

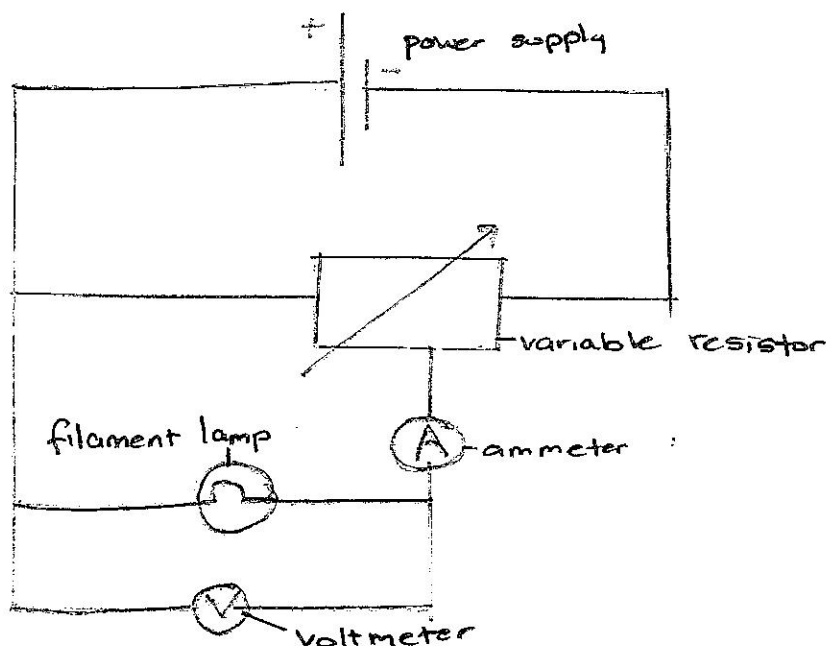
**Experiment 1: The relationship between the current and voltage in a filament lamp ( $V = k I^n$ )**

**To determine the relationship between potential difference (V) and current (I) in a filament lamp**

**Materials and Apparatus**

Ammeter	Connecting wires
Voltmeter	Rheostat
Filament lamp	Power supply

**Diagram:**



- Set up apparatus as shown in the above diagram.
- Switch on the power supply and take readings on the ammeter and voltmeter.
- Switch off the power supply between the recording of your readings.
- Adjust the rheostat and repeat the procedure to obtain a total of six (6) readings.
- Plot a graph of  $\log V$  vs  $\log I$
- Use the equation  $V = kI^n$  to calculate the values for  $k$  and  $n$ .
- State the relationship between current and voltage.
- State two precautions.