NAME:…… INDEX NO:……

SCHOOL:…….. DATE:…….

SIGN:……..

232/3
PHYSICS
PAPER 3
JULY / AUGUST - 2012
TIME: 2 ½ HOURS

KERICHO DISTRICT JOINT KCSE TRIAL EXAMINATION-2012

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

232/3
PHYSICS
PAPER 3
JULY / AUGUST- 2012
TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

-Write your name and index number in the spaces provided above.
-Sign and write the date of the examination in the spaces provided above.
-You are advised to spend the first 15 minutes of the 2 ½ hours given reading the entire question paper.
-Marks are given for clear record of observations actually made for their suitability and accuracy for the use of them.

For Examiner's use only

QUESTION 1	*(i)*	*(ii)*	*(vii)*	*(viii)*	*(ix)*	*( )*	*TOTAL*
STUDENT'S MARKS							
QUESTION 2	*(i)*	*(ii)*	*(viii)*	*(x)*	*(xi)*	*(xii)*	
STUDENTS'S MARKS							

This paper consists of 8 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and that no questions are missing.

Question 1

You are provided with the following apparatus

- Meter rule
- One 50g mass
- Vernier callipers
- Stopwatch
- Raised surface
- G-clamp
- Cellotape
- Three 100g masses

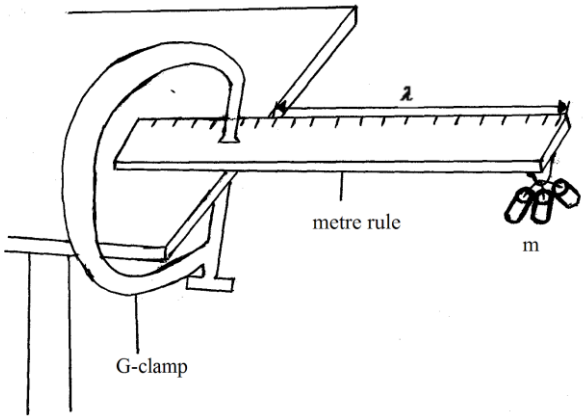
Proceed as follow

(i) Using the vernier callipers, measure and record the width b and thickness h of the meter rule

b=.....m (1mk)

h=.....m (1mk)

(ii) Arrange the apparatus as shown in the fig below



(iii) Set the metre rule such that the length l=95cm.

(iv) Take the 100g mass and using the cellotape, fix firmly so that its geometric at centre is directly below the free edge of the metre rule.

(v) Pull the end of the metre rule with the mass m to give it vertical displacement, then release as you start the stop watch to determine the time t for 10 oscillations. Record the time t in the table of results.

(vi) Repeat step (iv)-(v) for the other masses and complete the table of results (6mks)

Mass m(kg)	Time t for 10 oscillation(s)	Periodic table t(s)	$T^2(S^2)$
0.1			
0.15			
0.20			
0.25			
0.30			

(vii) Plot a graph of T^2 against m on the grid provided.

(viii) Determine the slope s of the graph (3mks)

(ix) The equation of the graph is given by

$$T^2 = \frac{16\pi^2 ml^3}{bh^3 k}$$

Determine the value of K ,the elastic constant of the metre rule. (4mks)

QUESTION 2

You have been provided with the following apparatus

2 dry cells

A cell holder

A bulb

A cardboard with a slit

A meter rule

A white screen

A beaker containing water about ¾ full

A cotton thread about 50cm long.

(a)

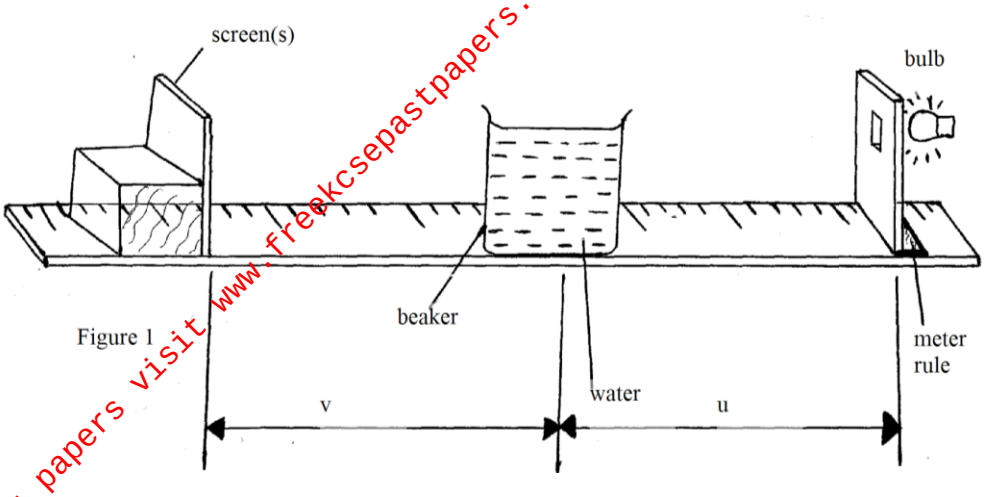


Figure 1

(i) With the cotton thread provided , measure C the external circumference of the beaker

C=_____cm (1mk)

(ii) Find Δ the diameter of the beaker given that $\Delta = \frac{C}{\pi}$ _____cm (1mk)

(iii) Place the beaker such that its centre is at the 50cm mark-as shown in the figure 1 above.

