IARE

IARE
INSTITUTE OF
AERONAUTICAL ENGINEERING
(An Autonomous Institute affiliated to JNTUH, Hyderabad)
Dundigal, Hyderabad - 500 043

LABORATORY WORK SHEET

Name of the Student : Abdul Basith Khan

Roll Number										
2	3	9	5	1	A	6	6	0	1

Class : 1st Year (CSM-A) Semester : 1st

Course Code : AEE001 Course Name : EEE Laboratory

Name of the Course Faculty : Dr. Rajashekhar Goud Faculty ID : IARE11067

Exercise Number : 05 Week Number : 05 Date :

DAY TO DAY EVALUATION:

Marks	Aim / Preparation	Algorithm / Procedure / Performance in the Lab	Source Code / Calculations and Graphs	Program Execution / Results and Error Analysis	Viva - Voce	Total
Max. Marks	4	4	4	4	4	20
Obtained	4	4	3	3	4	18

Signature of Faculty

START WRITING FROM HERE : Thevenins Theorem :-

Aim :-

To verify Thevenins Theorem for an electric current theoretically and practically.

Apparatus :-

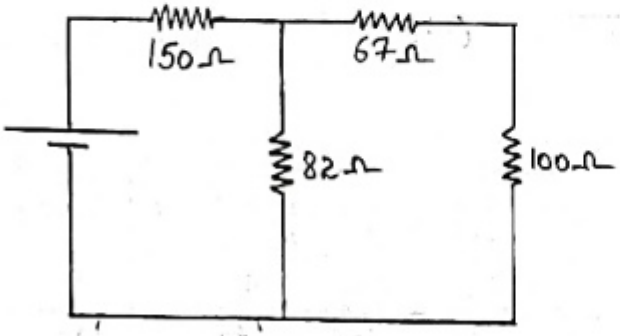
S. No.	Equipment	Range	Type	Quantity
1.	Ammeter	0-200mA	Digital	1
2.	Voltmeter	0-30 V	Digital	1
3.	RPS	0-30 V	Digital	1
4.	Bread Board	-	-	1
5.	Resistors	82Ω, 150Ω 47Ω, 100Ω	-	4
6.	Connecting wires	-	-	As required

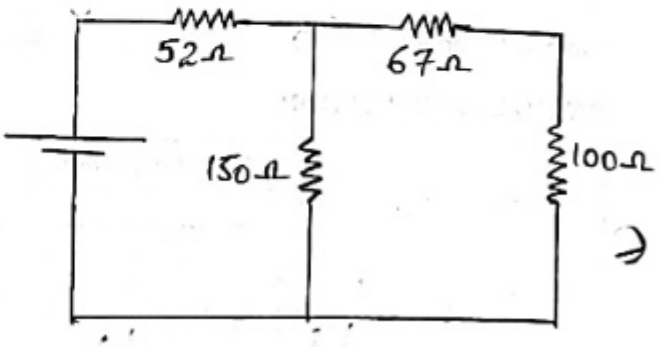
ROLL NUMBER :

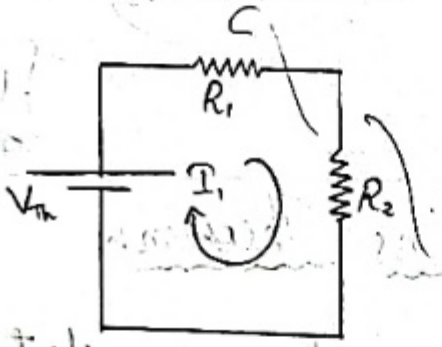
Theory:-

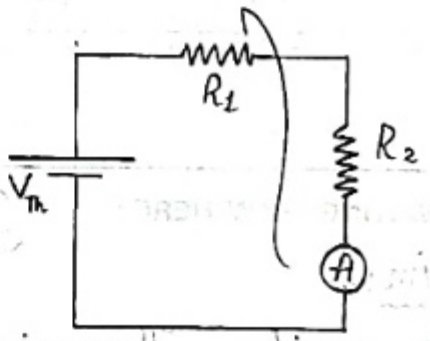
Any bilateral linear active network can be replaced by a Thevenins equivalent voltage source 'V_{Th}' in series with a Thevinins equivalent resistance 'R_{Th}'.

