MUTOMO SUB-COUNTY KCSE REVISION MOCK EXAMS 2015

232/3
PHYSICS
PAPER 3
(PRACTICAL)
TIME: 2½ HOURS

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NAME _____ INDEX NO. _____

SCHOOL _____ SIGNATURE _____

DATE _____

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MUTOMO SUB-COUNTY KCSE PACESETTER, 2015

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

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INSTRUCTIONS TO CANDIDATES

1. Write your name, school and index number in the spaces provided above.
2. Sign and write the date of examination in the space provided above.
3. This paper consists of **two** questions, Question **1** and question **2**.
4. Answer **ALL** the questions in the spaces provided in the question paper.
5. You are not allowed to start working with the apparatus for the first ¼ hours of the 2 ½ hours allowed for this paper. This time is to enable you read the question paper and make sure you have all the apparatus you may need.
6. Marks are given for a clear record of the observations actually made, for their suitability and accuracy and the use made of them.
7. Candidates are advised to record their observations as soon as they are made.
8. Mathematical tables and electronic calculators **may be** used in calculations.

FOR OFFICIAL USE ONLY

Question 1	a	b	c(i)	c(ii)	c(iii)	c(iv)	TOTAL
Maximum score	1	6	3	3	3	2	
Candidate's score							

Question 2	(ii)	(iii)	(iv)	v(a)	v(b)	(vi)	(vii)	(viii)	(ix)	TOTAL
Maximum score										
Candidate's score										

GRAND TOTAL

This paper consists of 7 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing.

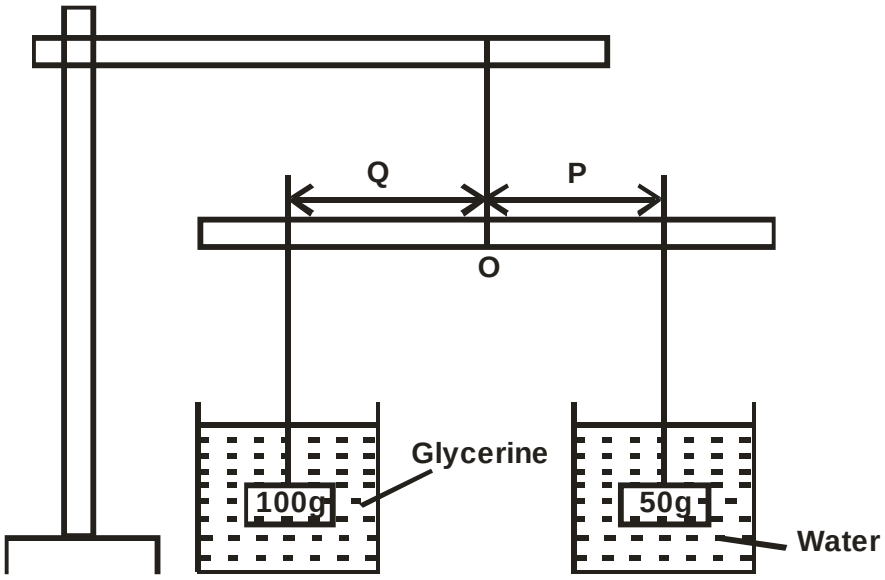
1. a) You are provided with the following:
    1. A metre rule
    2. A retort stand clamp and boss
    3. Water in a beaker
    4. Glycerine in a beaker
    5. Pieces of thread
    6. One 100g mass and one 50g mass.

Procedure

1. Balance the metre rule horizontally by suspending it from the stand and clamp with one thread. Record the balance point O.
O = _____ cm. (1 mark)

Note;
This point of support should be maintained throughout the experiment.

2. With the 100g mass completely immersed in glycerine, suspend it from one side of the metre rule at a point Q = 5cm from the point of support O. With the 50g mass also completely immersed in water hang it from the other side of the metre rule and adjust its position until the system is in equilibrium as shown in the figure below.

