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| **Course Name:** | **Elements of Electrical and Electronics Engineering**  | **Semester:** | **I/II** |
| **Date of Performance:** |  **23/11/21** | **Batch No:** | **A2** |
| **Faculty Name:** | **Maruti Zalte** | **Roll No:** | **16010121045** |
| **Faculty Sign & Date:** |  | **Grade/Marks:** |  **/ 25** |

**Experiment No: 3**

**Title:** **Thevenin’s Theorem & Norton’s Theorem.**

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| **Aim and Objective of the Experiment:** |
| * To Verify for Thevenin’s Theorem for the circuit
* To Verify Norton Theorem for the Circuit.
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| **COs to be achieved:** |
| **CO1:** Analyze resistive networks excited by DC sources using various network theorems.. |

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| **Circuit Diagram/ Block Diagram:** |
|  **Circuit Diagram**Pargat Singh**Task 1: Circuit Diagram to measure VTh:**Pargat Singh**Task 2: Circuit Diagram to measure Isc=IN:**Pargat Singh**Task 3: Circuit Diagram to measure Rth=RN:**Pargat Singh |

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| **Stepwise-Procedure:** |
| **Thevenin’s Theorem**1. Connect the circuit as shown in the circuit diagram. 2. Set V1, V2 and measure open circuit voltage VTh across load terminals A and B. 3. Replace all voltage sources by Short circuit and measure RTh 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 V1, V23. Remove the load resistance and measure the short circuit current ISC through A and B terminals. 4. Replace all the voltage sources by Short circuit and measure RTh 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 |

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| **Observation Table:** |
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|  | **IRL** |
| **Practical value**  | **0.88 A** |
| **Theoretical value** | **0.88 A** |

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|  | **Vth** | **Rth (Ω)** | **Isc (IN)** | **Irl** **Thevenin** | **Irl ΩNorton** |
| **Practical value**  | **440 V** | **400** | **1.10 A** | **0.88 A** | **0.88 A** |
| **Theoretical value** | **440 V** | **400** | **1.10 A** | **0.88 A** | **0.88 A** |

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| **Thevenin’s equivalent circuit**Pargat Singh | **Norton’s Equivalent Circuit**Pargat Singh |

**Theoretical Calculation:**  |

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| **Conclusion:** |
| We can solve any complex circuit by applying Thevenin’s or Norton’s Theorem. By performing the experiment, we can verify both theorems. |

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| **Signature of faculty in-charge with Date:** |