

Experiment No:

Date:

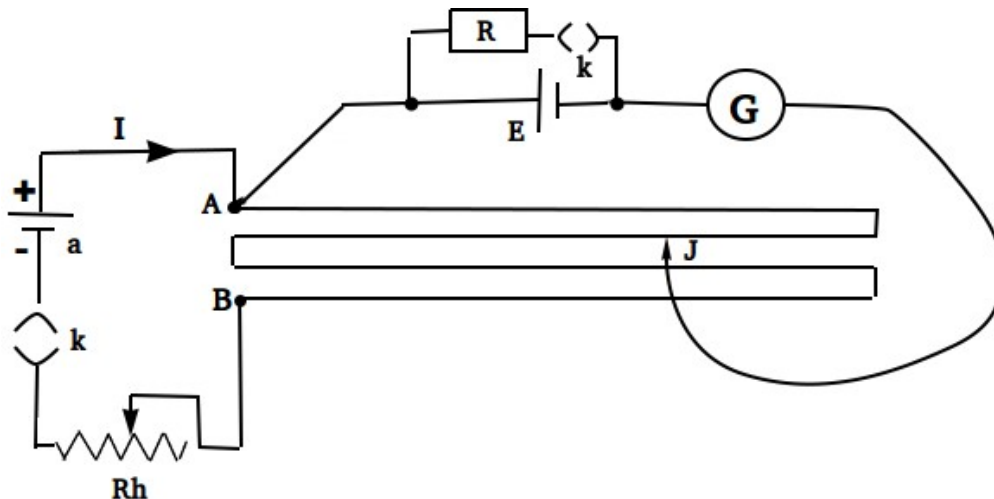
Potentiometer II

Aim:

To determine the internal resistance of a primary cells using Potentiometer

Apparatus:

Potentiometer, Accumulator, Daniel Cell/Leclanche Cell, Rheostat, Key, Jockey, Connecting wires etc.



Theory:

When a steady current flows through a resistance wire, the potential difference developed in the wire is directly proportional to the length of the wire,

For an open circuit, the emf $E \propto l_1$

If the circuit is closed with a resistance R, the Potential Difference $V \propto l_2$

That is $\frac{E}{V} = \frac{l_1}{l_2}$

We have $E = V + Ir$

Where I is the current and r is the internal resistance of the cell.

Then we have internal resistance as $r = \frac{l_1 - l_2}{l_2} R$

Observations:

Sl No	External Resistance (R) Ω	Balancing Length when key (cm)		$r = \frac{l_1 - l_2}{l_2} R \quad \Omega$
		Open (l_1)	Closed (l_2)	
1				
2				
3				
4				
5				
6				
7				

Result:

The Internal resistance of the cell increases with External Resistance.