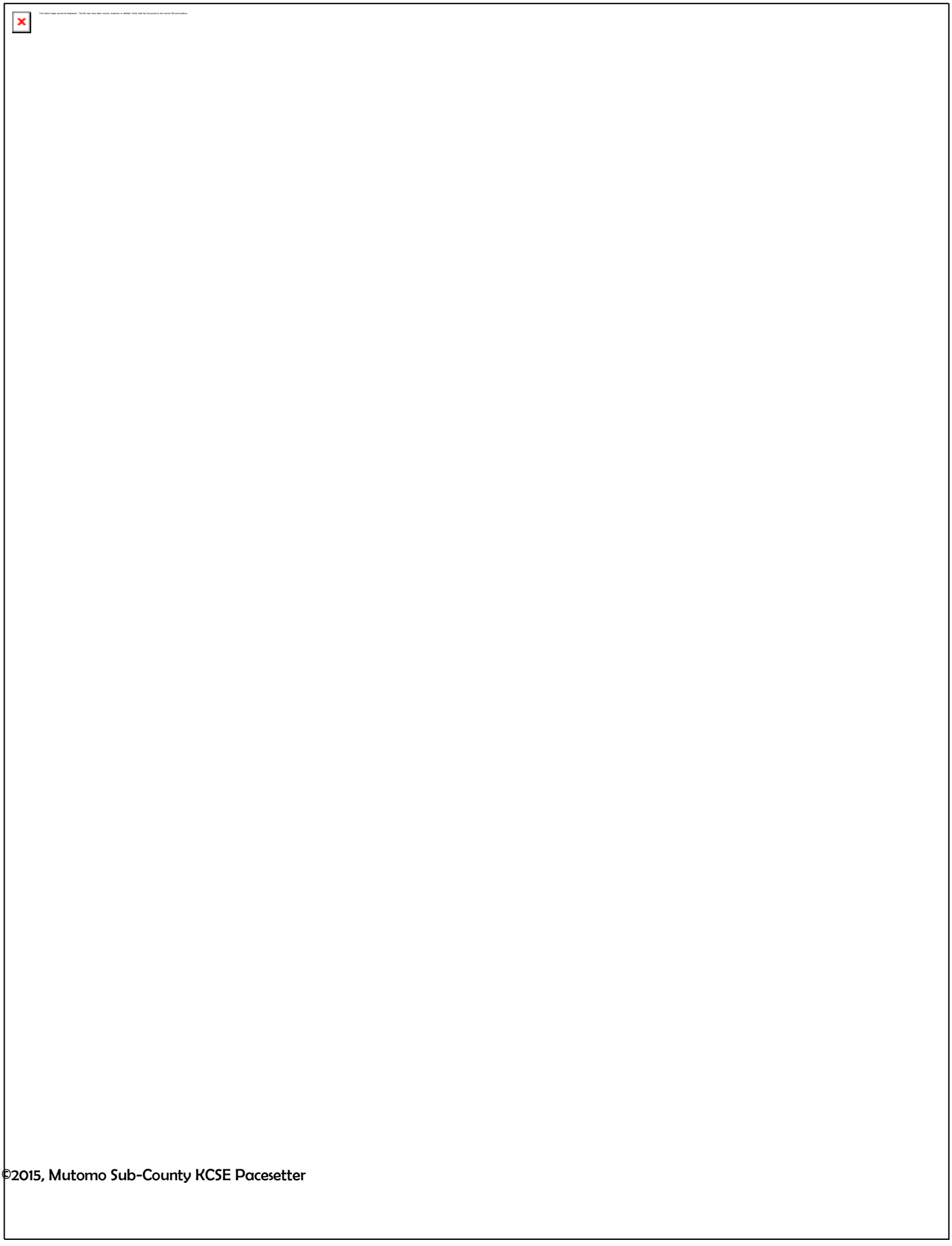


Read and record the point of suspension of the 50g mass. _____ cm. (1 mark)
Repeat the procedure for values of Q = 10cm, 15cm, 20cm, 25cm and 30cm. Record the corresponding values of P in the table below. (5 marks)

