**NAME……. INDEX NO……**

**STREAM…… ADM. NO…….**

**232/3**

**PHYSICS**

**PRACTICAL**

**TIME: 2HRS 30 MINUTES**

# KAKAMEGA COUNTY JOINT EVALUATION EAMINATION-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**

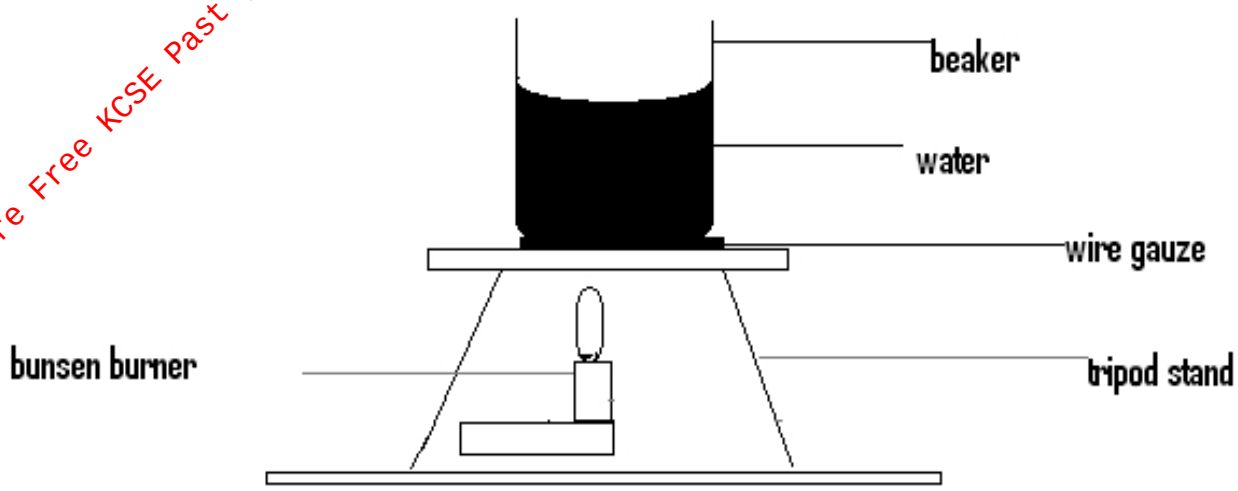
**FOR EXAMINERS USE ONLY**

| 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.

