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| **Course Name:** | **Elements of Electrical and Electronics Engineering** | **Semester:** | **I/II** |
| **Date of Performance:** | **15/11/2021** | **Batch No:** | **A3** |
| **Faculty Name:** | **Maruti Zalte** | **Roll No:** | **16010121051** |
| **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** |

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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** | **3.64** | **6.62** | | **2** | **1** | **3.33** | **11.09** | | **3** | **1.5** | **3.08** | **14.23** | | **4** | **2** | **2.86** | **16.36** | | **5** | **2.5** | **2.67** | **17.82** | | **6** | **3** | **2.50** | **18.75** | | **7** | **3.5** | **2.35** | **19.33** | | **8** | **4** | **2.22** | **19.71** | | **9** | **4.5** | **2.11** | **20.03** | | **10** | **5** | **2.00** | **20** | | **11** | **5.5** | **1.90** | **19.85** | | **12** | **6** | **1.82** | **19.87** | | **13** | **6.5** | **1.74** | **19.67** | | **14** | **7** | **1.67** | **19.52** | | **15** | **7.5** | **1.60** | **19.2** | | **16** | **8** | **1.54** | **18.9728** | | **17** | **8.5** | **1.48** | **18.6184** | | **18** | **9** | **1.43** | **18.4041** | | **19** | **9.5** | **1.38** | **18.0918** | | **20** | **10** | **1.33** | **17.689** | |
| Screenshot of Output: |

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| **Conclusion:** |
| Maximum Power is at the resistance of 5k which is verified from the graph |

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