

NAME:INDEX NO:.....

SCHOOL:SIGNATURE :.....

DATE:

232/3

PHYSICS

Paper 3 (Practical)

JULY/AUGUST- 2016

Time: 2 Hours

KAKAMEGA SOUTH SUB-COUNTY JOINT EVALUATION TEST – 2016

Kenya Certificate of Secondary Examination (KCSE)

232/3

PHYSICS

Paper 3 (Practical)

INSTRUCTIONS TO CANDIDATES

- Write your name, school and index number in the spaces provided above.
- You are not allowed to start working with the apparatus for the first 15 minutes of the 2¼ hours allowed for this paper.
- 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 tables and electronic calculators may be used in calculations.

FOR OFFICIAL USE ONLY

Question 1	b	d	e	f(i)	f(ii)	f(iii)	TOTAL
Maximum Score	1	7	5	2	2	3	
Candidate's Score							

Question 2	b	e	f(i)	f(ii)	f(iii)	f(iv)	TOTAL
Maximum Score	2	6	5	3	2	2	
Candidate's Score							

GRAND TOTAL

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This paper consists of 7 printed pages Check the Question paper to ensure that all pages are printed as indicated and no question are missing.

I. You are provided with the following:

- A voltmeter
- A capacitor (2200 μF)
- A switch
- A stop watch
- Six connecting wires (4 with clips)
- Two dry cells and a cell holder

Proceed as follows

a) Connect the circuit as shown in figure 1 below.

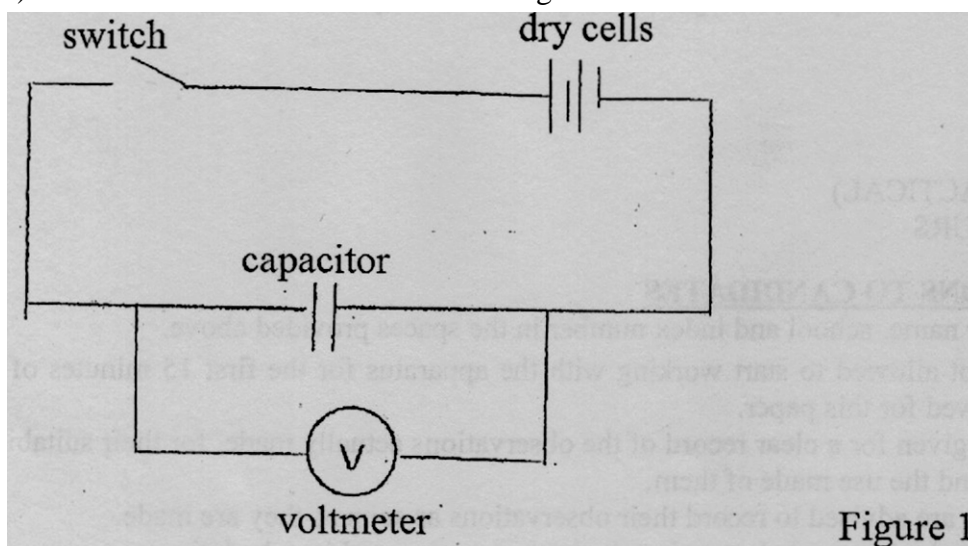


Figure 1

- b) Close the switch, read the maximum voltage across the capacitor. (1 mk)
 V_0 (1mk)
- c) While the voltmeter shows the maximum voltage, open the switch and start the stop watch simultaneously. Stop when the voltage has dropped from V_0 to 2.5V read and record in the table below the time taken
- d) Reset the stopwatch and close the switch. Repeat the procedure in (c) to each of the other values shown in the table. Complete the table. (7 mks)

Voltage V	2.50	2.25	2.00	1.75	1.50	1.25	1.00
Time ,t (s)							
$Q = CV$ (μC)							

- e) Plot a graph of quantity of charge, Q against time t (5mks)



