

Name:Index.No.

Adm No.....Class.....

School.....Candidate's Signature:

232/3

PHYSICS

PRACTICAL

TIME: 2 ½ HR

RCEA SCHOOLS JOINT EXAMINATION 2026

Instructions

- Write your name, signature and date of examination in the spaces provided at the top of the page.
- Answer **all** the questions in the spaces provided in this paper.
- You are supposed to spend the first 15 minutes of the 2½ hours allowed for this paper reading the whole paper carefully before your start.
- Marks will be given for clear record of 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.
- Electronic calculators and mathematical tables may be used.

FOR EXAMINER'S USE ONLY

Question 1

	c	e	f	g	h
Maximum Score	1	6	5	3	5
Candidate's Score					

TOT

Question 2

	a	b	e	f	g	GRAND TOTAL
						3

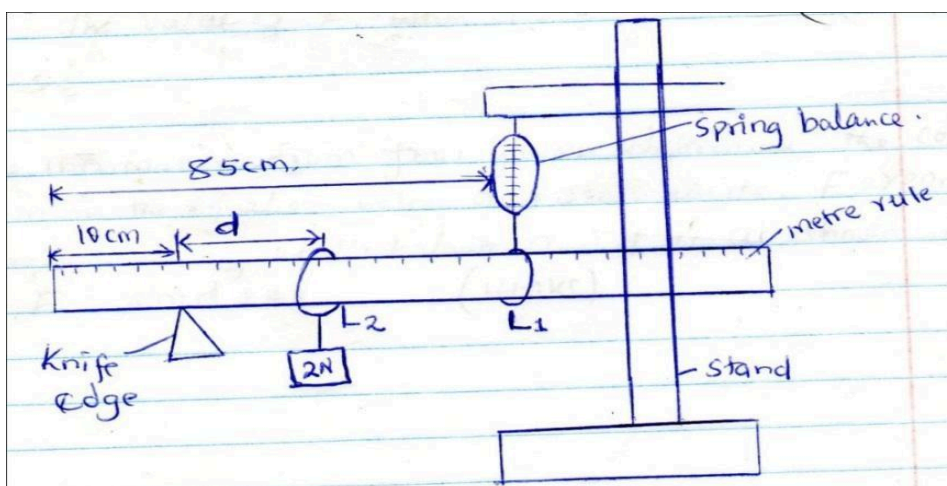
Question 1

You are provided with the following:

- A metre rule
- A spring balance
- A mass of 200g (2N) with a hook or (two 100g masses)
- Stand
- Knife edge support.
- Two light strings about 10cm long.

Proceed as follows:

- Using the string provided make two loops to be used as hooks L1 and L2 in the diagram.
- Suspended the spring balance from a clamp and using one loop to support the rule from the spring so that the loop L2 is on 85cm mark.
- Support the other end of the rule with a knife edge at the 10cm mark so that the rule is horizontal.



- Using loop 1 suspended the 2N weight at a distance $d=10\text{cm}$ from the knife edge as shown and take the reading of the spring balance, record the results in table 1.
- Adjust the distance d to 20cm, 30cm e.t.c and each time record the reading of the balance to complete the table.

