KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

ALLIANCE BOYS HIGH SCHOOL
232/1
PHYSICS
PAPER 3
MARKING SCHEME

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ALLIANCE BOYS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 3

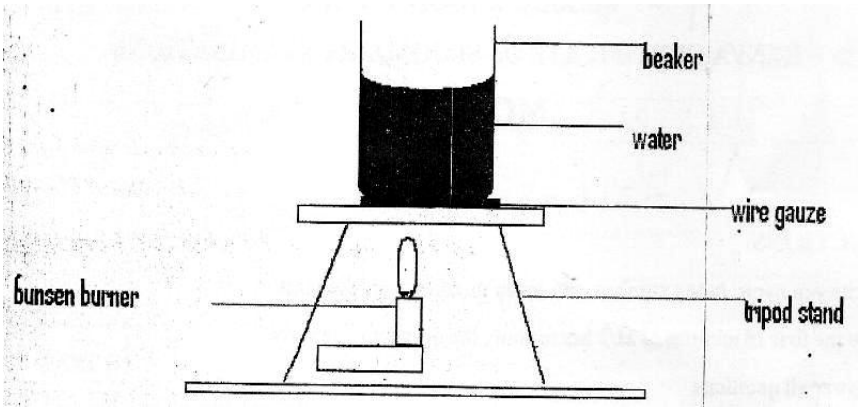
MARKING SCHEME

QUESTION ONE

You are provided with the following;

- A 40ml glass beaker
- A Bunsen burner
- A thermometer
- A stop watch
- A tripod stand and a measuring cylinder 100ml
- A wire gauze
- A source of heat

Set up the apparatus as shown in the diagram below.



Measure 100cm^3 of water and pour it into the beaker. Take the initial temperature of the water.

To ***27^0C*** (1 mark)

Now heat the water to a temperate of 90^0C. switch off the gas tap and place a thermometer into the beaker and start the stop watch when the temperature is 650C. Take the temperature T^0C of water every two minutes.

Record your results in the table below.

Time (t) (min)	2	4	6	8	10	12	14
Temperature (T) ^{0}C	60	57	54	52	50	48	47
$(T - T_0)^0$	33	30	27	25	23	21	20
Log $(T - T_o)$	1.5185	1.4771	1.4314	1.3979	1.3617	1.3222	1.3010

(ii) Find the value K of log ($T - T_0$) when t = 0 (2 marks)

K = 1.56 shown the graph

Determine the antilog of K. (2 marks)

Antilog K = 36.31

(iii) Calculate the temperature of the surrounding TR using the expression Antilog K = 65 - T_R (3 marks)

36.31 = 65 – TR

TR = 65 – 36.31

TR = 28.69^{0}C

QUESITON TWO

This question has two parts A and B. answer both parts

PART A

You are provided with the following:

- A meter rule
- Two identical 100g masses
- About 200ml of liquid L in 250ml beaker
- Three pieces of thread, each about half metre long
- Stand with clamps
- Tissue paper

Proceed as follows:

