NAME: ………………………………………….. **INDEX NO: ……………………………….**

SIGNATURE: …………………………………. **DATE : …………………………………..**

SIGNATURE: ……………………………

232 / 3
PHYSICS
PAPER 3
(PRACTICAL)
JULY / AUGUST 2013
TIME: 2 ½ hours

NANDI NORTH DISTRICT JOINT MOCK EVALUATION TEST 2013

Kenya Certificate of Secondary Education (KCSE)
PHYSICS
PAPER 3
TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

(a) Write your Name and Index Number in the spaces provided above.
(b) Sign and write the date of Examination in the spaces provided above.
(c) Answer all questions in the spaces provided.
(d) You are supposed to spend the first 15 minutes of the 2½ hours allowed for this paper reading the whole paper carefully before commencing your work.
(e) Marks will be given for clear records of observations actually made, their suitability, accuracy and the use made of them.
(f) Candidates are advised to record their observations as soon as they are made.
(g) All working must be clearly shown where necessary.
(h) Mathematical tables and silent electronic calculators may be used in calculations.

FOR EXAMINER'S USE ONLY

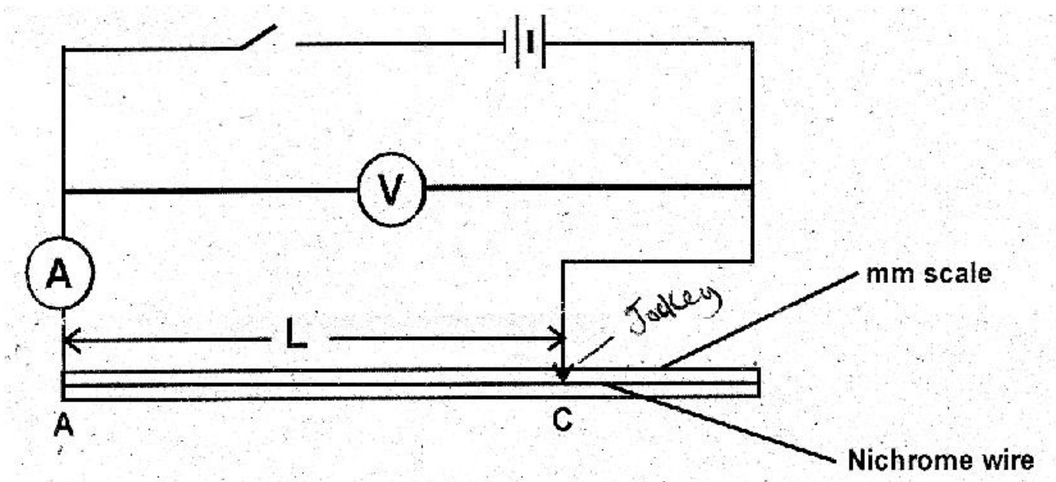
Question	Maximum score	Candidate's score
1	20	
2	20	
TOTAL	**40**	

1. You are provided with the following:-

- Two dry cells.
- Nichrome wire 100cm on a mm scale.
- An ammeter.
- Cell holder.
- Voltmeter.
- Connecting wires with crocodile clips.
- Switch.

Proceed as follows:

(a) Connect the circuit as shown in the diagram.



(b) Connect the ends A and C where AC is the length L of the Nichrome wire across the terminals as shown. Close the switch and measure both current I and potential difference (p.d) across the wire AC when L = 100cm.

Current I = (1mk)

p.d. V = (1mk)

(c) Measure the E.m.f. of the cells, E.

E = (1mk)

(d) Reduce the length L (AC) to the lengths shown in the table below. In each case record the current, I, and the corresponding p.d. (7mks)

Length L (cm)	100	70	60	50	40	20
I (A)						
P.d (V)						
E – V (v)						

(e) Plot a graph of E – V against (A) on x-axis in the grid provided. (5mks)

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

(g) Given that E = V + Ir, determine the internal resistance, r, of each cell. (2mks)

2. You are provided with the following apparatus:-
   - A metre rule.
   - One stop watch. one stand, clamp and boss.
   - One spring.
   - Two pieces of wood.
   - A beam balance or electronic balance (to be shared)
   - One mass labeled M.

Proceed as follows:

(a) Hang the spring vertically by clamping one end as shown in figure 1. (The small pieces of wood to clamp the spring).

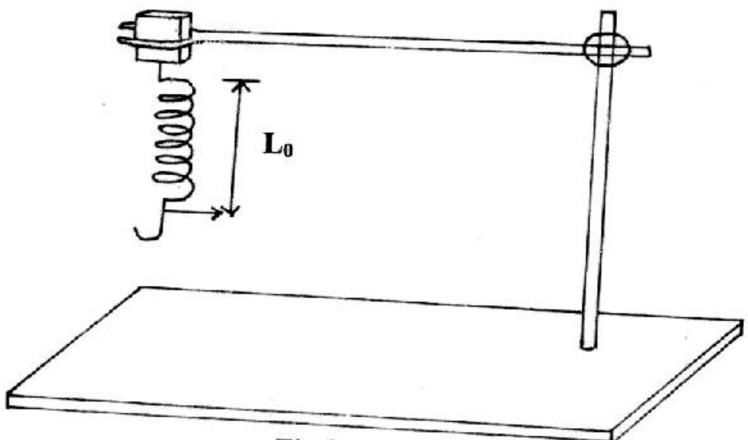


Fig.1

(b) Measure the length, Lo, of the unloaded spring, and record below.

