NAME:……..…….INDEX…….……..…DATE……...…

SCHOOL:……SIGNATURE……..……

232/ 3
PHYSICS
PAPER 3
(PRACTICAL)
JULY / AUGUST, 2010
2½ HOURS

JOINT INTER-SCHOOLS EVALUATION TEST (JISET)
Kenya Certificate of Secondary Education 2010

232/3
PHYSICS
PAPER 3
JULY / AUGUST 2010

INSTRUCTIONS TO CANDIDATES

- *You are advised to spend the first **15 minutes** of the hours given reading through the entire question paper*
- *Answer all the questions in the spaces provided*
- *Marks are given for clear record of observations actually made for their suitability and accuracy for the use of them.*
- *Candidates are advised to record their observations as soon as they are made.*
- *Mathematical tables and electronic calculators may be used.*

For Examiner's Use Only

Question	Maximum Score	Candidates' Score
Q1		
Q2		
Total	**40**	

QUESTION 1

PART A

You are provided with the following

- A metre rule
- A spring balance
- A weight of 2N with a hook
- Stand
- Knife edge support
- Two light strings about 30cm long

Proceed as follows

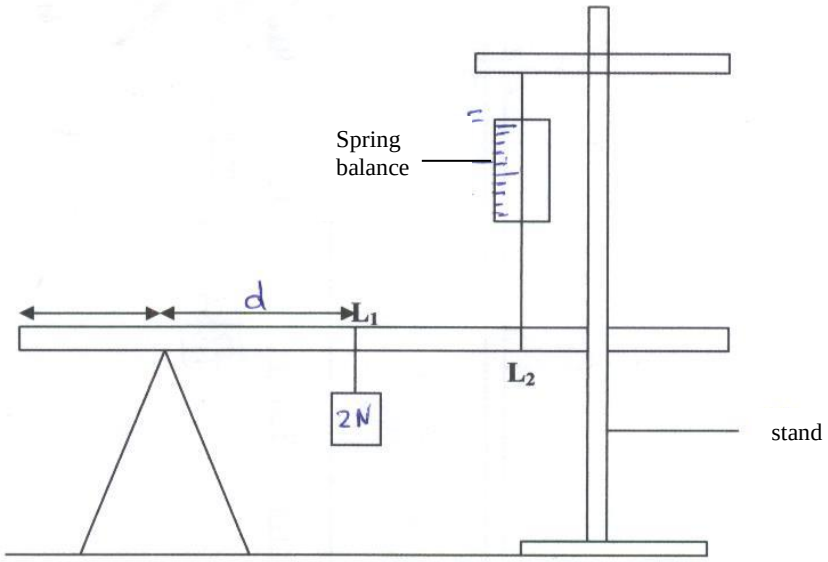
a. Using the strings provided make two loops to be used as hooks **L_1** and **L_2** in the diagram.

b. Suspend the spring balance from a clamp and using one of the loops support the rule from the spring so that the loop **L_2** is on the 95cm mark.

c. Support the other end of the rule with a knife edge at the 10 cm mark so that the rule is horizontal

d. Using loop **L_1** suspend the 2N weight at a distance d=10cm from the knife edge as shown and take the readings of the spring balance, F. Record the results in the table.

e. Adjust the distance d to 20cm, 30cm e.t.c and each time recording the readings of the balance to complete the table



Distance (d) (cm)	10	20	30	40	50	60	70	80
Force (N)								

(i) Plot a graph of force (F) against distance (d) (5 mks)

(ii) From the graph determine

(a) The slope (3 mks)

(b) The value of F when d=0 (1 mk)

f. Given that the equation of the graph is

$85F = 2\,md + 40k$

Determine the values of k and m (2 mks)