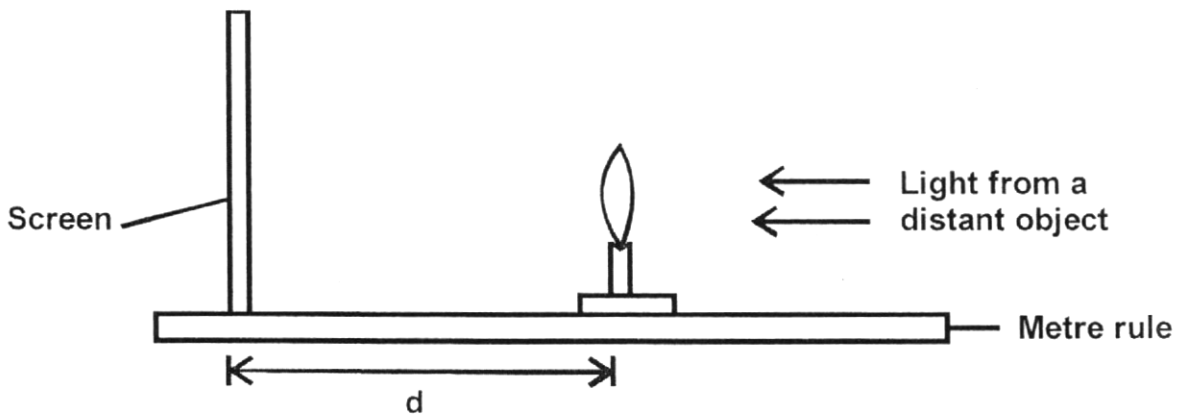
- f) Use the graph to determine the
- Time t , taken for the voltage to drop to half V_0 (2 marks)
 - Resistance R of the voltmeter given that $t=0.693CR$ where C is the capacitance of the capacitor. (2 mks)
 - Current flowing in the circuit at the first half life. (3 mks)

2. You are provided with the following;

- A candle
- A white screen
- A metre rule
- A lens holder
- A piece of plasticine.
- Three labels
- A lens

Proceed as follows:

a) Arrange the apparatus as shown below.

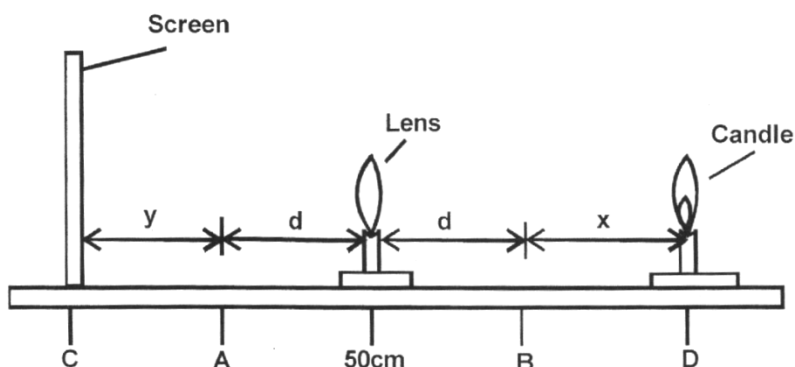


b) Adjust the distance of the lens from the screen until a well-focused image of a very distant object like a tree, is seen on the screen. Record the distance between the screen and the lens as d .

d = _____ cm (1mk)

d = _____ cm (1mk)

- c) Now place the lens at the midpoint of the metre rule.
 (It will remain at this point throughout the entire experiment) Arrange the screen and lit candle as shown below.



Mark the point A and B each of which a distance 'd' from the Lens.

- d) Place the lit candle at point D, 30cm from B. Adjust the position of the screen until a sharp image appears on it. The screen is at C. Measure BD and AC and record them as x and y respectively in the table below.

BD = x (cm)	AC = y (cm)	$\frac{1}{y}$ (cm ⁻¹)
30		
25		
20		
15		
10		

- f) i) Draw a graph $\frac{1}{y}$ (y - axis) against x .



- ii) Determine the slope S of the graph. (3mks)

- iii) Calculate the value of m given that

$$m = \sqrt{\frac{1}{s}}$$

(2mks)

iv) Comment on values of m and d

(2mks)

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