Lo ______________________________mm (½ mk)

(c) Hang the mass M given from the lower end of the spring. Measure the length, L_1 of the loaded spring.

L_1 = ____________________________ mm (½ mk)

(d) Find the value of L_1 – Lo in centimeters

L = L_1 – Lo ________________________ cm (1mk)

(e) Using the balance given, find the mass of the object M.

Mass of M = ____________________ g (1mk)

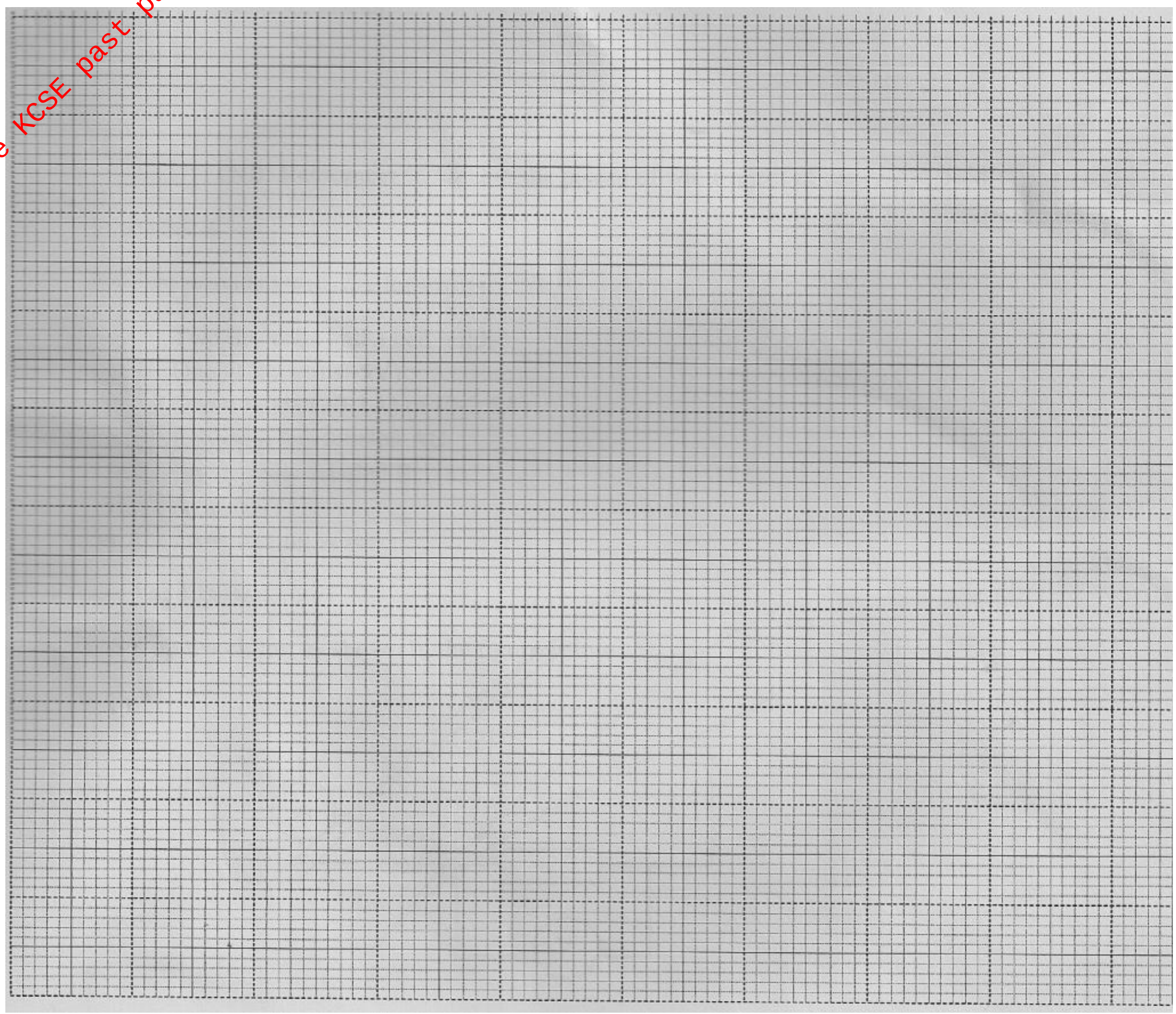
(f) Hang the mass M from the lower end of the spring. Displace it by a small vertical distance and release so that the spring makes vertical oscillations.

Measure and record, time for the number of oscillations given in the table below.

Oscillations, N	5	7	10	13	15	18	20
Time in seconds, t (s)							
$\frac{(N + 10t)}{10}$ (s)							
$\frac{(N + 10t)^2}{19}$ (s^2)							

Complete the table above. (7mks)

(g) On the grid provided, plot a graph of $\left[\frac{N + 10t}{10}\right]^2$ (y-axis) against N. (5mks)



(h) (i) Determine the slope S, of the graph at N = 16. (3mks)

(ii) Find the constant k, given that:

$K = \frac{MS}{13L}$ (2mks)