NAME……. INDEX NO……

STREAM…… ADM. NO…….

232/3

PHYSICS

PRACTICAL

TIME: 2HRS 30 MINUTES

COMA JOINT EXAM 2014

KENYA CERTIFICATE OF SECONDARY EXAMINATIONS

INSTRUCTIONS

- **Write you name, index number, admission number and your class.**
- **Use the first 15 minutes of 21/2 hrs to study the questions properly.**
- **answer all questions**

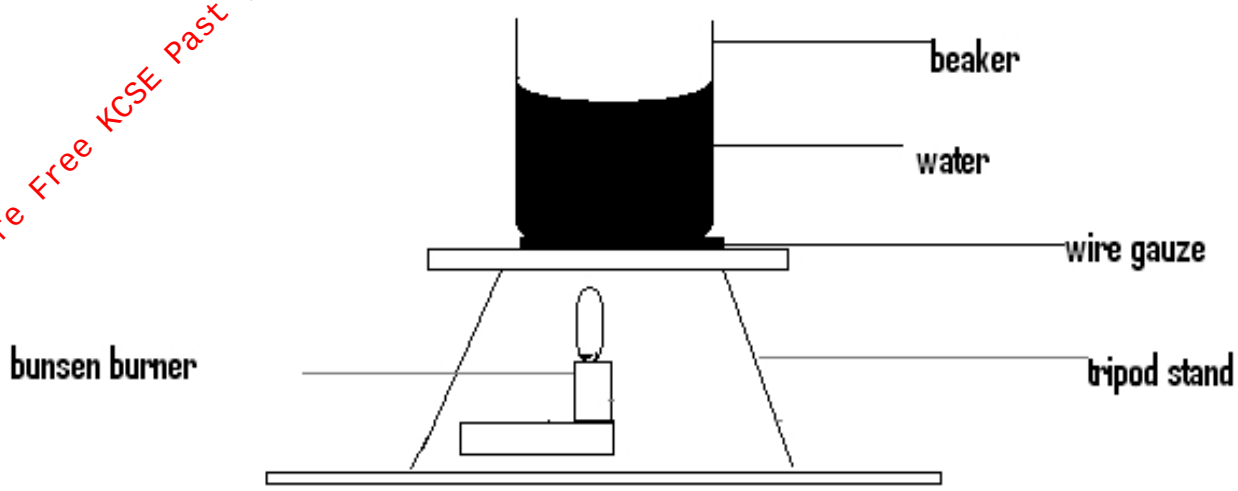
FOR EXAMINERS USE ONLY

QUESTION	MAX. SCORE	CAND. SCORE
1	20	
2	20	
	40	

QUESTION ONE

You are provided with the following;
-A 400ml 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.

