Experiment No: Date:

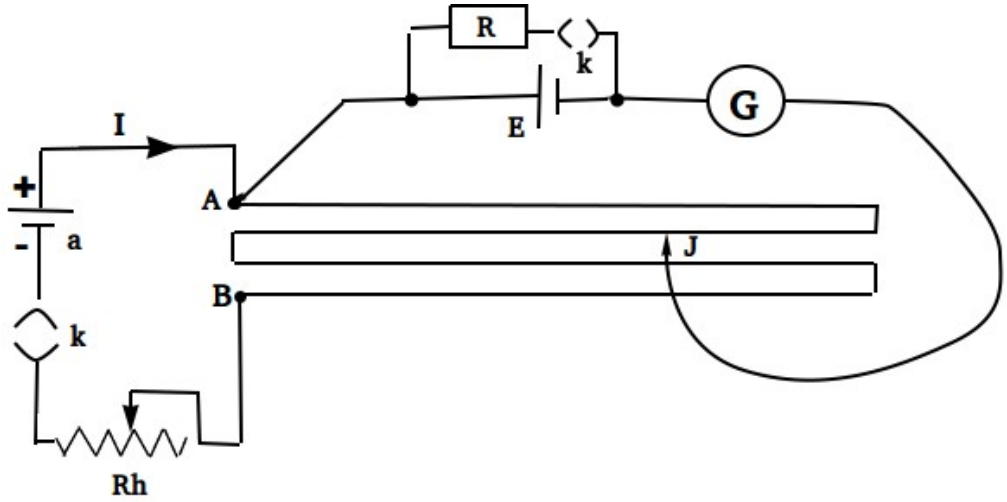
Potentiometer II

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 α l_1**

If the circuit is closed with a resistance R, the Potential Difference **V α 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)		$r=\frac{l_1-l_2}{l_2}R$ Ω
		Open (l_1)	Closed (l_2)	
1				
2				
3				
4				
5				
6				
7				

Result: The Internal resistance of the cell increases with External Resistance.