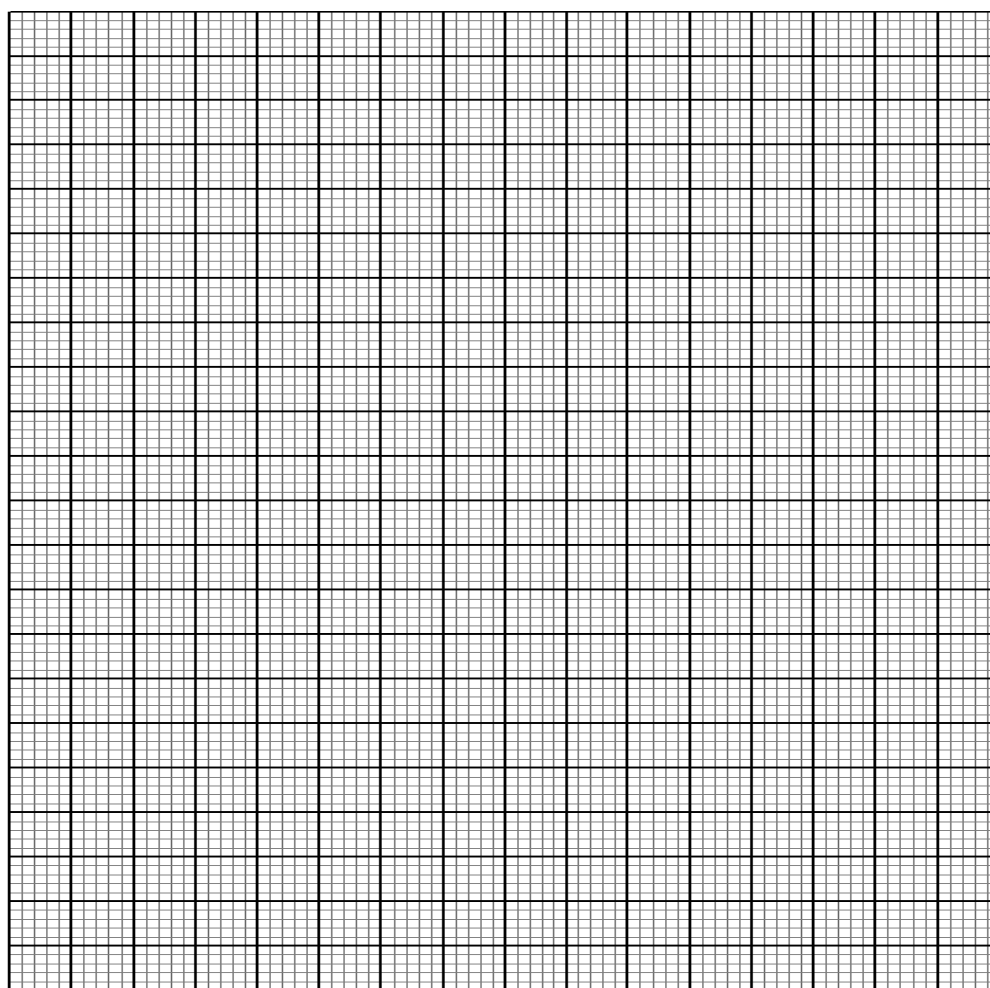
Table 1

	10.0	20.0	30.0	40.0	50.0	60.0	70.0
Distance (d)							
Force (N)							

(7 marks)

(f) Plot a graph of force F against distance d (cm)

(5



marks)

(g) From your graph determine:

i) The slope
(2 marks)

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.....
.....
.....
.....

ii) The value of F when $d=0$
(2 marks)

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- (h) Using the information from your graph, determine the constant **k** and **m** in the equation below and state units, *f* represents the reading of the balance and *d* is as shown in the above. **$F=2md + 40k$** .

(4 marks)

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Question 2

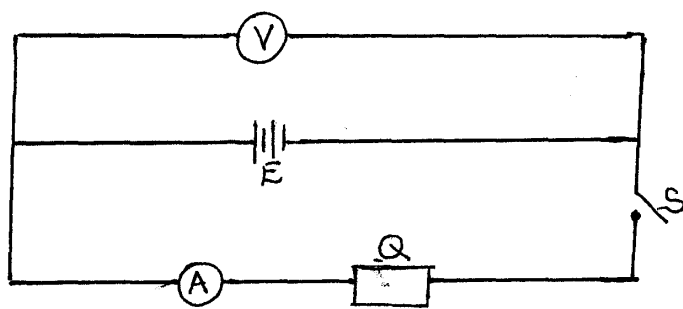
PART A

You are provided with the following:

- Two new dry cells
- A resistor labeled Q
- Wire mounted on a millimeter scale
- 6 connecting wires with crocodile clips on one end of at least three
- A voltmeter
- An ammeter
- A switch

Proceed as Follows:

- (a) Connect the apparatus provided as shown in the figure below.



- (i) Take the voltmeter reading when the switch S is open.

$V_1 = \dots\dots\dots$ volts

(1 mark)

- (ii) Close the switch S, and take the voltmeter reading V_2 and the ammeter reading I_1 ,

$V_2 = \dots\dots\dots$ volts

(1 mark)

$I_1 = \dots\dots\dots$ Amperes

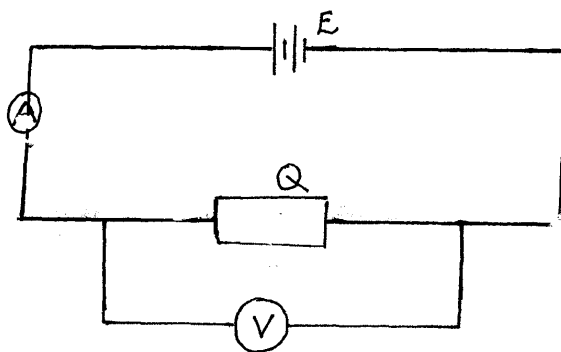
(1 mark)