(iv) Set the illuminated slit at a distance u=15cm from the beaker.

(v) Move the screens to and fro to obtain a sharp image on it.

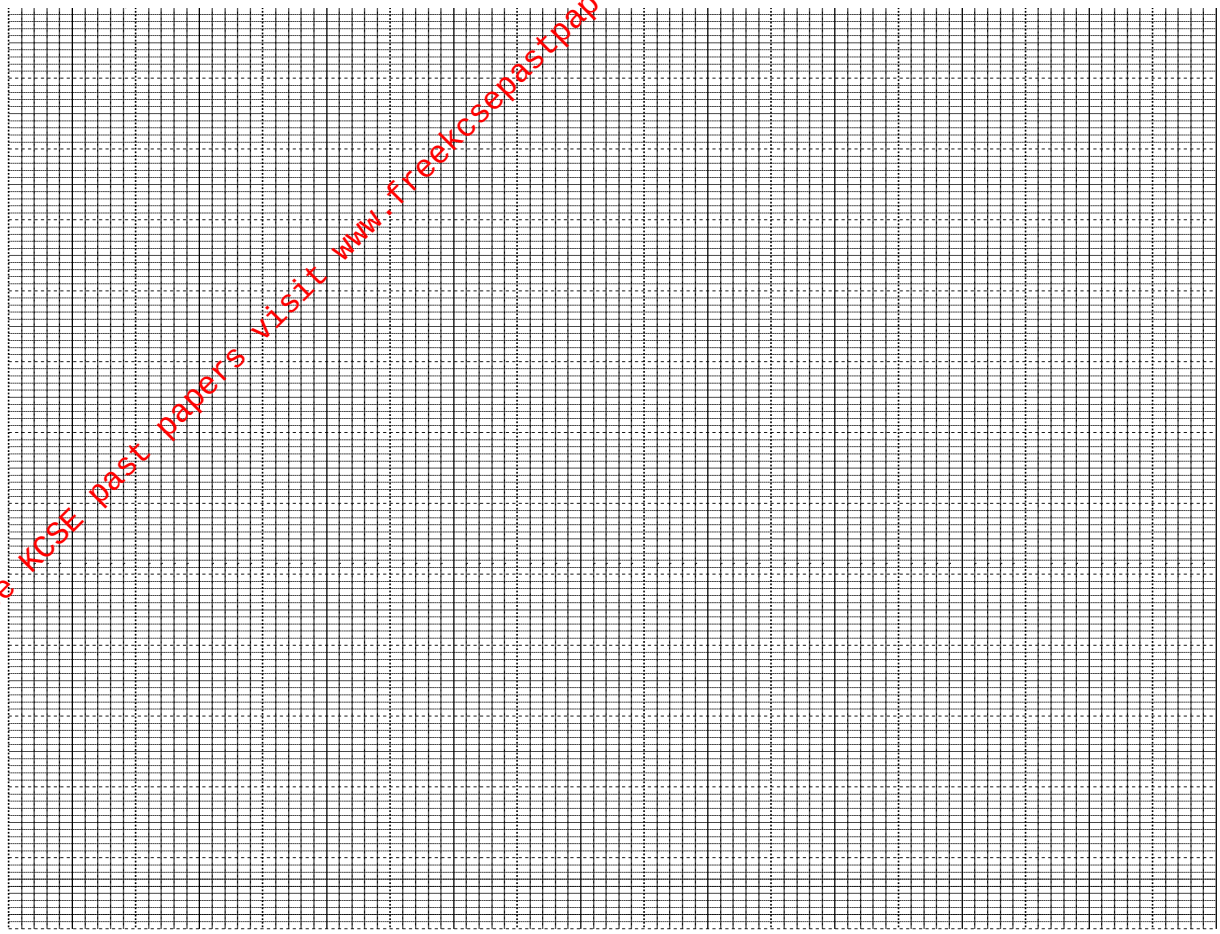
(vi) Measure and record the distance V from the screen to the centre of the beaker.

(vii) Repeat steps (iv to vi) above for values of u as 20 ,25,30,35 and 40 cm respectively.

(viii) Complete the table below (7mks)

Object distance u(cm)	15	20	25	30	35	40
Image distance x(cm)						
$\frac{1}{u} cm^{-1}$						
$\frac{1}{v} cm^{-1}$						

(ix) Plot the graph of $\frac{1}{u} cm^{-1}$ against $\frac{1}{v} cm^{-1}$ (5mks)



(x) State the intercepts (i)Iy y-intercept_____ (1mk)

(2)Ix x-intercept_____ (1mk)

(xi) Calculate A if $A = \frac{Iy + Ix}{2}$ _____ (1mk)

(xii) Given that $k = \frac{4}{4 - AD}$ to the nearest 3 d.p (3mks)

End