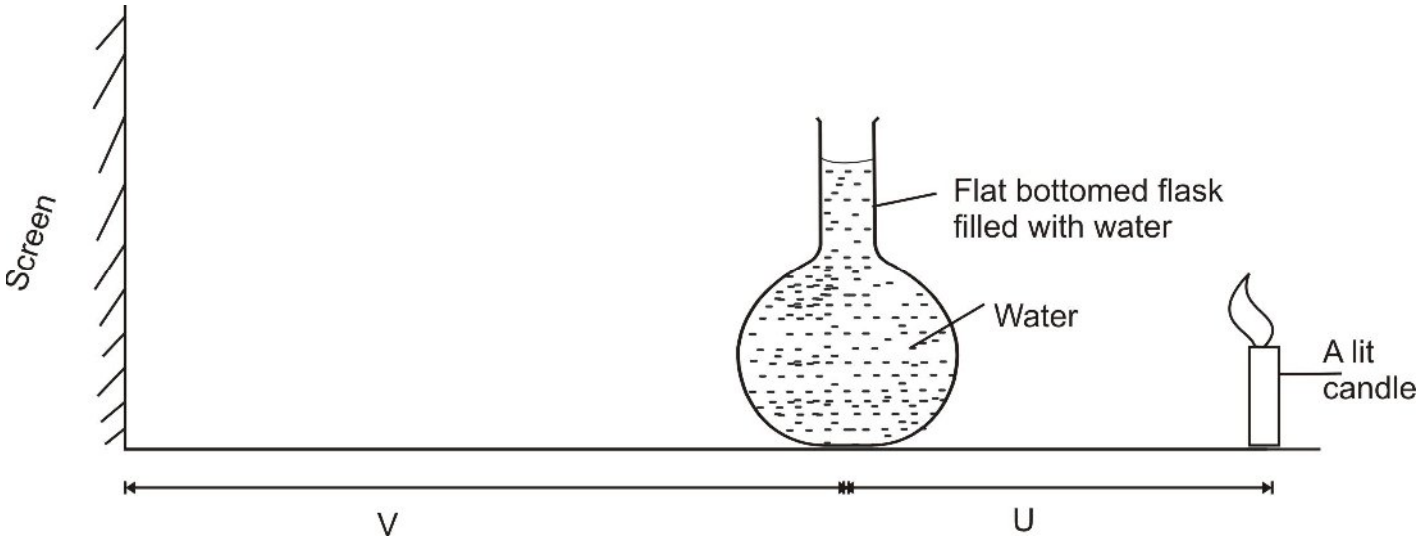
b) You are provided with the following apparatus.

- A lit candle
- White screen
- 250ml flat bottomed flask
- Metre rule
- Access to water.

Procedure;

i) Fill the flat bottomed flask with tap water. Fit the round flat flask in the clamp and follow the procedure.



ii) Starting with distance U = 50cm adjust the screen until you get a sharp image of the flame. Measure the distance V when the image is sharpest.

iii) Repeat the procedure for other values of U as shown in the table below.

U(cm)	50	40	30
V(cm)			
$V/_U = M$			

(3mrks

iv) Determine the average values of $\frac{V}{U}$ and V

V = (½ mrk

$\frac{V}{U}$ = (½ mrk

v) Find the mean value of f from the equation.

$$M = \frac{V}{f} - I$$ (1mrk