Q (cm)	Point of suspension of the 50g mass	P (cm)
10		
15		
20		

25		
30		

3. (i) Plot a graph of P against Q on the grid provided. (5 marks)



ii) Determine the slope S of the graph. (3 marks)

1. Find the density of the liquid (d) given that

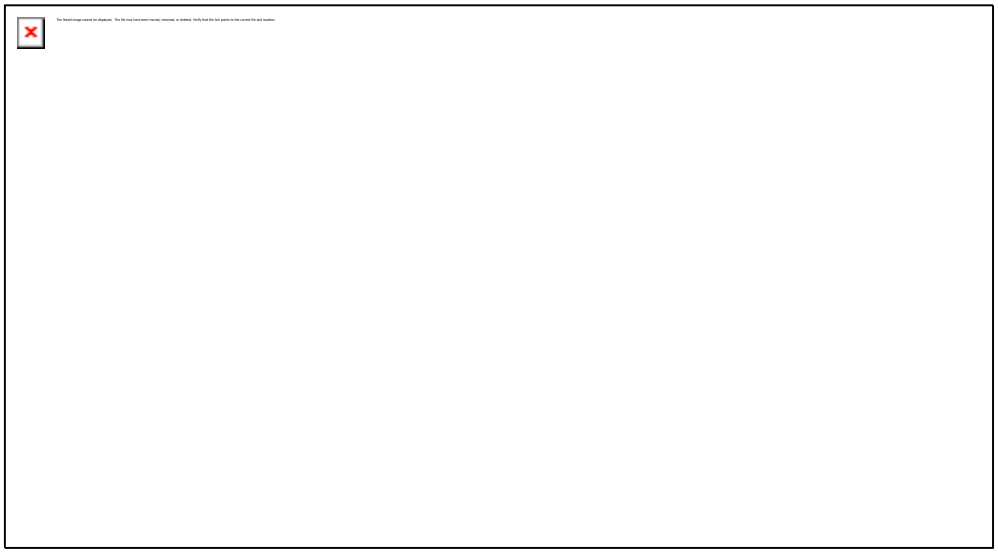
$$S = \frac{0.78 - 1.4 \times 10^{-1} d}{0.32}$$ (3 marks)

2. Determine the relative density of the liquid. (2 marks)

3. You are provided with the following:
   1. Two dry cells and two cell holders
   2. 1m long nichrome wire labelled AB, mounted on a millimeter scale.
   3. 8 connecting wires, one of length 70cm having a jockey.
   4. A micrometer screw gauge.
   5. A torch bulb and a bulb holder
   6. An ammeter (0-1.0A)
   7. A voltmeter (0-3.0V)
   8. A switch.

Proceed as follows:

1. Set-up the circuit as shown in the figure below.



2. With the jockey (J) at A i.e. L = 100cm, record the voltmeter and the ammeter readings.

   Voltmeter reading _____ V

   Ammeter reading _____ A (1 mark)

3. Repeat the readings for L = 80cm, 60cm, 40cm, 20cm and 10cm and enter your results in the table below.

Length, L (cm)	100	80	60	40	20	10
P.d (V)						
I(A)						

(4 marks)

4. Plot a graph of p.d, V (y- axis) against I in the grid provided. (5 marks)

5. a) Determine the slope of your graph when V = 0.5V. (3 marks)

b) What physical quantity does the slope in (a) above represent? (1 mark)

_____

6. With the same apparatus above, draw a diagram of the circuit you would use to determine the current through the resistance wire AB and the p.d across it when the cells are now in series. (2 marks)

7. Set-up the circuit you have just drawn and record the current, I and p.d, V when L =100cm.

V _____ V

I _____ A (1 mark)

8. Using the micrometer screw gauge, measure the diameter, d of the wire AB.

d = _____ cm. (1 mark)

9. Calculate the quantity, S, given that $S = \frac{\pi V d^2}{4IL}$ (2 marks)