Objective: - To verify Thevenin's theorem for dc circuit.

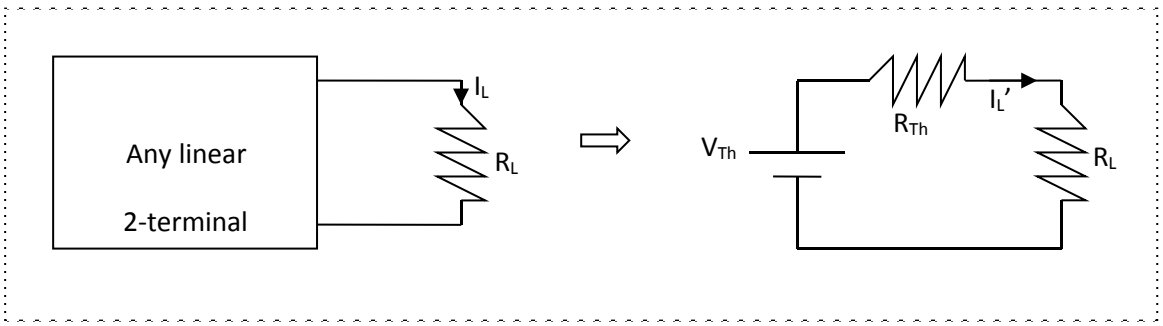
Apparatus Used: - Network kit, Bread board, resistances & connecting wires.

Theory: -

"Any linear two terminal network can be replaced by an equivalent network consisting of a voltage source (V_{Th}) in series with a resistance (R_{Th}) .

Where, V_{Th} = Open circuit voltage at load terminals.

R_{Th} = Equivalent resistance at load terminal when sources are made inoperative.

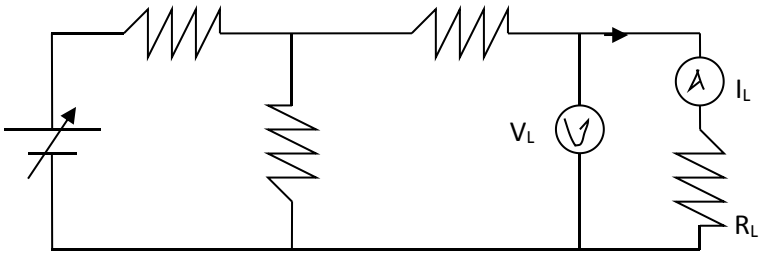


Observation Table: -

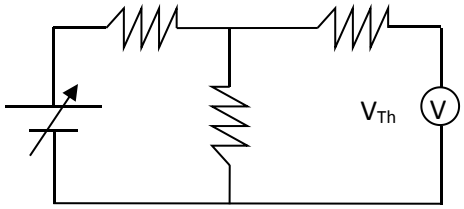
S.N.	I_L (mA)	V_L (V)	$R_L = \frac{V_L}{I_L}$ (Ω)	V (V)	I (mA)	$R_{Th} = \frac{V}{I}$ (Ω)	V_{TH} (V)	$I_L' = \frac{V_{Th}}{R_{TH} + R_L}$ (mA)	%Error $= \frac{I_L - I_L'}{I_L} * 100$

Circuit Diagram: -

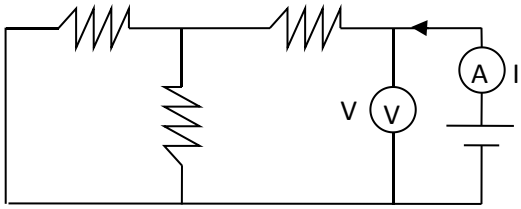
(A) For load current (I_L) and Load Resistance (R_L)



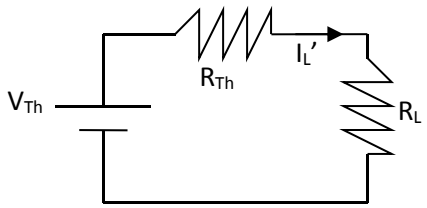
(B) For V_{Th}



(C) For R_{Th}



(D) For I_L'



Result: - Thevenin's theorem is verified with some permissible error which is allowed in practical.

Precaution: -

1. Check all the resistances and connecting wires are properly connected.
2. Terminals of voltage source of the kit should not be short circuited only circuit on the board should be short circuited.
3. Current in the ammeter is in mille amperes not in amperes while voltage is in volts.
4. Check the connecting lead if voltage or current is not displayed on respective meters.
5. The current and voltage given to ammeter & voltmeter respectively should not exceed beyond their maximum range.

Answer the following questions

Q1. What do you understand by open circuit and short circuit?

Q2. Why the load resistance is open circuited in Thevinin's and short circuited in Norton's?

Q3. AC is more dangerous or DC and why?