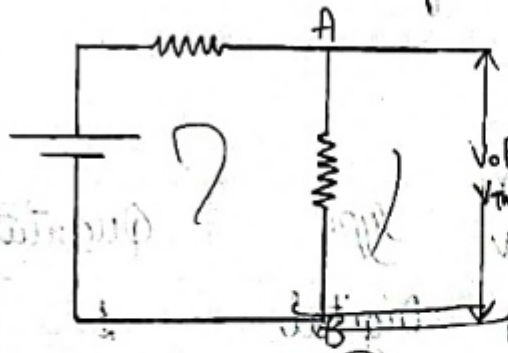
Circuit Diagram:-

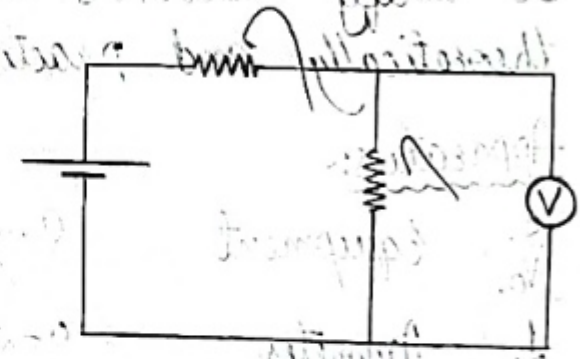


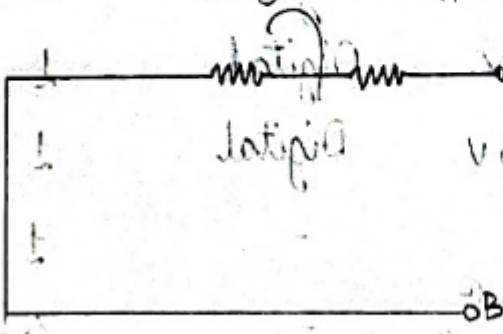


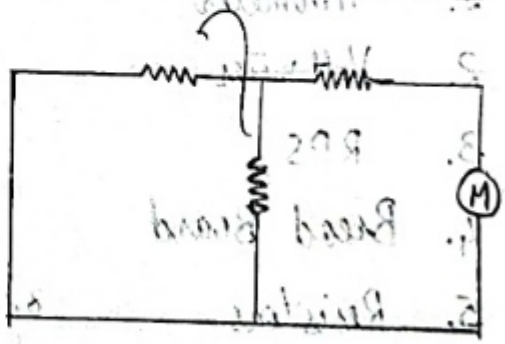












ROLL NUMBER :

Observations :-

Parameters	Theoritical	Practical
V.p	9.64 V	9.64 V
R_{Th}	100.01 Ω	101.9 Ω
I_2	0.45 A	0.046 A

Series with a Thevenins equivalent "R_{Th}".

Procedure :-

1. Connect the circuit diagram as shown in the fig.
2. Measure current in R_2.
3. Connect circuit as shown in figure measure open circuit diagram voltage V_{oc} by open connecting terminal (i.e. V_{Th}).
4. Draw the thevenins equivalent circuit.
5. Measure current in R_2.

Calculations :-

By figure from KVL

$$-15 + 82i_1 + 150i_1 = 0$$

$$232i_1 = 15$$

$$i_1 = 0.064$$

Voltage across $150\Omega = 150 \times i_1$

$$= 150 \times 0.064$$

$$V_{Th} = 9.6\ V$$

$$R_{Th} = \frac{82 \times 150}{82 + 150} + 47$$

$R_{Th} = 100.01\ \Omega$

$\therefore I = \frac{V_{Th}}{R_{Th} + R_2}$

We know $R_2 = 100\ \Omega$

$I = \frac{9.6}{100.0 \times 100}$

$I = 0.0487\ A$

Precautions:-

1. Check proper connections before supplying power
2. Make sure of proper colour coding of resistors
3. The terminal of the resistance should be properly connected

Result:-

Hence, Thevenins theorem is verified theoritically and practically.