NAME:…………………………………………………………… INDEX NO:…………………………

SCHOOL:………………………………………………………….. DATE:………………………………

SIGN:………………………………..

232/3
PHYSICS
PAPER 3
(PRACTICAL)
JULY/AUGUST - 2012
TIME: 2 ½ HOURS

BORABU-MASABA DISTRICTS JOINT EVALUATION TEST– 2012

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

232/3
PHYSICS
PAPER 3
(PRACTICAL)
JULY/AUGUST - 2012
TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

1. Write your name admission number and class in the spaces provided above.
2. Sign and write the date of examination in the spaces provided above.
3. Answer ALL the questions in the spaces provided in question paper.
4. 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.
5. Marks are given for a clear record of the observation actually made, their suitability, accuracy, and the use made of them.
6. Candidates are advised to record their observations as soon as they are made.
7. Non-programmable silent electronic calculators and KNEC mathematical tables may be used.

FOR EXAMINERS USE ONLY.

Question	e	f	g	h
Maximum Score	8	5	3	4
Candidate's Score				

Total

Total

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

Grand 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.

1. You are provided with the following:

- seven resistors of resistance; Ry Ω, 10Ω, 10Ω, 22Ω, 39Ω, 10Ω and 4Ω;
- one cell (new size D);
- a switch;
- a jockey;
- a centre zero galvanometer;
- a resistance wire mounted on a millimeter scale;
- eight connecting wires, four with crocodile clips.

Proceed as follows:

(a) Set up the apparatus as shown in **figure 1**.

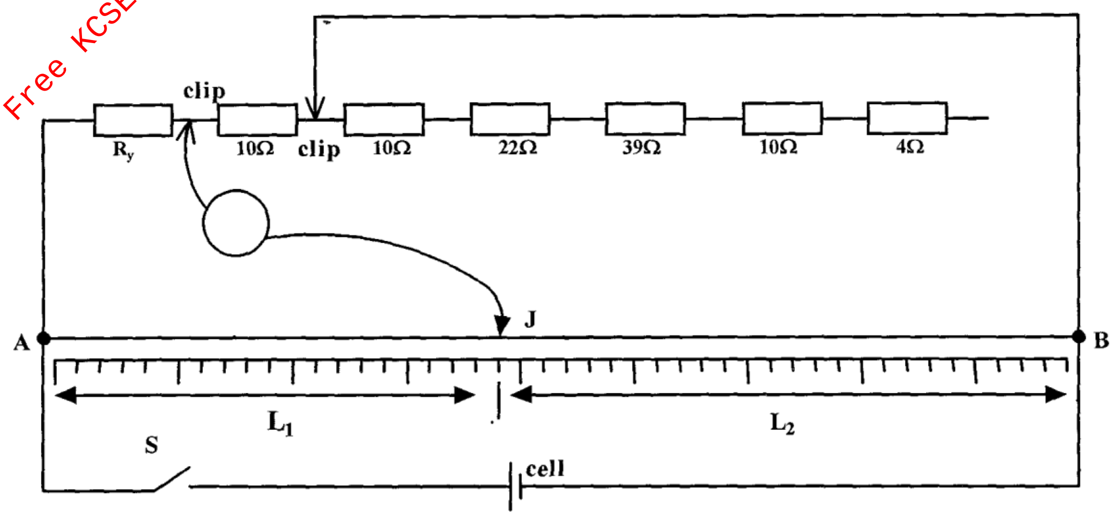

Figure 1

b) Place the crocodile clips as shown such that the resistance between them is 10Ω.

c) Close the switch and adjust the jockey J until there is balance (i.e the galvanometer reading is zero)

d) Measure the distances L_1 and L_2 and record the values in **Table 1**.

e) Repeat the procedure in (b), (c) and (d) above for different values of resistance R as shown in **figure 1** and complete the table.

NB. The values of resistance R can be obtained by placing the crocodile clips at suitable points to give an appropriate combination of resistance R.

