NAME:…… INDEX

NO:…… SCHOOL:…….. ADM

NO:……... STREAM……

DATE:…….

232/3
PHYSICS PAPER 3
(PRACTICAL)
MARCH/ARIL - 2019
TIME: 2 ½ HOURS

TRIAL ONE EVALUATION TEST– 2019

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

232/3
PHYSICS PAPER 3
(PRACTICAL)
MARCH/ARIL - 2019
TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

1. Write your name, admission number, class and other details in the spaces provided above.
2. Answer ALL the questions in the spaces provided in question paper.
3. You are supposed to spend the first 15 minutes of the 2 ½ hours allowed for this paper reading the whole paper carefully before commencing your work.
4. Marks are given for a clear record of the observation actually made, their suitability, accuracy, and the use made of them.
5. Candidates are advised to record their observations as soon as they are made.
6. Non-programmable silent electronic calculators and KNEC mathematical tables may be used.

FOR EXAMINERS USE ONLY.

Question	b	c i	c ii	c iii
Maximum Score	10	5	3	2
Candidate's Score				

Total

Question	a	f	G	h	i
Maximum Score	½	9 ½	5	3	2
Candidate's Score					

Total

This paper consists of 8 printed pages.

Candidates should check the question paper to ensure that all pages are

printed as indicated and that no questions are missing.

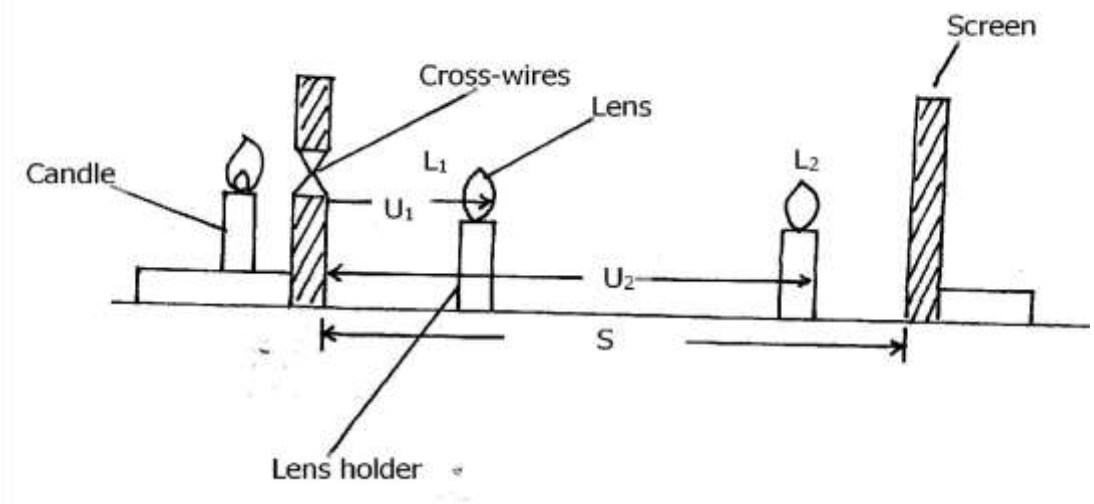
Grand Total

Question one

1. You are provided with the following apparatus
   - A lens
   - Lens holder
   - Candle
   - Screen
   - A screen with a hole having cross-wire
   - Metre rule

   Proceed as follows

   (a) Set up the apparatus as in the figure below with distance S = 42cm



Without changing the distance S move the lens slowly away from cross-wires until a sharp enlarged inverted image is formed on screen position L_1. Measure the distance U_1 from cross-wires to the lens and record this value in table 2. Keeping distance S, constant move the lens away from cross-wires to a new position L_2 where a small sharp inverted image is formed on the screen. Measure the new object distance U_2 and record in table 2. Determine the displacement d of the lens from L_1 to L_2 (i.e $d = L_2 - L_1$)

(b)By setting the distance S to distances 44, 46, 48, 50 and 52cm as shown in table 2 repeat procedure (a). Measure and record the corresponding values of U1 and U2 in table 2

Table 2

S (cm)	42	44	46	48	50	52
U_1 (cm)						
U_2 (cm)						
d ($U_2 - U_1$) (cm)						
d^2 (cm^2)						

S^2 (cm^2)						
$S^2 - d^2$ (cm^2)						

(10mks)

(c) (i) Plot graph of $S^2 - d^2$ against S (5mks)

(ii) Determine the slope of the graph (3mks)

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(iii) Given that $S^2 - d^2 = 4fS$, use your graph to determine the focal length of the lens (2mks)