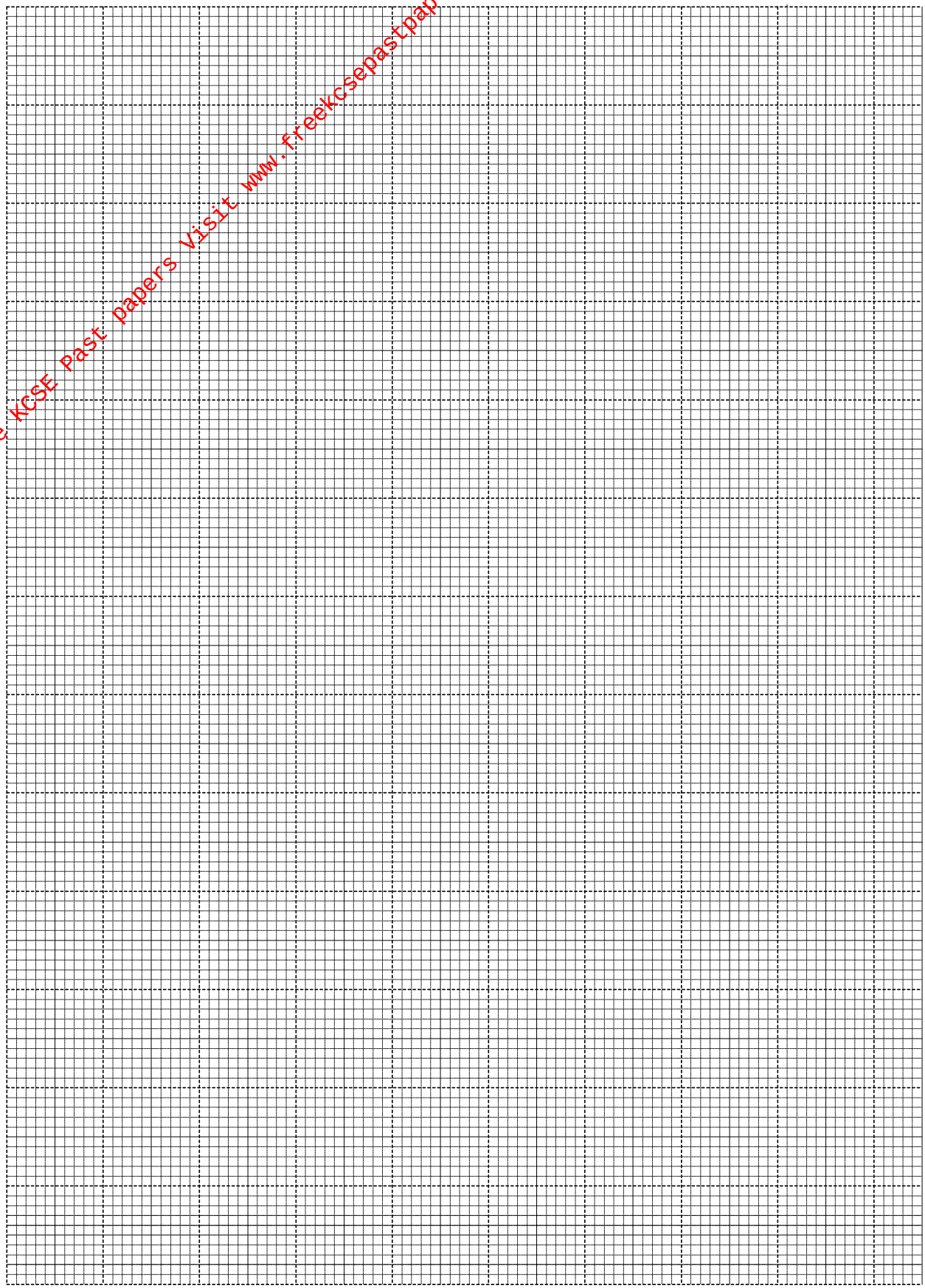


Measure 100cm^3 of water and pour it into the beaker. Take the initial temperature of the water.
T_0…… (1mk).
Now heat the water to a temperature of 90 ^{0}C. Switch off the gas tap and place a thermometer into the beaker and start the stop watch when the temperature is 65 ^{0}C. Take the temperature T ^{0}C of water every two minutes. Record your results in the table below.

Time (t) (min)	2	4	6	8	10	12	14
Temperature (T) ^{O}C							
(T –T_0) ^{0}							
Log (T – T_0)							

(7mks)

(i) Plot a graph of Log (T – T_O) against Time (t). (5mks)



(ii) Find the value K of $\log(T - T_O)$ when t = 0 (2mks)

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Determine the antilog of K. (2mks)

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(iii)Calculate the temperature of the sorounding T_R using the expression

Antilog K = 65 - T_R. (3mks)

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QUESTION 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 = _____ 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.

