Course Name:	**Elements of Electrical and Electronics Engineering**	**Semester:**	**I**
Date of Performance:	**12-09-23**	**Batch No:**	**C5_3**
Faculty Name:		**Roll No:**	**16010123325 (53)**
Faculty Sign & Date:		**Grade/Marks:**	**/ 25**

Experiment No: 3

Title: Thevenin's Theorem & Norton's Theorem.

Aim and Objective of the Experiment:

- To Verify for Thevenin's Theorem for the circuit
- To Verify Norton Theorem for the Circuit.

COs to be achieved:

CO1: Analyze resistive networks excited by DC sources using various network theorems.

Circuit Diagram:

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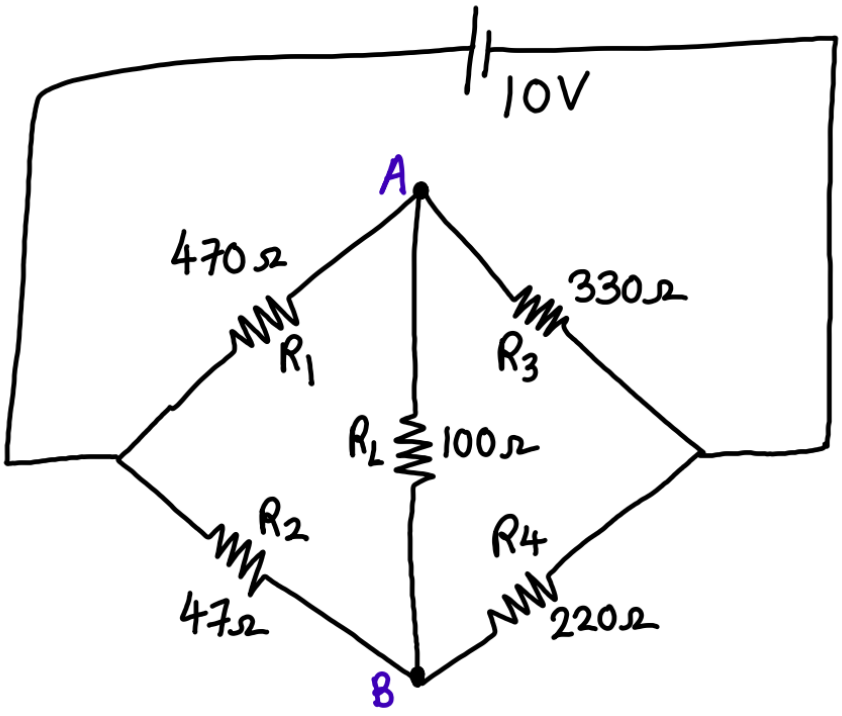
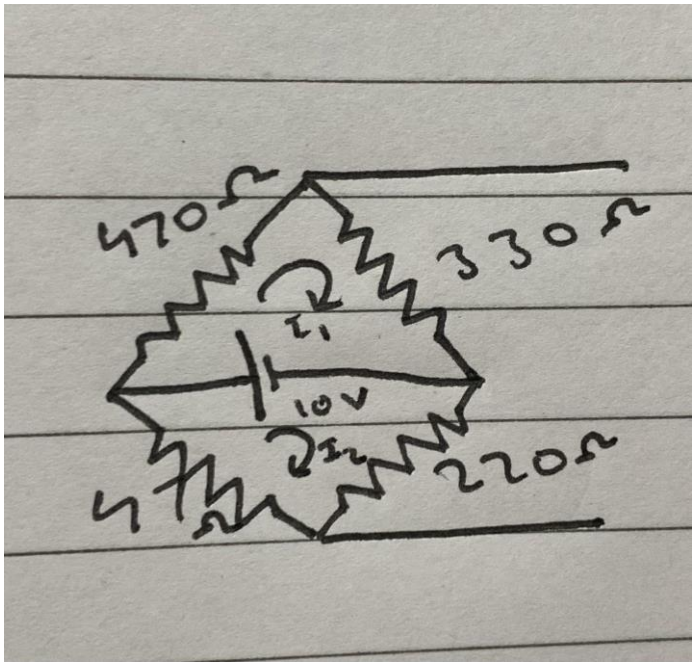
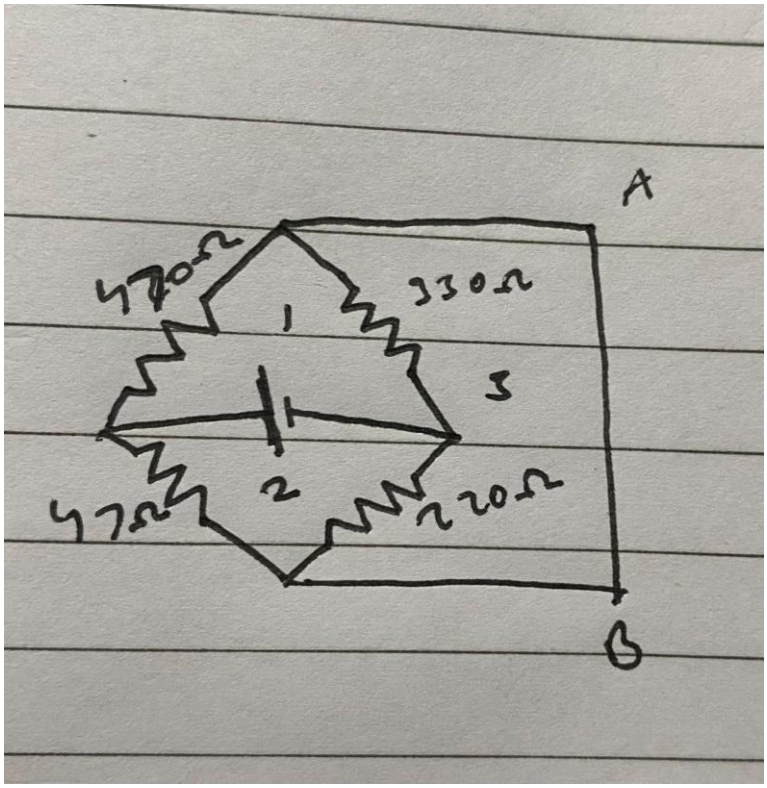