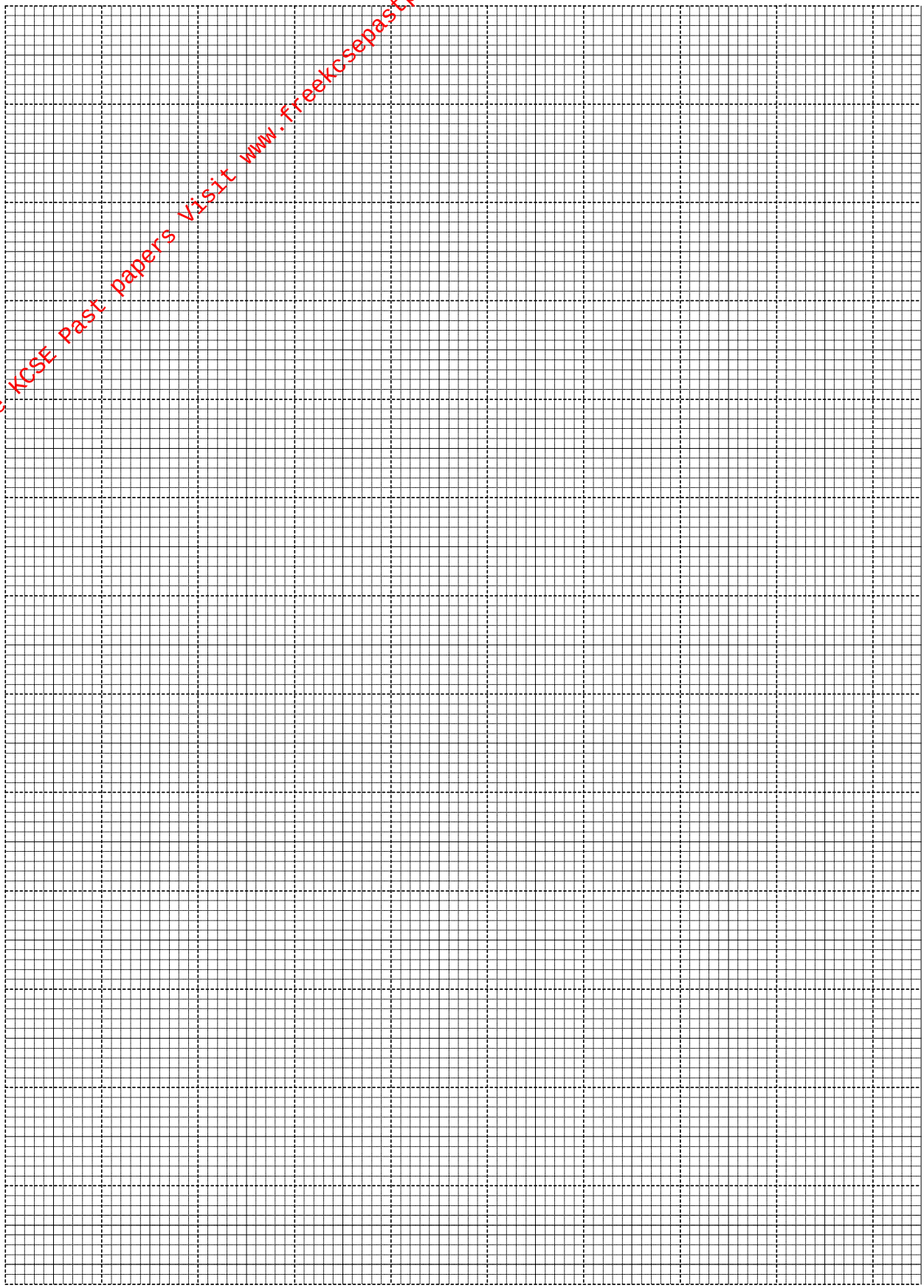



Measure 100cm$^3$ of water and pour it into the beaker. Take the initial temperature of the water.
$T_0$…… (1mk).
Now heat the water to a temperature of 90 $^0$C. Switch off the gas tap and place a thermometer into the beaker and start the stop watch when the temperature is 65 $^0$C. Take the temperature 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.

