Name: …… Index No. ……

Candidate's Sign. ……

Date: ……

232/3
PHYSICS
PRACTICAL
Paper 3
MAY/JUNE 2014
Time: 2 ½ Hours

CROSS COUNTRY EXAM 2014

Kenya Certificate of Secondary Education

232/3
PHYSICS
PRACTICAL
Paper 3
MAY/JUNE 2014
Time: 2 ½ Hours

INSTRUCTIONS TO THE 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 ½ hours allowed for this paper reading the whole paper carefully.
Marks are given for a clear record of the observation 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, slide rules and calculators may be used.
Record your observations as soon as you make them.

For Examiners' Use Only

Question 1	a	c	d	e	f	g
Max. score	1	7	5	3	2	2
Candidate's score						
Total						

Question 2	a	b(iv)	b(ii)	b(iii)	b(iv)
Max. score	4	7	5	2	2
Candidate's score					
Total					

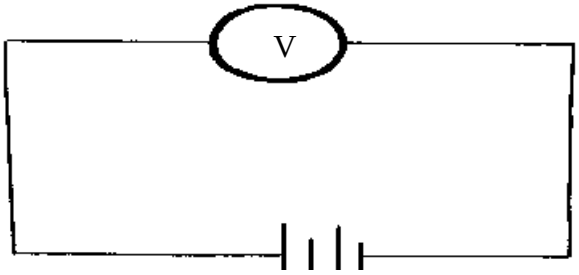
This paper consists of 6 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.

1. ***You are provided with:***

- A resistance wire mounted on millimeter scale
- Two dry cells in a cell holder
- A voltmeter
- Four connecting wires, one with a crocodile clip at one end

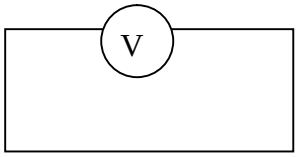
Proceed as follows:-

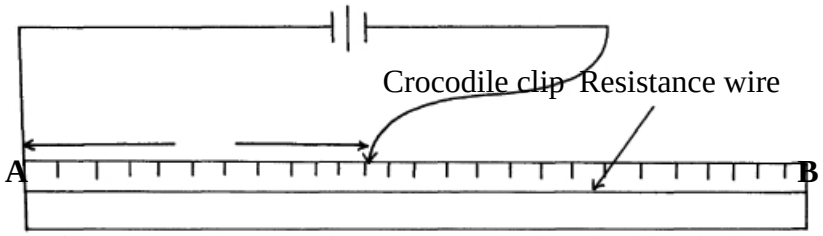
(a) Set up the circuit as in the figure below and determine the total electromotive force E, of the cells. (1mk)



Electromotive force E, of the cells……..……..…..Volts

(b) Set up the circuit shown in the figure below, connect the wire with clip on the mounted wire at a length (L) of 10cm from the end marked A. Record the voltmeter reading in the table provided in part (c) below:





(c) Repeat the procedure in (b) above for the following values of length L: 20cm, 30cm, 40cm, 50cm, and 60cm and complete the table below:

L(cm)	V(volts)	E-V(volts)	$\frac{V}{E-V}$
10			
20			
30			
40			
50			
60			

(d) Plot a graph of $\frac{V}{E-V}$ against L(cm) (5mks)

(e) Determine the slope of the graph. (3mks)

(f) Given the equation $\frac{V}{E- V} = K_1L_1 + K_2$

Determine the values of K_1 and K_2 (2mks)

K_1…… K_2…….

(g) Given that $4K_2r = 10$ where r is the internal resistance of the cells. Determine the value of r. (2mks)

2. ***You are provided with the following apparatus***:

- A candle
- A lens holder
- A convex lens
- A screen
- A metre rule
- An object

Proceed as follows:

Using an object infinity outside the room, focus its image on the screen provided. The image should be as sharp as possible and inverted. Measure the distance from the lens to the screen hcm. Repeat the same for three other values of h. Record your results and then calculate the average value of the three results, Hcm.

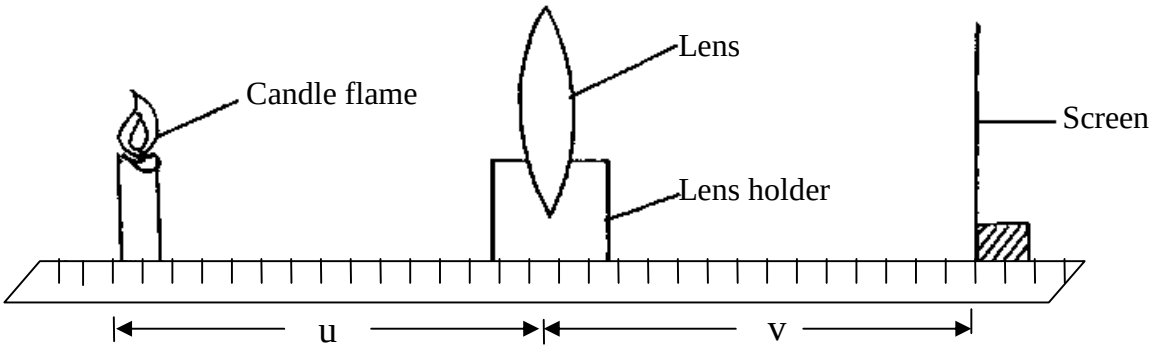
First reading of h……. (1mk)

Second reading of h ……..……..……. (1mk)

Third reading of h ……..…. (1mk)

The average value of h(H) ……... (1mk)

Arrange the candle flame, the lens, and the screen as shown in the diagram below:



b) i) For particular value of u, adjust the position of the screen until a sharp image appears on the screen. Measure distance Vcm. Repeat the experiment for each of the other values of u, and enter the results in the table below: (7mks)

Distance L(cm)	**Distance V(cm)**	**uv(cm^2)**	**U + v (cm)**
12			
15			
18			
21			
24			
27			
30			

(ii) Plot a graph of uv against u + v (5mks)

(iii) From your graph, calculate the slope S (2mks)

(iv) Calculate the value of k given that kH = S (2mks)