

<b>Course Name:</b>	<b>Elements of Electrical and Electronics Engineering</b>	<b>Semester:</b>	<b>I/II</b>
<b>Date of Performance:</b>	<b>28/4/2022</b>	<b>Batch No:</b>	<b>E1</b>
<b>Faculty Name:</b>		<b>Roll No:</b>	<b>16010321005</b>
<b>Faculty Sign &amp; Date:</b>		<b>Grade/Marks:</b>	<b>/ 25</b>

## Experiment No: 4

### Title: Maximum Power Transfer Theorem

#### Aim and Objective of the Experiment:

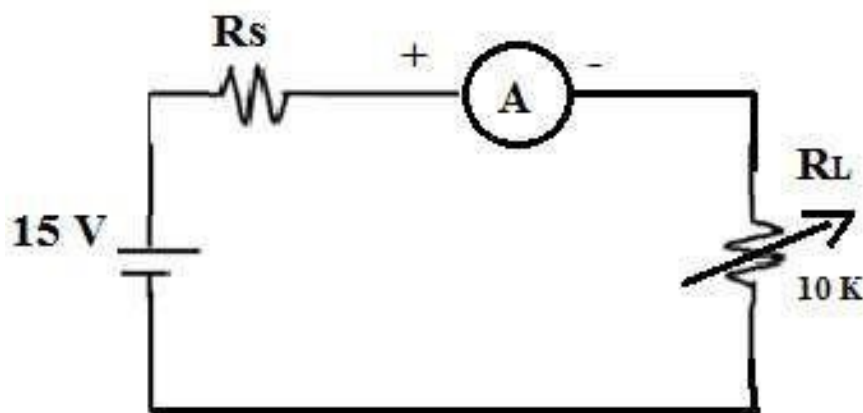
- To observe maximum power transfer in D.C. circuit.

#### COs to be achieved:

**CO1:** Analyze resistive networks excited by DC sources using various network theorems.

#### Circuit Diagram/ Block Diagram:

##### Circuit Diagram



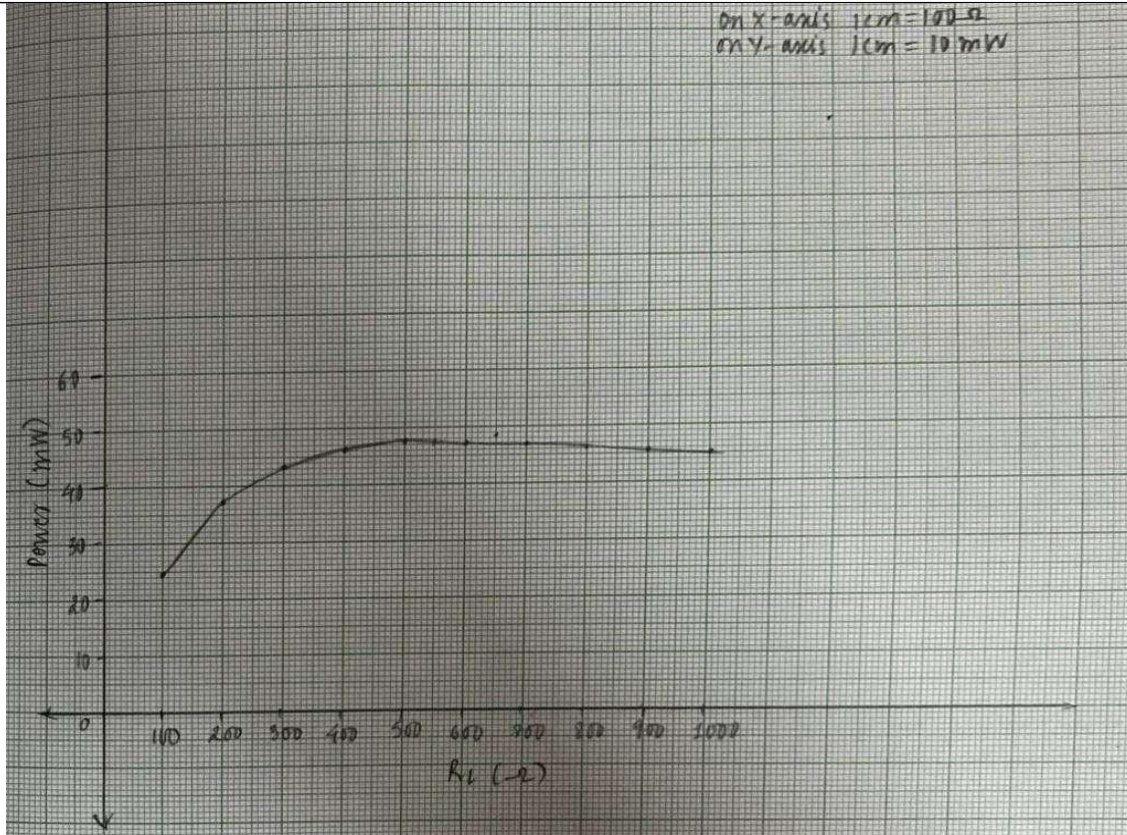
**Stepwise-Procedure:**

1. Set D.C. supply voltage  $V = 15\text{ V}$ .
2. Vary  $R_L$  in the range  $50\ \Omega$  -  $10\text{ K}\Omega$  in steps of  $100\ \Omega$ .
3. Note down  $I_L$  and  $V_L$  for each value of  $R_L$ . Where  $I_L$  and  $V_L$  are current through  $R_L$  and voltage across  $R_L$  respectively.
4. Prepare observation table showing readings of  $I_L$  and  $V_L$  =  $I_L \cdot V_L$ .
5. Plot graph of  $P_L$  vs  $R_L$ .
6. Locate the point of maximum value of power  $P_L$  and note down corresponding value of  $R_L$ .  
 . Verify the results theoretically

**Observation Table:**

Sr. No.	Value of $R_L$ ( $\Omega$ )	Value of $V_L$ (V)	Load current $I_L$ (mA)	Power $P_L = (I_L)^2 R_L$ (Watts)
1	100	1.54	16	0.02464
2	200	2.66	14	0.03724
3	300	3.59	12	0.04308
4	400	4.25	11	0.04675
5	500	4.79	10	0.0479
6	550	5.03	9.5	0.04778
7	600	5.24	9.1	0.04768
8	650	5.44	9	0.04896
9	700	5.64	8.5	0.04794
10	800	5.95	8	0.0476
11	900	6.23	7.5	0.04672
12	1000	6.47	7	0.04529

Screenshot of Output:



**Conclusion:**

Hence, we have understood and verified maximum power transfer theorem.

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