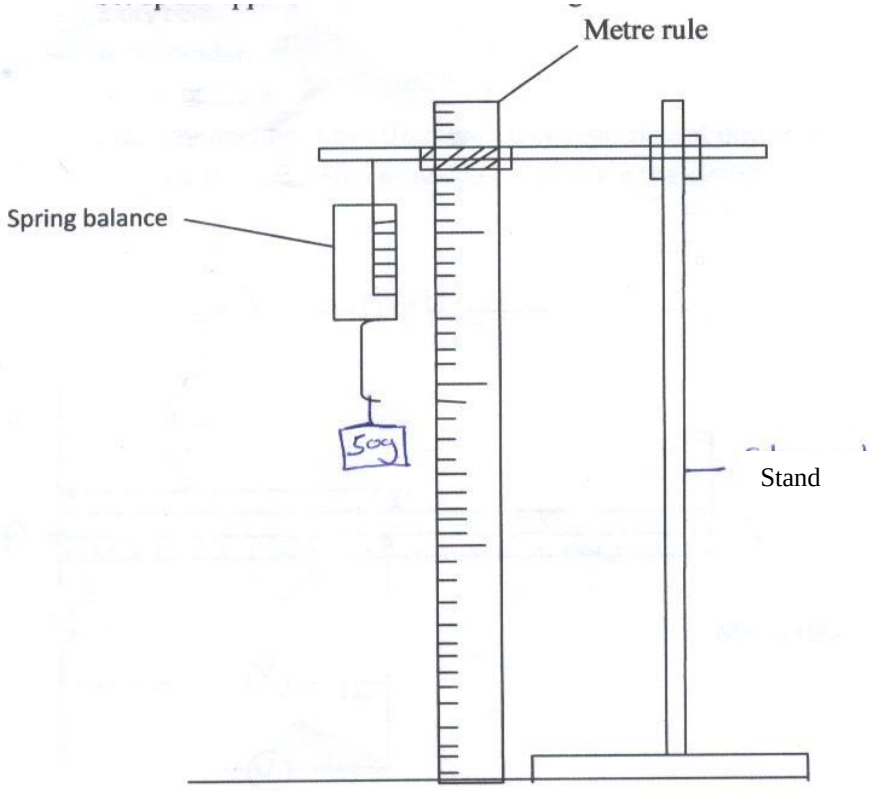
PART B

You are provided with the following apparatus

- Masses 50g, 100g, 150g.
- Metre rule
- Spring balance

a. Proceed as follows

Set up the apparatus as shown in the diagram below



b. Hang 50g mass on the spring balance and note the extension and record your value in the table below. Increase the mass to 100grams and 150 grams noting the extension and recording it in the table.

Mass (g)	F (N)	Extension (m)
50g		
100g		
150g		

(2 mks)

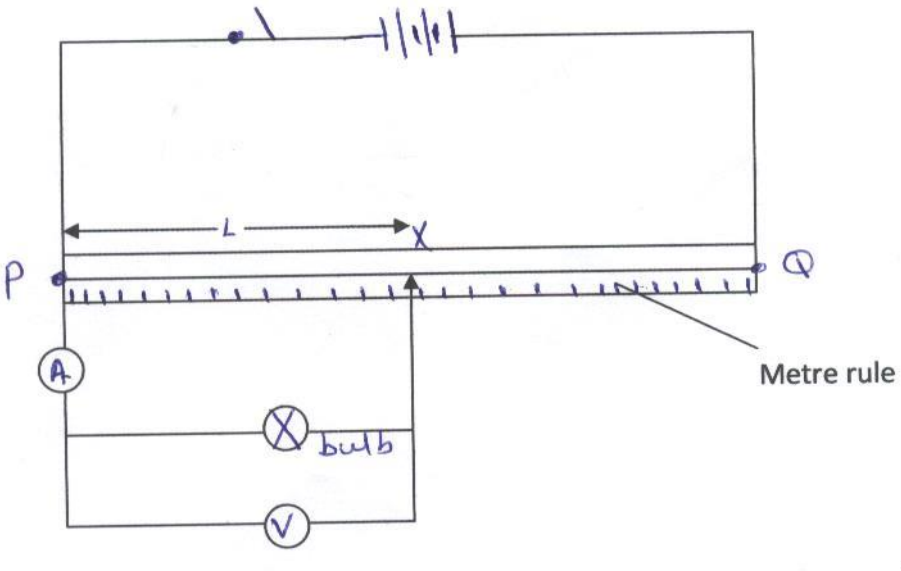
c. Use the above values to determine the value of the spring constant (3 mks)

QUESTION 2

You are provided with the following

- A 100cm nichrome wire mounted on a metre rule **(Swg 32)**
- An ammeter
- 3 dry cells
- A cell holder
- A bulb of 2.5v
- Eight connecting wires (four with crocodile clips at one end)

a. Connect the apparatus provided as shown in the circuit



b. Place the sliding contact at **L=20cm** from **P** then switch on and take both current and voltage reading. Record the reading in the table below.

c. Repeat the above experiment by placing the sliding contact X at each point 40cm, 60cm, 70cm and 80cm from P. Record your reading and complete the table below.

Length L (cm)	**I (A)**	**P.D (V)**	**I (mA)**	**P.D (mV)**	**Log I (mA)**	**Log V (mV)**
20 40 60 70 80						

(8 mks)

d. Plot a graph of **Log I** against **Log V** (5 mks)

e. Determine the slope of the graph (3 mks)

f. The relationship between **I** and **P.D** is given by the equation $LogI = n\log v + \log k$ where **k** and **n** are constants. Determine using the graph the value of

i. **k** (2 mks)

ii. **n** (2 mks)