NAME: -- INDEX NO: -----------------------------------

SCHOOL: --- TIME: --

232/3
PHYSICS
PAPER 3
PRACTICAL
JULY/AUGUST 2013
TIME: 2 ½ HRS

LARI SECONDARY SCHOOLS JOINT- DISTRICT MOCK
KENYA CERTIFICATE OF SECONDARY EDUCATION
PHYSICS PAPER 3
(PRACTICAL)

INSTRUCTION TO CANDIDATES

- Write your name and index number in the spaces provided above.
- Answer ALL the questions in the spaces provided.
- You are supposed to spend the first 15 Minutes of 2 ½ hrs allowed for this paper reading the whole paper carefully before commencing your work.
- Marks are given for clear record of the observation actually made, their suitability, accuracy and the use made of them.
- Candidates are advised to record their observation as soon as they are made.
- Non-programmable silent electronic calculator and knec mathematical tables may be used except where stated otherwise.

FOR EXAMINER'S USE ONLY

Question 1.

MAXIMUM SCORE	b	d	e	f	TOTAL	
CANDIDATE'S SCORE	9	6	3	2		

Question 2.

MAXIMUM SCORE	a	b	C(i-ii)	C(iii-iv)	TOTAL	
CANDIDATE'S SCORE	1	5	7	7		

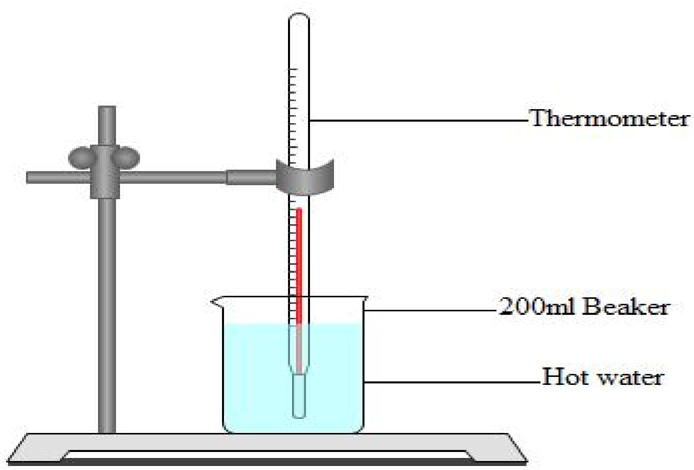
OVER ALL TOTAL	

1. You are provided with following:-

A thermometer (-10^0c to 110^0c)
1 retort stand
A clamp and a boss
Cotton wool
A rubber band
Access to hot water 80^0c to 100^0c
A 100ml beaker
A stop watch

PART 1

a) Clamp the thermometer vertically. Fill the beaker with the hot water. Lower the thermometer into the hot water as shown in the figure below.



Measurer the temperature, ϴ, of the water and record in the table below at time t = 0

b) Raise the thermometer from the hot water and move it away from the beaker. Start the stopwatch. Measure and record the temperature of the thermometer bulb after 30 s and continue recording the temperature 30 s intervals for about 4 minutes. Enter your results in the table below.

(9marks)

Time, t (s)	**Temperature, ϴ (^{0}c)**	
	Part 1	**Part 2**
0		
30		
60		
90		
120		
150		
180		
210		
240		

Empty the beaker

PART 2

c) Wrap the bulb of the thermometer with cotton wool and tie the cotton wool with the rubber band. Repeat part (a) of the experiment by placing the thermometer in the beaker of hot water. Start the stopwatch when the temperature, Θ, of the hot water is the same as in part (a).

d) On the grid provided, plot a graph of Θ (Y-axis) against time for the thermometer readings of part (a). Label the graph as G_1.

e) On the same axis above plot a graph of Θ against time for the thermometer readings of part 2. label the graph as G_2
(3 marks)

f) By analyzing the graphs, state and explain in which thermometer the rate of cooling is faster. (3 marks)

2. You are provided with the following apparatus.

- Meter rule

- Knife edge

-One 100g mass

-One 50 g mass

-Two 20g masses

- One 10g mass

Two strings (about 30cm each)

PROCEDURE

(a) Set the meter rule in equilibrium. Record the point of balance X of the meter rule (when no mass is attached)

X=………………………………………………………………………….cm (1 mark)

(i) Arrange the apparatus as shown below.

(ii) Place the 100g mass, M_1 at the 20 cm of the meter rule with the aid of the thread .The knife edge is placed at the 40cm mark of the meter rule.

(iii)Balance the meter rule by using the mass m_2 =50g. Record the distance d, in cm for the 100g mass M_1.

(b) Repeat the procedure (iii) and (iv) for different masses as shown in the table below.

Mass M_1(g)	100	120	150	170	140
Distance d (cm)					

Complete the table. (5marks

(c) (i) On the grid provided, plot the graph of M_1 (vertical axis)against d.(5marks)

(ii) Determine the gradient of the graph. (2 marks)

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(iii) Given that the equation of the graph is given as;

$$M_1 = \frac{m2d}{k} + \frac{m(x-40)}{k}$$

K (3marks)

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m (3 marks)

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(iv)What does the value for m represent? (1 mark)