LAB NO: 11

TO ANALYZE A DC CIRCUIT USING NORTON'S THEOREM

OBJECTIVE:

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THEORY:

NORTON'S THEOREM:

Norton's Theorem states that a linear active network consisting of the independent or dependent voltage source and current sources and the various circuit elements can be substituted by an equivalent circuit consisting of a current source in parallel with a resistance. The current source being the short-circuited current across the load terminal and the resistance being the internal resistance of the source network.

The Norton's theorems reduce the networks equivalent to the circuit having one current source, parallel resistance and load. Norton's theorem is the converse of Thevenin's Theorem. It consists of the equivalent current source instead of an equivalent voltage source as in Thevenin's theorem.

The determination of internal resistance of the source network is identical in both the theorems. In the final stage that is in the equivalent circuit, the current is placed in parallel to the internal resistance in Norton's Theorem whereas in Thevenin's Theorem the equivalent voltage source is placed in series with the internal resistance.

APPARATUS:

- Digital multi-meter
- DC power supply
- Resistors
- Connecting Wires

SCHEMATIC DIAGRAM:

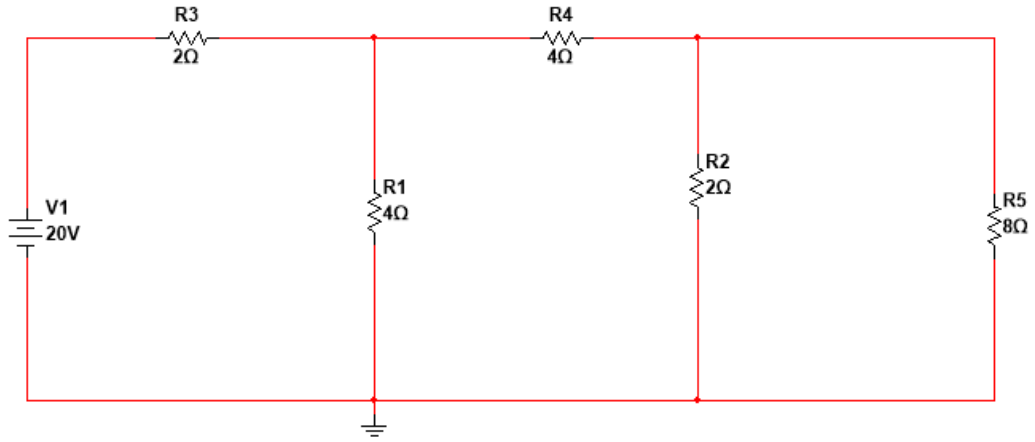

Figure 11.1: Circuit Diagram

PROCEDURE:

CALCULATIONS:

Parameters	Theoretical	Practical
I_N		
R_N		
Current through 8Ω resistor		

Table 11.1

CONCLUSION:

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POST LAB QUESTIONS:

1. In Norton's theorem, how R_N is calculated?

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2. In Norton's theorem, how I_N is calculated?

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3. What is the main difference between Thevenin's Theorem and Norton's Theorem?

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Teacher Remarks:

Obtained Marks: _____ / 10