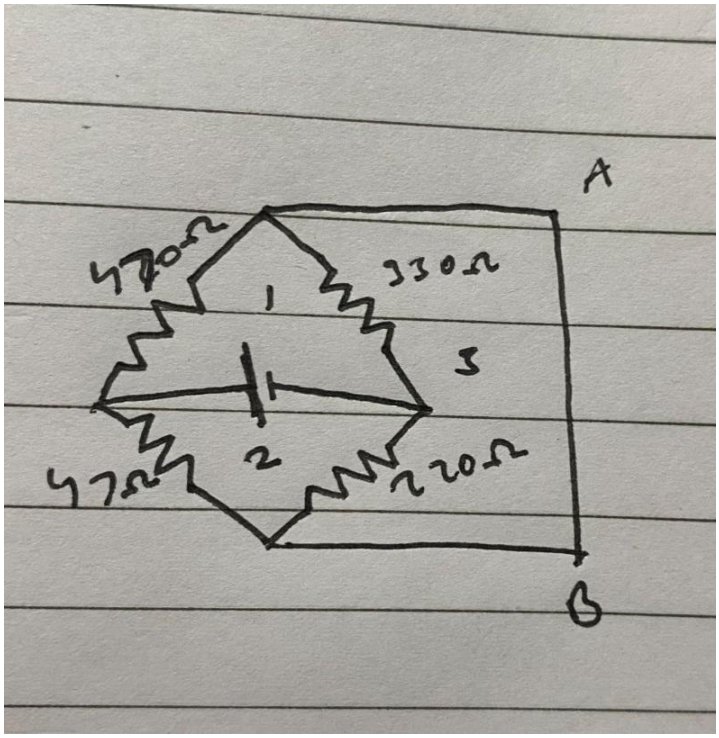
Task 1: Circuit Diagram to measure R_{TH}/R_N:



Task 2: Circuit Diagram to measure V_{TH}:



Task 3: Circuit Diagram to measure I_{SC}:



Stepwise-Procedure:

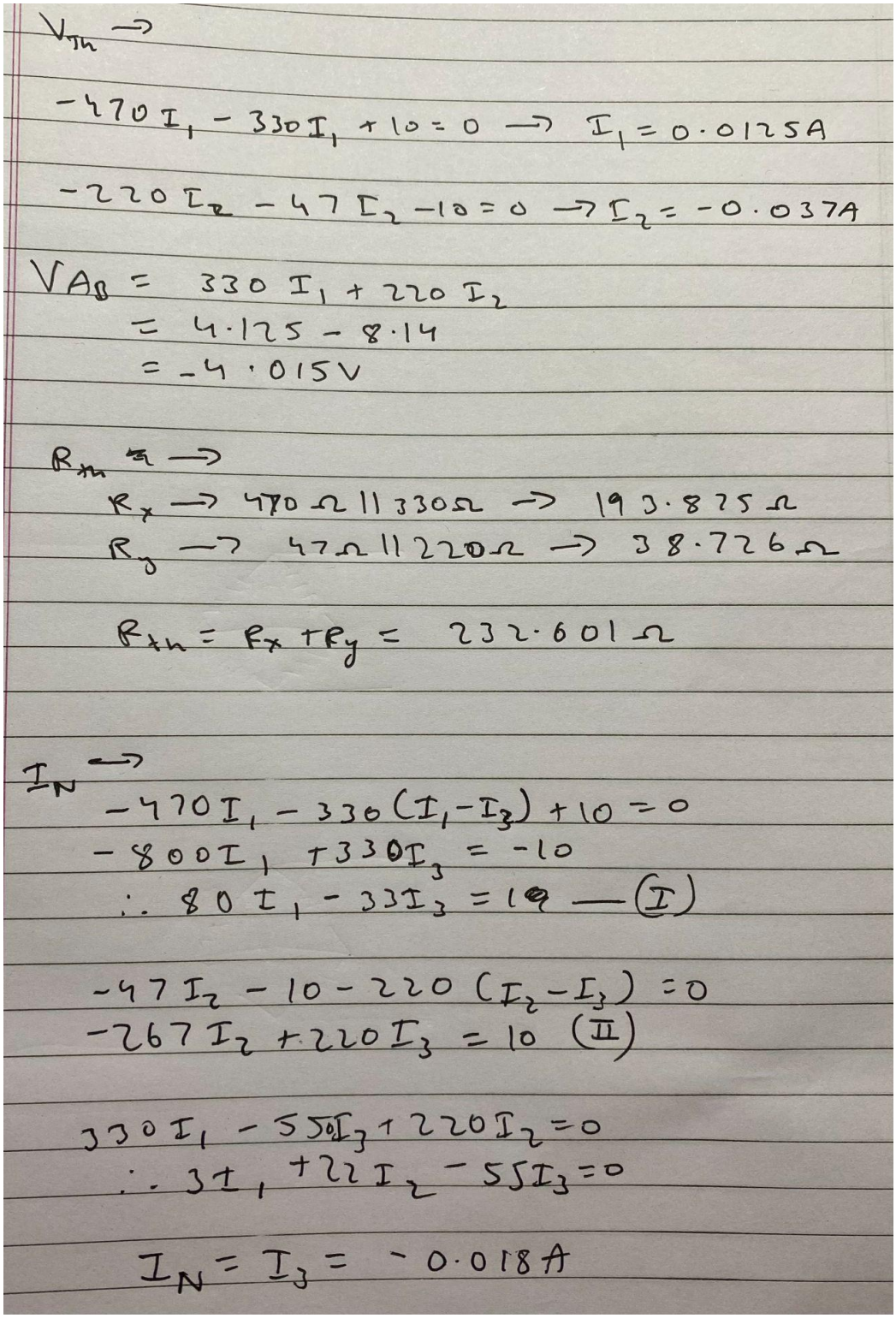
Thevenin's Theorem:

1. Connect the circuit as shown in the circuit diagram.
2. Set 10V and measure open circuit voltage V_{Th} across load terminals A and B.
3. Replace all voltage sources by Short circuit and measure R_{Th} across terminals A and B as per the circuit diagram shown in the figure.
4. Draw Thevenin's equivalent circuit and determine the value of load current from it.
5. Verify the results theoretically.

