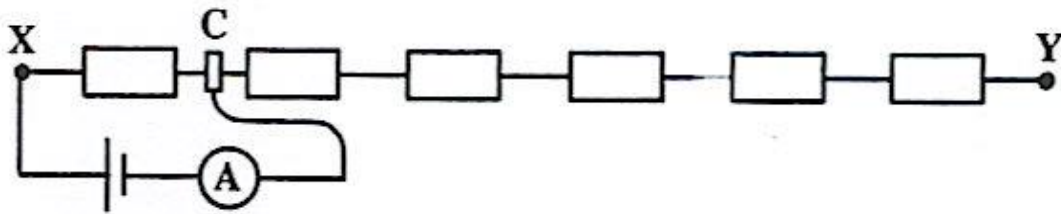


LAB 19: CARBON RESISTORS IN SERIES

AIM: To determine the resistance, R , of a carbon resistor

APPARATUS & MATERIALS:

6 identical carbon resistors ammeter
battery connecting wires
crocodile clip



METHOD

- Set up the circuit as shown in the diagram above where **XY** is the string of six identical carbon resistors and **C** the crocodile clip.
- Record the value of I , the current through the ammeter, with one resistor between **X** and **C**.
- Repeat the procedure to obtain pairs of values of I and n , where n is the number of resistors in the circuit between **X** and **C** for $n = 1$ to **6**. (**DO NOT** connect the clip **C** to point **X**)

THEORY:

- State Ohm's Law and the formula associated with it. State units of resistance.

RESULTS / CALCULATIONS

- Tabulate these pairs of values along with the corresponding values of $1/I$
- Record and tabulate all results in table below (showing all headings and units)

Number of carbon resistors (n)	Current (I) / (A)	1/Current ($1/I$) / (A^{-1})

- Plot the graph of $1/I$ against n , starting both axis at zero.

CALCULATIONS:

- Determine the slope, S , of the graph
- Find the value of R , given that $S=R/E$ where $E = 1.5V$
- Record the interception, K , on the $1/I$ axis and determine the corresponding value of current, I_k .

CONCLUSION

- State the resistance, R , of a carbon resistor
- Why should you not connect clip **C** to the point **X**?