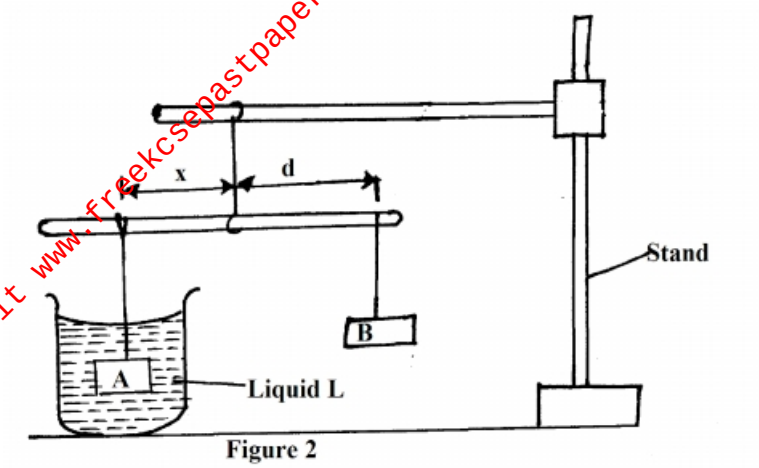


Figure 2

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

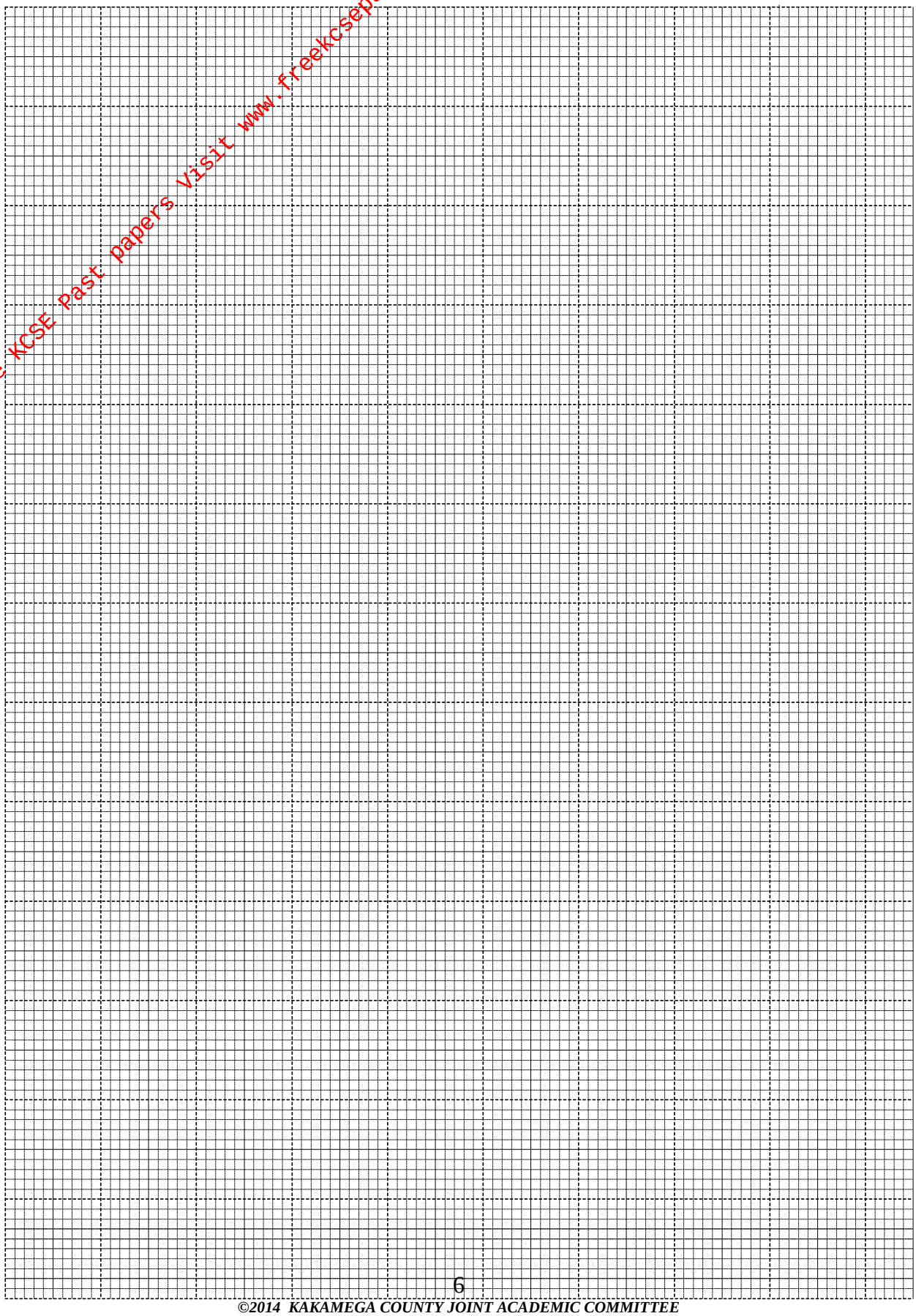
Record the distance d, of mass B from the pivot.

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.

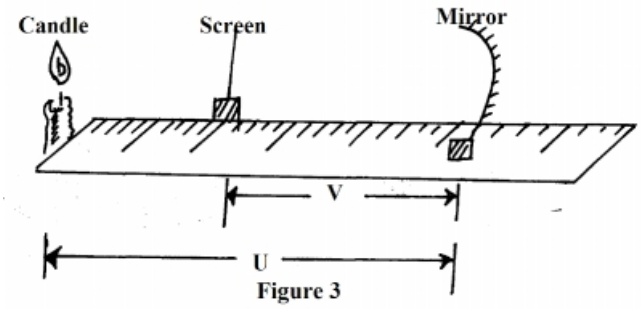

Figure 3

(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