Norton's Theorem:

1. Connect the circuit as shown in the circuit diagram.
2. Set the voltages 10V
3. Remove the load resistance and measure the short circuit current I_{SC} through A and B terminals.
4. Replace all the voltage sources by Short circuit and measure R_{Th} across terminals A and B as per the circuit diagram shown in the figure.
5. Draw Norton's equivalent circuit and determine the value of load current.
6. Verify the results theoretically

Sample Calculations:

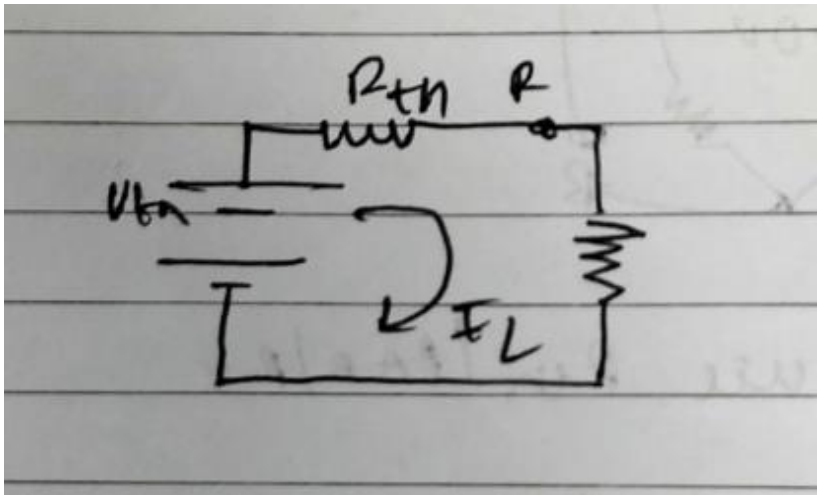


Learnt and verified Thevenin's Theorem & Norton's Theorem

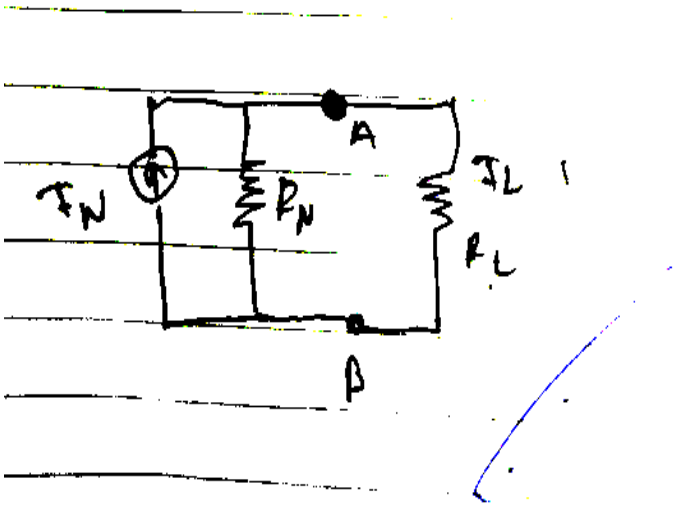
Observation Table:

	V_{TH} (V)	R_{TH} / R_N (Ω)	I_N (mA)	I_L (mA)
Theoretical value	**4.1**	**232.6**	**0.017**	**12.6**
Practical value	**4.15**	**228**	**0.015**	**12**

Draw Thevenin's Equivalent circuit



Draw Norton's Equivalent circuit



Conclusion:

We learned the practical application of Thevenin's and Norton's theorems and also got to connect and verify the correct values of voltages, currents and resistances.

Signature of faculty in-charge with Date: