THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

PHYSICS 2C
ACTUAL PRACTICAL C
(For Both School and Private Candidates)

Time: 2:30 Hours **Thursday, 19th November** 2015 a.m.

Instructions

1. This paper consists of **two (2)** questions. Answer **all** the questions.
2. Calculations should be clearly shown.
3. Marks for questions are indicated at the end of each question.
4. Calculators and cellular phones are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).
6. Use acceleration due to gravity, $g = 10ms^{-2}$.

1. You are provided with spiral spring, 2 retort stands, meter rule, 6 slotted masses of 5
optical pin /pointer and plasticine/masking tape.

Proceed as follows:

(a) Clamp the meter rule vertically with the zero mark on top as shown in Figure 1.

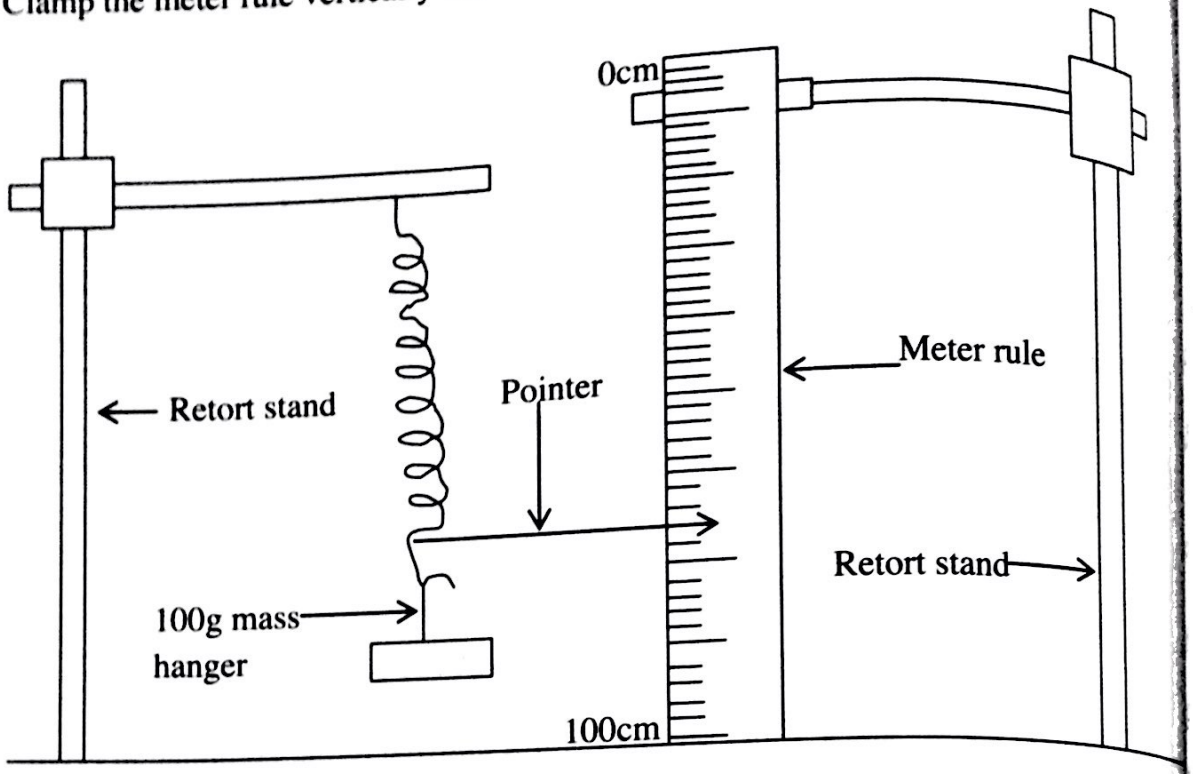


Figure 1

(b) Suspend the spring on the clamp and attach an optical pin (pointer) to its lower end w
aid of plasticine/masking tape.
(c) Record the initial reading (y_o) of the pointer at the meter rule.
(d) Attach a 100g weight at the lower end of the spring, then record the new reading of
pointer, y.
(e) Repeat part (d) above by adding 50g weight at a time until the total weight of
suspended weight is 300g.
(f) Tabulate your results including a column of Load (in Newtons).
(g) Plot the graph of extension against load.
(h) What is the nature of the graph?
(i) Determine the slope of the graph.
(j) From the graph, calculate the spring constant.
(k) What is the aim of this experiment?
(l) Give one limitation of the experiment.
(m) State the law governing this experiment.
(n) State one source of error and one precaution to be taken when performing
experiment.

(25 mark

2. The aim of this experiment in Figure 2 is to determine the E.M.F (E) and the inter
resistance (r) of the dry cell.

(a) Stretch and fix the bare wire onto the meter rule with cello tape.

(b) Connect the dry cell, 2Ω resistor and the voltmeter as shown in Figure 2.

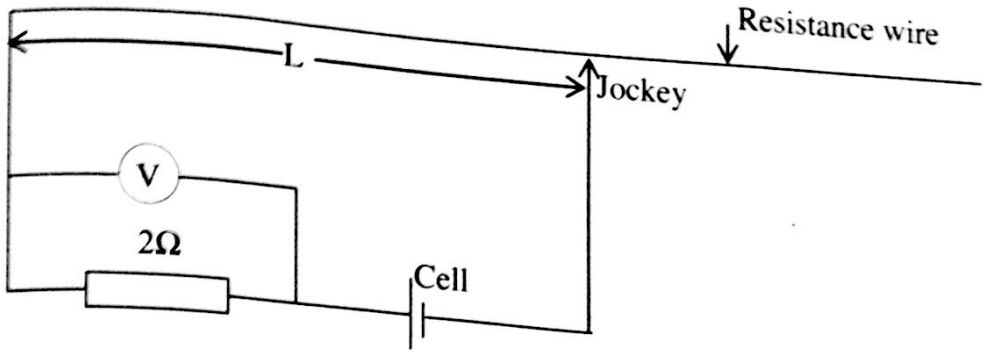


Figure 2

(c) Place the jockey on the bare wire such that L is equal to 20cm. Record the voltmeter reading V.

(d) Repeat procedure (c) above for values of L equal to 30cm, 40cm, 50cm and 60cm respectively.

(e) Record the values of L, V and $\frac{1}{V}$ in a suitable table.

(f) Plot a graph of $\frac{1}{V}$ against L.

(g) Find the slope, s, of the graph.

(h) Find *n* which is the value of $\frac{1}{V}$ when L = 0.

(i) Calculate the E.M.F of the dry cell from Es = $0.015(cm^{-1})$.

(j) Using the relation r = 2(Ω) × *n* × (E-1), calculate the internal resistance r of the dry cell.

(k) State three sources of errors and three precautions to be taken in this experiment.

(25 marks)