

## Experiment 5: Current flowing in two identical light bulbs

To investigate the variation of current (I) with potential difference (V) for two identical filament lamps

### Materials and Apparatus

Power supply

Filament lamps

Ammeter

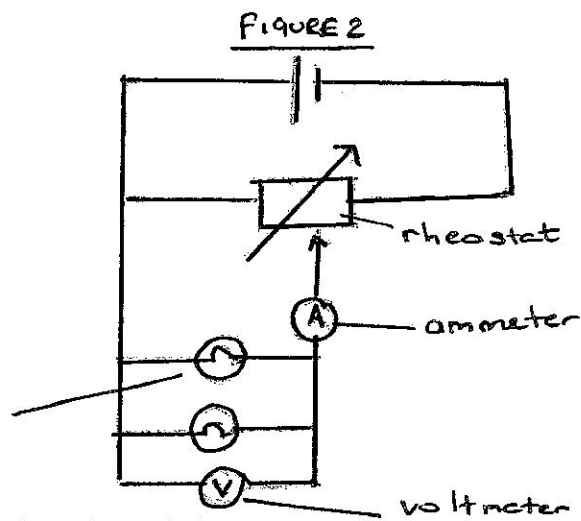
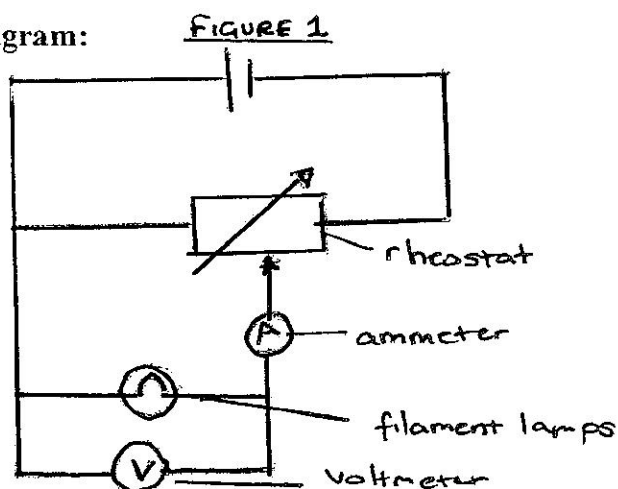
Switches

Connecting wires

Rheostat

Voltmeter

Diagram:



- Set up apparatus as shown in Figure 1 and close the switch
- Adjust the rheostat and measure six (6) readings of current (I) and voltage (V) in range of  $1.0 \text{ A} \leq I \leq 2.0 \text{ A}$ .
- Connect second filament lamp in parallel as shown in Figure 2
- Adjust the rheostat and measure six (6) readings of current (I) and voltage (V) in range of  $2.0 \text{ A} \leq I \leq 4.0 \text{ A}$
- Record and tabulate the results to plot graphs of  $\log I$  vs.  $\log V$
- Use the equation  $I = kV^n$  to calculate the values for k and n for each filament
- Compare values for both n and k
- State two precautions