Physics Practical III

038

11 Nov. 2009 08.30 to 11.30

RWANDA NATIONAL EXAMINATIONS COUNCIL

P.O. BOX 3817 KIGALI -TEL/FAX 586871

ADVANCED LEVEL NATIONAL EXAMINATION 2009

SUBJECT : PHYSICS PRACTICAL III

COMBINATION: PCM, PCB, MPG

DURATION: 1Hour 30 Minutes

INSTRUCTIONS TO CANDIDATES:

This Paper has one question

Candidates are **not** allowed to use the apparatus or write for the first ten minutes.
Graph papers are provided at the back of the answer booklet
Non-programmable scientific calculators may be used.
Write on one side of the paper only.

Candidates are expected to record on their scripts all their observations as these observations are made. and to plan the presentation of the records. The working of the answers is to be handed in.

Details on the question paper should not be repeated in the answer, nor is the theory of the experiment required unless specifically asked for. Candidates should, however, record any special precautions they have taken and any particular feature of their methods of going about the experiment.

Marks are given mainly for a clear record of the observations actually made, for their suitability and accuracy, and for the use made of them.

1. In this experiment, you will determine the length of the wire W (AB) provided for which the power transfer is maximum.

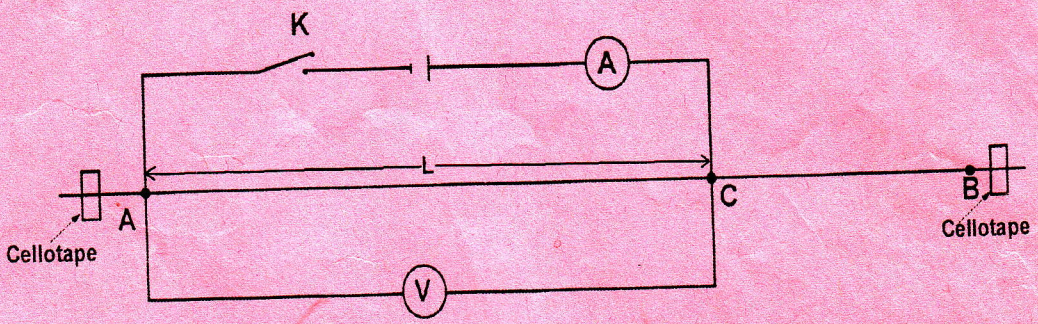

Figure 1

(a) Set up the circuit as shown in figure 1

(b) Start with length L which is , AC = 22.0 cm, then close the switch K.

(c) Read and record the ammeter reading I and the voltmeter reading V.

(d) Repeat procedures (b) and (c) for values of L = 32, 42, 52, 59, 69, 79 and 89 cm.

(e) Record your results in a suitable table including values of VI.

(f) Plot a graph of VI (***along the vertical axis***) against L (***along the horizontal axis***).

(g) From the graph find the value of $L = L_o$ corresponding to a point on the curve where the slope is 0

(h) Determine the value of $VI = P_o$, when $L = L_o$ from the graph

(i) Calculate the resistance, R, of the wire W, when $VI = P_o$ from the expression.

$$P_o = \frac{0.375}{R}$$