**Basic Electrical and Electronics Engineering**

**Experiment No. : 04**

***Thevenins and Nortons Theorem***

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**Date of performance : 27/03/2021**

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| **Aim:** | To determine resistor, voltage and current value in a circuit. |
| **Apparatus:** | Online simulation tools (Suggested Tinkercad) |
| **Theortical Analysis:** | ***Thevenins Theorem***    ***Fig. 1(a) Voltage acorss Rl load resistor value 10ohm, 20ohm, 30ohm***  ***Theoretical Calculations:*** |
| ***Nortons Theorem***    ***Fig. 1(b) Voltage across across a and b***  ***Theoretical Calculations:*** |

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|  |  | **Theoretical values** | **Practical values** |
| **Observation Table** | Thevenins Voltage, VTH | **2.44V** | **2.44V** |
| Equivalent resistor, RTH | **38.2 ohm** | **38.2 ohm** |
| Voltage V10Ω | **507 mV** | **507mV** |
| Voltage V20Ω | **838 mV** | **838 mV** |
| Voltage V30Ω | **1.07 mV** | **1.07 mV** |

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|  |  | **Theoretical values** | **Practical values** |
| **Observation Table** | Nortons Current, IN | **3.17 A** | **3.17 A** |
| Equivalent resistor, RN | **7.43 ohm** | **7.43 ohm** |
| Voltage V10Ω | **13.5 V** | **13.5 V** |

**Conclusion:**

* The Practical values has been attained using online simulation tool Tinkercad.
* Thevenins and Nortons Theorems are used to determine the values of current,resistance and voltage.
* The Theoretical and Practical values are equal to each other

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