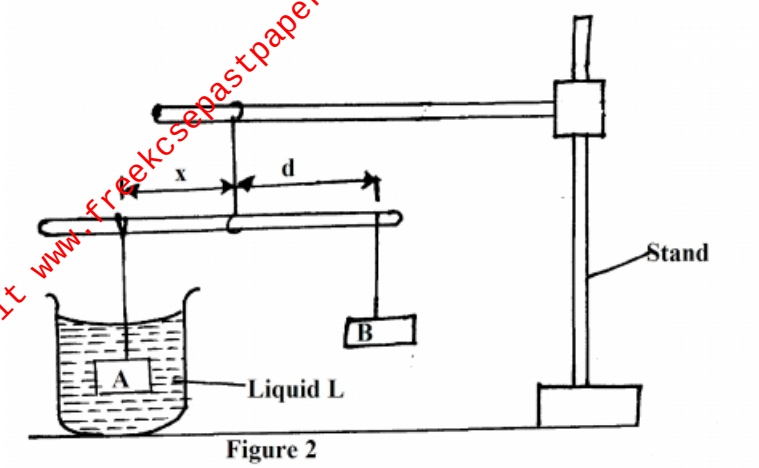


Figure 2

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

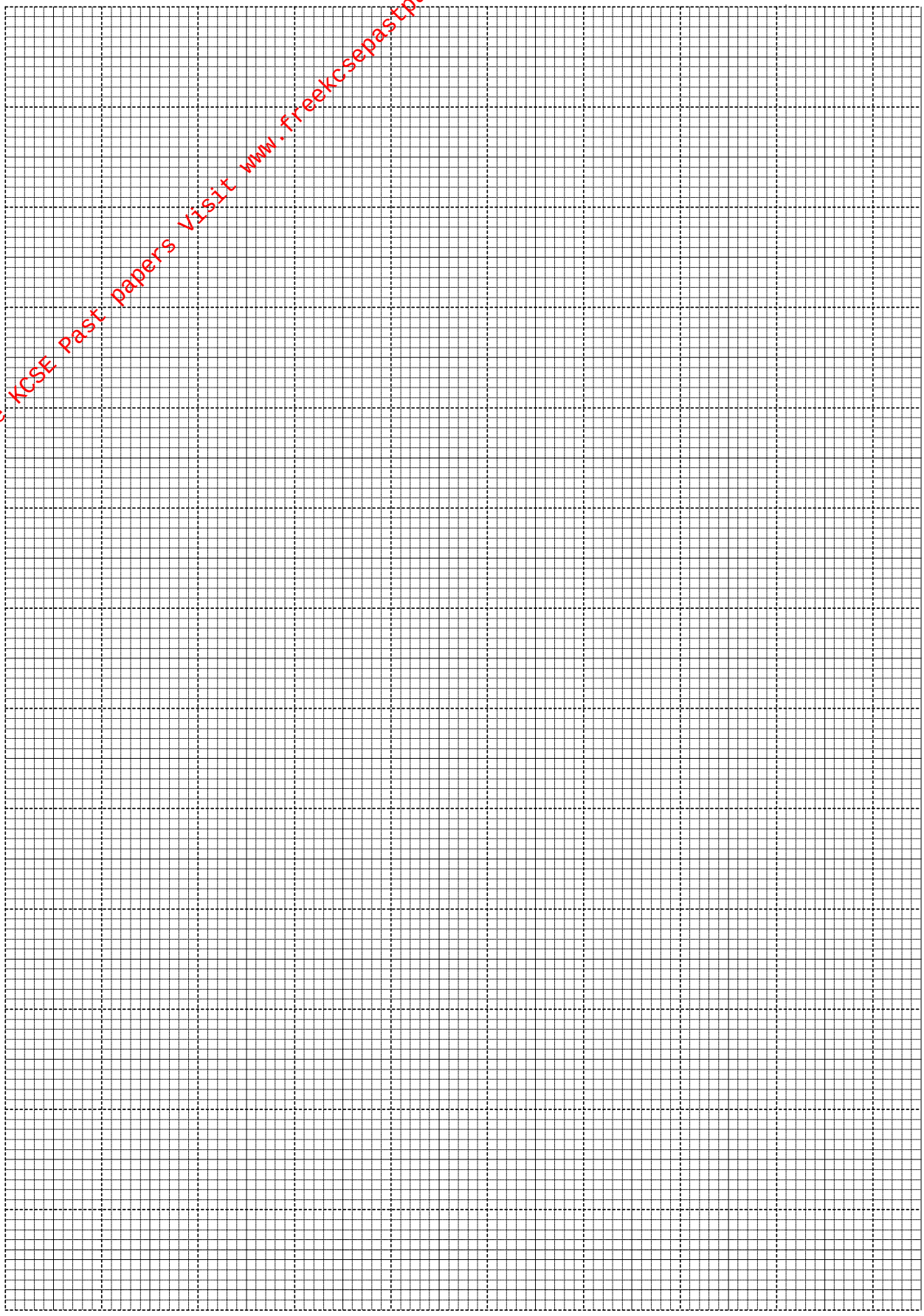
Record the distance d, of mass B from the pivot.

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

x(mm)	50	100	150	200	250	300
d(cm)						

(3 mks)

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



(d) Determine the slope, S of the graph. (2mks)

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(e) Given $S = \frac{F}{W}$, where F is the apparent weight of object A in the liquid L and W is the actual weight of A, find:-

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

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(ii) The upthrust, U (3mks)

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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 follow:

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

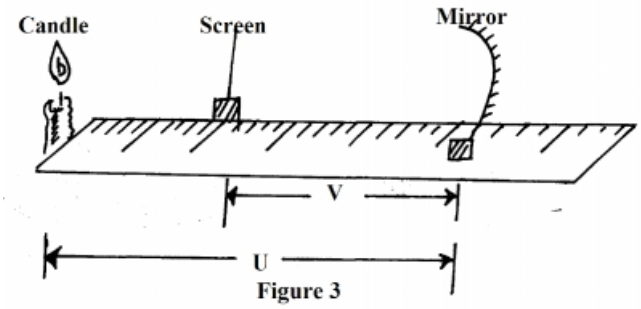

Figure 3

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

(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			
40			

(2mks)

(i) Given $f = \frac{V}{(m+1)}$, calculate the values of f hence determine the average value f_{av}: (3mks)

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End