

## **EXPERIMENT NO-7**

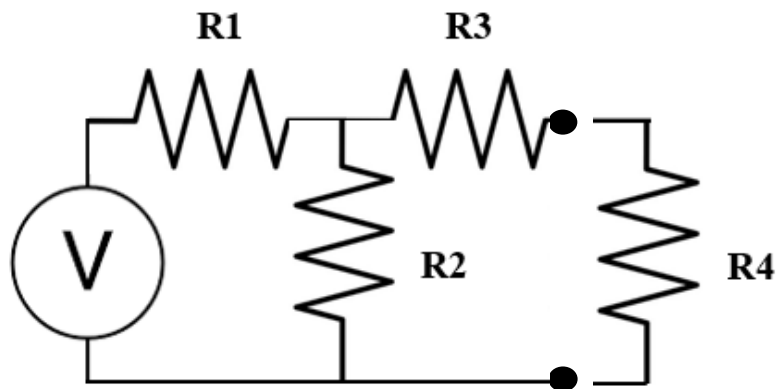
### **01. AIM OF THE EXPERIMENT: -**

To verify Thevenin's theorem in a DC network.

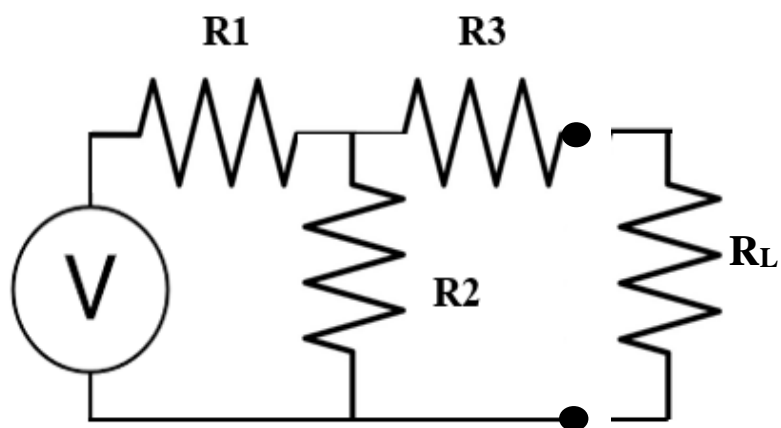
### **02. APPARATUS REQUIRED: -**

Sl No.	Components	Type	Rating	Quantity
1	Trainer Kit		0-15 V	1
2	Ammeter	DC	250 Ma	1
3	Multi-Meter	Digital	0-99999	1
4	Patch Chords	Double Ended	0.5 W	As per required

### **CIRCUIT DIAGRAM: -**



**(CIRCUIT DIAGRAM)**



**(CIRCUIT DIAGRAM)**

### **03. THEORY: -**

Thevenin's theorem states that any linear network can be replaced by an equivalent voltage source ( $V_{th}$ ) in series with a resistance ( $R_{th}$ ), the voltage being equal to the open circuit voltage at the

load terminals and the resistance being equal to the resistance of the network between the load terminals with all voltage source of the network replaces by their internal resistance.

**Steps to find the  $V_{th}$ : (Theoretical)**

- Remove the load resistance.
- Find the open circuit voltage across load terminals.

**Steps to find the  $R_{th}$ :**

- Open the voltage source.
- Short the voltage source by their internal resistance.
- Remove the load resistance.
- Find the equivalent resistance  $R_{th}$  across open load terminal.
- Now the load current  $I_L$ , can be calculated as

$$I_L = V_{th} / R_{th} = R_L$$

**04. PROCEDURE: -**

- Short the 12V DC terminals (+ and -)
- Measure the equivalent resistance ( $R_{th}$ ) across P3 and P4.
- Then connect the (0-12) V DC supply to the 12 V DC terminals of the given circuit.
- Now take down the voltage  $V_{th}$  across the terminals P3 and P4.
- Now short the F4 and L2 and connect an ammeter across P3 and L1 of the Thevenin's equivalent circuit and ammeter across P9 and L5 and take the reading.
- Match both the ammeter reading of general electrical circuit and Thevenin's equivalent circuit.

**05. TABULATION: -**

Sl No.	Practical		Theoretical	
	$I_L$ (mA)	$V_{th}$ (V)	$I_L$ (mA)	$V_{th}$ (V)
1				

**06. CONCLUSION: -**