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| **Course Name:** | **Elements of Electrical and Electronics Engineering** | **Semester:** | **I/II** |
| **Date of Performance:** | **16/11/21** | **Batch No:** | **A2** |
| **Faculty Name:** | **Maruti Zalte** | **Roll No:** | **16010121045** |
| **Faculty Sign & Date:** |  | **Grade/Marks:** | **/ 25** |

**Experiment No: 4**

**Title:** **Maximum Power Transfer Theorem**

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| **Aim and Objective of the Experiment:** |
| * To observe maximum power transfer in D.C. 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 |

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| **Stepwise-Procedure:** |
| 1.Set D.C. supply voltage V= 15 V.  2. Vary in the range 50 Ω - 10 KΩ in steps of 100 Ω.  3. Note down for each value of Where are current through and voltage across respectively.  4. Prepare observation table showing readings of : .  5. Plot graph of  6. Locate the point of maximum value of power and note down corresponding value of  . Verify the results theoretically |

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| **Observation Table:**   |  |  |  |  | | --- | --- | --- | --- | | **Sr. No.** | **Value of RL (kΩ)** | **Load current IL (mA)** | **Power PL=( IL)2RL**  **(mWatts)** | | **1** | **0.5** | **2.73** | **3.72645** | | **2** | **1** | **2.5** | **6.25** | | **3** | **1.5** | **2.31** | **8.00415** | | **4** | **2** | **2.14** | **9.1592** | | **5** | **2.5** | **2.00** | **10** | | **6** | **3** | **1.87** | **10.4907** | | **7** | **3.5** | **1.76** | **10.8416** | | **8** | **4** | **1.67** | **11.1556** | | **9** | **4.5** | **1.58** | **11.2338** | | **10** | **5** | **1.50** | **11.25** | | **11** | **5.5** | **1.43** | **11.24695** | | **12** | **6** | **1.36** | **11.0976** | | **13** | **7** | **1.25** | **10.9375** | | **14** | **8** | **1.15** | **10.58** | | **15** | **9** | **1.07** | **10.3041** | | **16** | **10** | **1.00** | **10** | |
| **Screenshot of Output:**    **Power PL (mW)**  **Load current IL (mA)** |

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| **Conclusion:** |
| This theorem states that the maximum power that can be transferred from source to load is 50%, which occurs when source impedance is exactly matched to load impedance. |

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