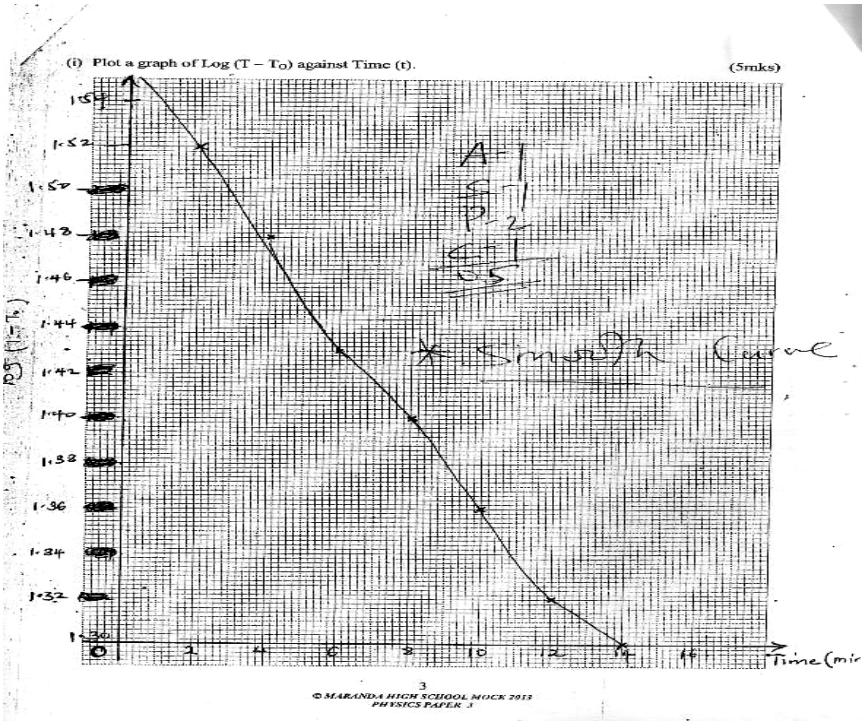
(a) Using a stand and one piece of thread, suspend the metre rule in air such that it balances horizontally.

Record the position of the centre of gravity. G.

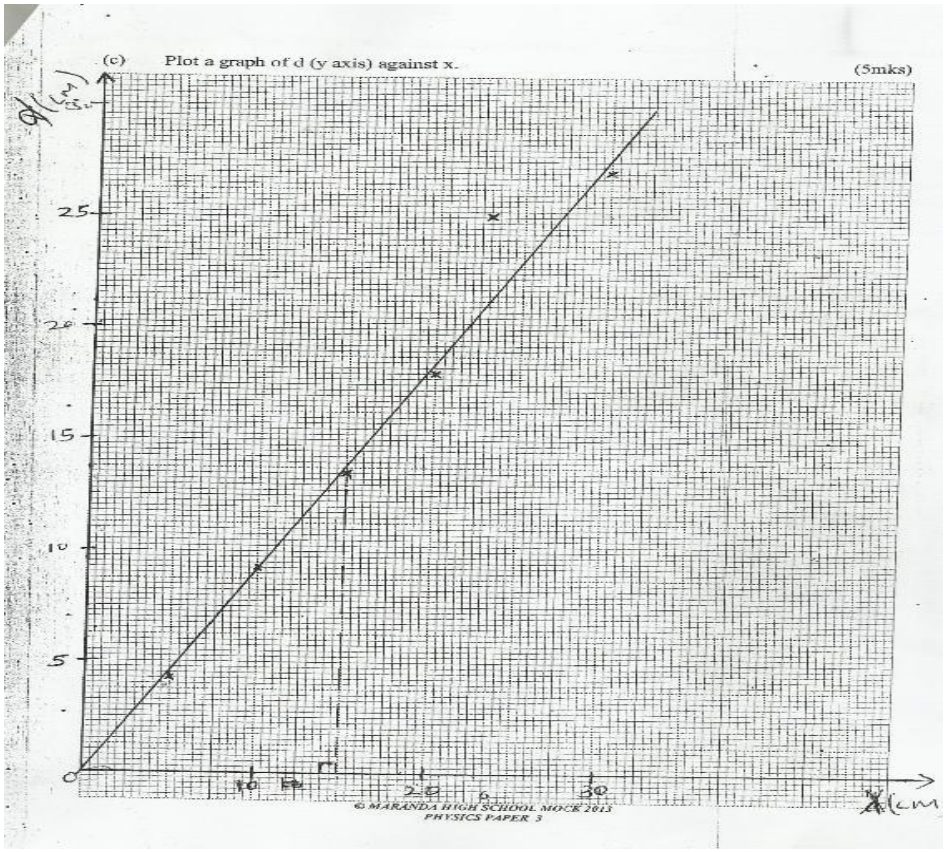
G = ***500*** mm

NOTE: The metre rule should remain suspended at this point through out the experiment.