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QUESTION TWO

2. You are provided with the following:

- a metre rule;
- a retort stand, a boss and clamp;
- three pieces of thread;
- 200m1 of a liquid in a 250ml beaker labelled W;
- 200m1 of a liquid in a 250m1 beaker labelled L;
- Two masses labelled m_1 and m_2. Proceed as follows:

a) Suspend the metre rule so that it balances at its centre of gravity G and record its value

G = ...cm
(½mk)

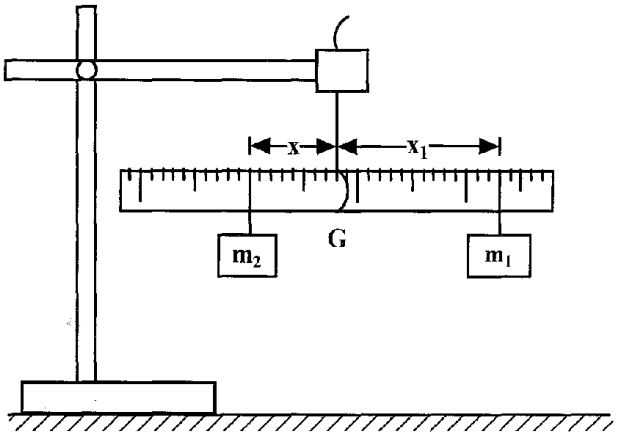

Figure 2(a)

b) Position mass m_2 at a distance x = 5 cm from the centre of gravity G and adjust the position of m_1 so that the metre rule balance at G. Record the x_1 of m_1 from the point G in table 2.

c) While maintaining the distance x = 5cm, immerse m_2 completely in water. Adjust the position of m_1 until the metre rule balances again (see figure 2(b)). Record the new distance x_2.

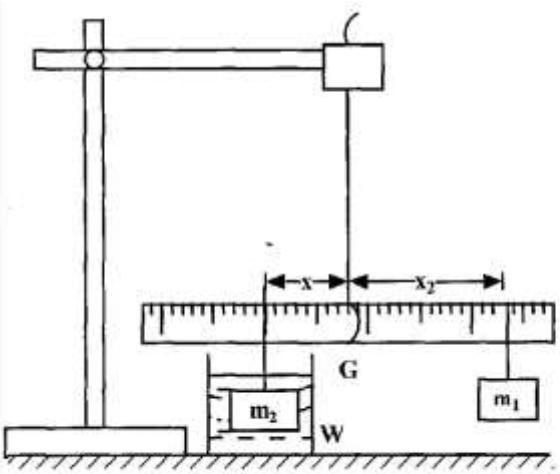

Figure 2(b)

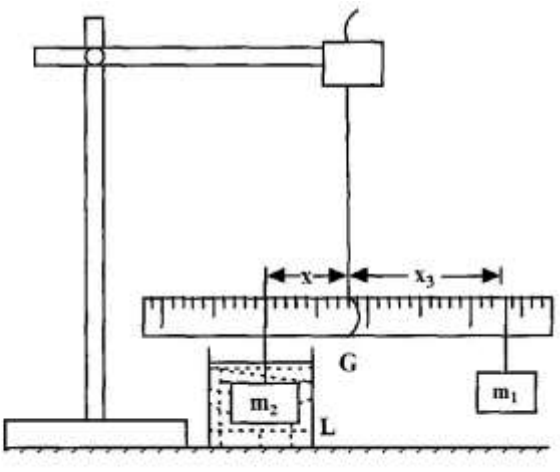

Figure 2(c)

d) Still maintaining the same distance x = 5cm, remove the beaker, W with water and replace it with the beaker L with the liquid. Immerse m_2 completely in the liquid. Adjust the position of m_1 until the metre rule balances again (see figure 2(c)). Record the new distance x_3.

e) Remove mass m_2 from the liquid and dry it with a tissue paper.

f) With the metre rule still suspended from its centre of gravity G, repeat the procedure in (b), (c), (d) and (e) for other values of x given in table 2. Complete the table.

TABLE 2

Distance x (cm)	Distance x_1 (cm)	Distance x_2 (cm)	Distance x_3 (cm)	$L_0 = (x_1 - x_2)$ (cm)	$L_1 = (x_1 - x_3)$ (cm)
5					
10					
15					
17					
20					

(9½ mks)

(g) Plot a graph of L_0(y-axis) against L_1 (5mks)

(h) Find the slope S of the graph. (3mks)

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(i) Find the value of k given that $\frac{L_1}{L_0} = \frac{25}{K}$ (2mks)

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