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| **Course Name:** | **Elements of Electrical and Electronics Engineering** | **Semester:** | **I/II** |
| **Date of Performance:** | **/ / 20--** | **Batch No:** |  |
| **Student Name:** |  | **Roll No:** |  |
| **Faculty Sign & Date:** |  | **Grade/Marks:** | **/ 20** |

**Experiment No: 4**

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

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| **Aim and Objective of the Experiment:** |
| * To observe maximum power transfer across load resistor in a 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:** |
| **VS = 15 V and RS = \_\_\_\_\_ Ω** |

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| **Stepwise-Procedure:** |
| 1.Set D.C. supply voltage VS = 15 V  2. Vary in the range 100 Ω - 1 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. | RL Ω | Circuit Current (IL) in mA | | Voltage (VL) in Volts | Power absorbed by load (PL) in W  PL = IL2.RL | | | Theoretical | Practical | Theoretical | Practical | |  | 100 |  |  |  |  |  | |  | 200 |  |  |  |  |  | |  | 300 |  |  |  |  |  | |  | 400 |  |  |  |  |  | |  | 500 |  |  |  |  |  | |  | 600 |  |  |  |  |  | |  | 700 |  |  |  |  |  | |  | 800 |  |  |  |  |  | |  | 900 |  |  |  |  |  | |  | 1 K |  |  |  |  |  | |

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| **Graph: Draw a graph showing effect of variation in** RL on PL using observation table. Take RL on X –axis and PL on Y- axis. (Use a graph paper) |
| **Conclusion-**   1. **Explore one practical application where Maximum Power Transfer Theorem is used.** 2. **Draw a block diagram or circuit diagram of this application.** 3. **Explain in brief.**   **OR**  **Answer the following:**   1. **Do you apply Thevenin’s Theorem to calculate Maximum Power across load resistor in a D.C. circuit?** 2. **Take a sample problem. Draw a block diagram or circuit diagram of this sample problem.** 3. **Explain the solution in brief.** |

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