(b) Set up the apparatus as in figure 2 below.(i) Plot graph of Log (T – To) against Time (t) (5 marks)



(c) Plot a graph of d (y axis) against x. (5 marks)



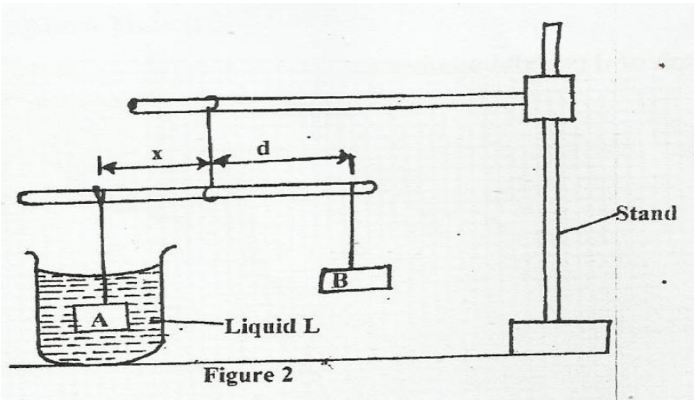


Figure 2

Suspend the sums A at a distance x = 50mm. adjust the position of mass B until it balances mass A immersed in liquid L.

Record the distance d, of mass B from the pivot.

Repeat the same process for other values of x in table 2 below and complete the table.

x (mm)	50 5	100 10	150 15	200 20	250 25	300 30
d (cm)	4.4	9.2	13.6	18.2	23.0	27.4

(h) Repeat procedure (b) above for the distance u = 40cm and record the new distance V. complete the table 3 below.

U (cm)	V (cm)	M =v/u	(m+1)
30	22.5	1.333	2.333
40	30.1	1.329	2.329

(2 marks)

(i) Given $f = \frac{V}{}$, calculate the values of f hence determine the average value f_{av}: *(m + 1)*

(3 marks)

$f_1 = \frac{22.5}{} = 9.657$cm

2.333

f_2 = 30.1_ = 12.924cm

2.329

f = f1+f2 = 9.657 + 12.924

2 2

= 11.2905cm

(d) Determine the slope, S of the graph (2 marks)

Gradient = DY = 14-0

D5 15-C

= 0.9333

(e) Given S = F, where F is the apparent weight of objects A in the liquid L and W is

W the actual weight of A, find: -

(i) The value of F. (2 marks)

0.9333 = F

1

F = 0.9333N

(ii) The up thrust, U (3 marks)

U = 1 – 0.9333 U = W – F

U = 0.0667N

PART B

You are provided with the following:

- A concave mirror with holder
- A screen
- A meter rule
- A candle
- A match box (to be shared)

Proceed as follows:

(f) Set p the apparatus as in figure 3 below.

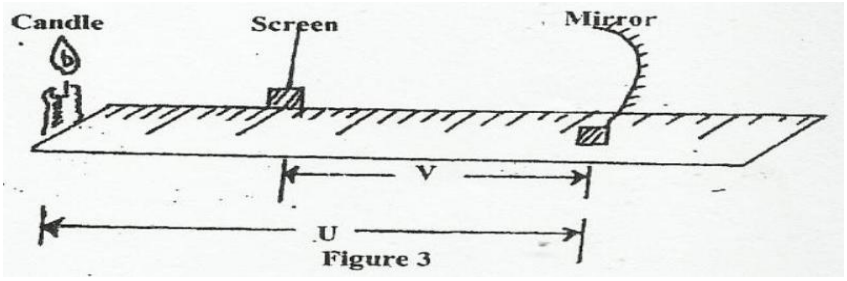


Figure 3

(g) Put the object at a distance u = 30cm from the mirror. Adjust the position of the screen until a sharp image is formed