- (iii) Calculate the quantity $P = \frac{V_1 - V_2}{I_1}$

(2 marks)

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- (b) Set up the circuit as shown in the figure below



- (i) Take the voltmeter reading V and the ammeter reading I . (2 marks)

$V = \dots\dots\dots$

$I = \dots\dots\dots$

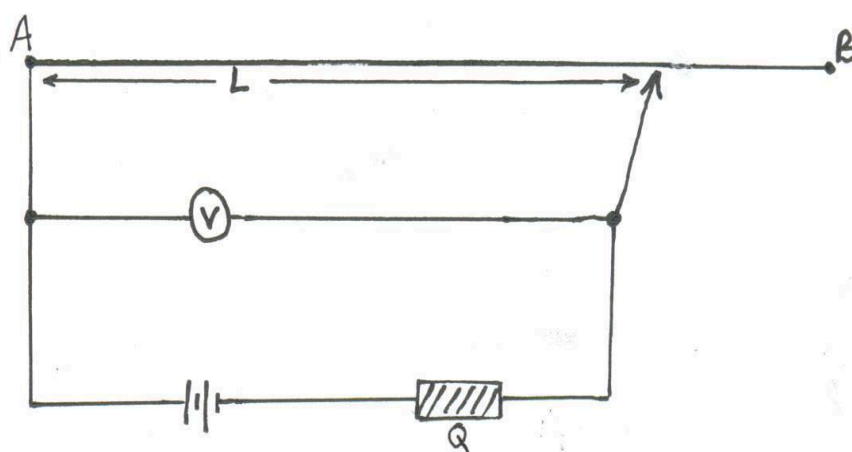
- (ii) Determine the resistance R of Q (2 mark)

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- (c) Set up the circuit shown in the figure below



- (d) Move the crocodile clip along the wire AB to a point such that $L = 100\text{cm}$. Note the voltmeter reading and record in table 2.
- (e) Repeat (d) above for values of $L = 80\text{cm}$, 60cm , 40cm , 20cm and 0 cm , tabulate your results.

Table 2
marks)

(4

Length L (cm)	100	80	60	40
$\frac{1}{L} \left(\frac{1}{cm} \right)$				
Voltmeter Reading (V)				
$\frac{1}{V} \left(\frac{1}{V} \right)$				
$Z = \frac{\frac{1}{L}}{\frac{1}{V}} \text{ (V/cm)}$				

(f) Determine the average value of Z. (2 marks)

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PART B

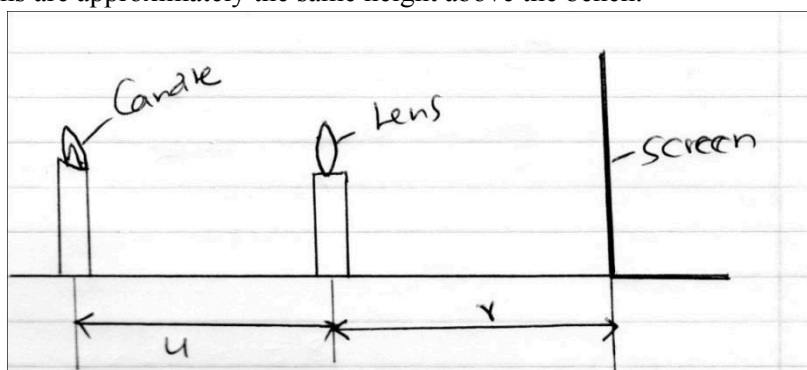
You are provided with the following

- ☐ A candle
- ☐ A lens and a lens holder
- ☐ A screen
- ☐ A metre rule

(g) Determine the focal length, f of the lens by focusing a distant object.

f =cm
 (1mark)

- (h) Set up apparatus as shown in the figure below ensure that the candle flame and the lens are approximately the same height above the bench.



- (i) Set the position of the lens so that it is 40cm from the candle ($u=30\text{cm}$). Adjust the position of the screen until a sharp image of the candle flame is obtained. Measure the distance (v)

$V = \dots\dots\dots$

(1mk)

- (j) I) Given that $q = -\frac{uv}{u+v}$, Determine the value of q .

(2mks)

II) State the significance of $\frac{1}{q}$.

(1mk)

END