Table 1

Resistance R (Ω)	10	20	42	81	91	95
Length L_1 (cm)						
Length L_2 (cm)						
L_2/L_1						

f) Plot a graph of L_2 / L_1 (y – axis) against R. (5mks)

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

....

....

....

....

h) Given the $R = R_y \times (L_2/L_1)$, determine:

(i) the reciprocal of the slope. (2mks)

....

....

(ii) R_y (2mks)

....

....

2. You are provided with the following:

- a metre rule;
- a retort stand, a boss and clamp;
- three pieces of thread;
- 200m1 of water 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 hang the masses as in **figure 2(a).**

G = ...cm (½ mk)

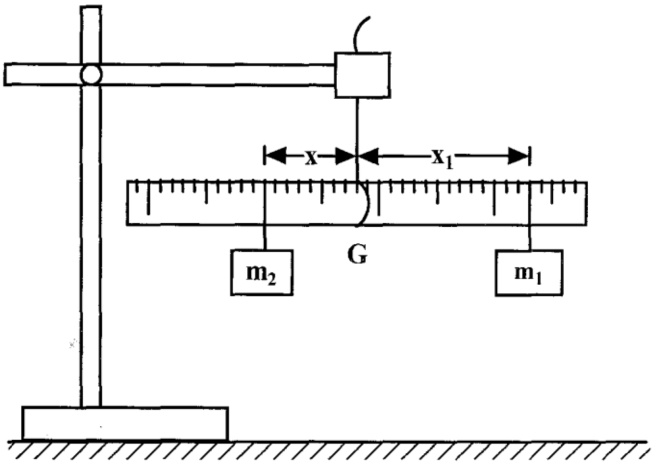

Figure 2(a)

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

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

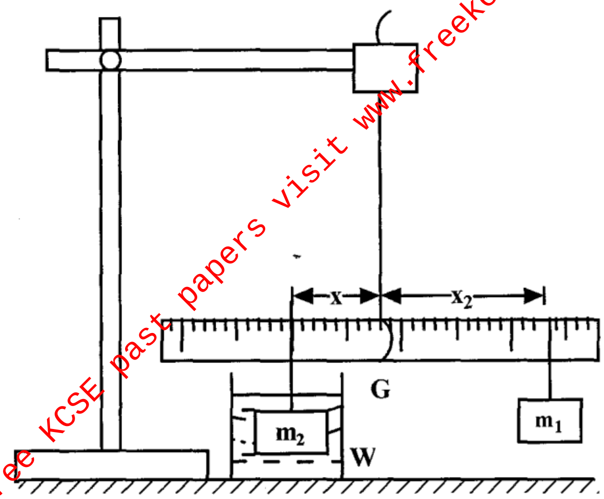

Figure 2(b)

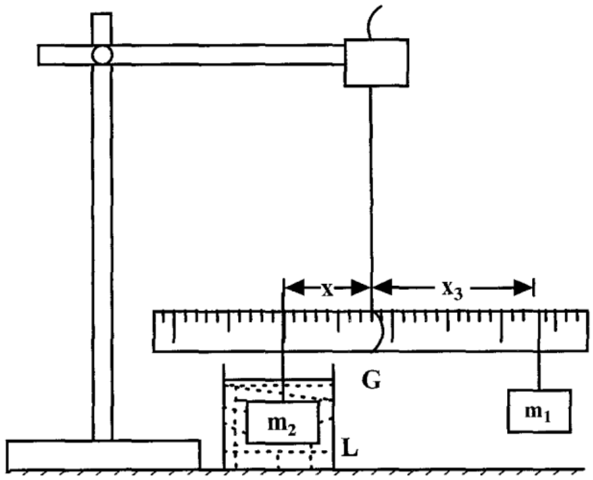

Figure 2(c)

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 $\mathbf{m_2}$ completely in the liquid. Adjust the position of $\mathbf{m_1}$ until the metre rule balances again **(see figure 2(c))**. Record the new distance $\mathbf{x_3}$.

e) Remove mass $\mathbf{m_2}$ 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.

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					

(9 ½ mks)

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

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

....

....

....

....

....

....

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

....

....

....

....

....

....

 End