Course Name:	Elements of Electrical and Electronics Engineering	Semester:	I/II
Date of Performance:	/ /20-- 24	Batch No:	C-5(3)
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Faculty Sign & Date:		Grade/Marks:	/20

Experiment No: 4

Title: Maximum Power Transfer Theorem

Aim and Objective of the Experiment:

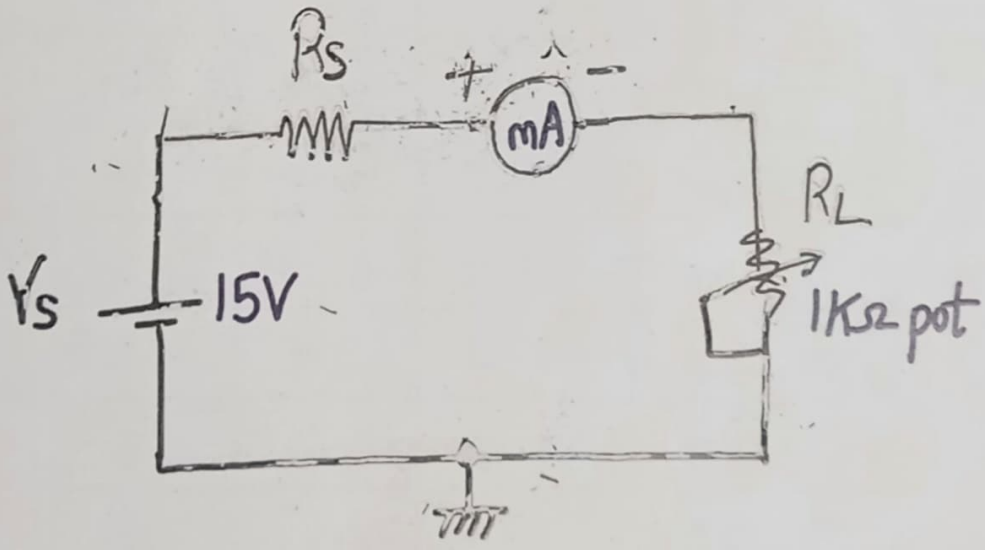
- To observe maximum power transfer across load resistor in a D.C circuit.

COs to be achieved:

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

Circuit Diagram:

V_S = 15 V and R_S = 470 **Ω**



Stepwise-Procedure:

1. Set D.C. supply voltage $V_S = 15$ V
2. Vary R_L in the range 100 Ω - 1 KΩ in steps of 100 Ω
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 R_L *Vs power* $P = I_L \cdot V_L$
5. Plot graph of P *Vs* R_L
6. Locate the point of maximum value of power P and note down corresponding value of R_L. Verify the results theoretically

Observation Table:

Sr. No.	R_L Ω	Circuit Current (I_L) in mA		Voltage (V_L) in Volts (mV) $= I_L \times R_L$	Power absorbed by load (P_L) in W $P_L = I_L^2 . R_L$	
		Theoretical	Practical		Theoretical	Practical
1.	100	17	17.1	1.7	28.9	29.24
2.	200	14	15.16	2.8	39.2	45.95
3.	300	12	12.12	3.6	43.2	44.06
4.	400	11	10.7	4.4	48.4	45.79
5.	500	10	10.1	5.05	50	51.00
6.	600	9	9.2	5.4	44.8	50.78
7.	700	8	8.12	5.6	39.2	46.15
8.	800	7	7.5	5.6	44.1	45.01
9.	900	7	7.1	6.3	36	45.36
10.	1 K	6	6.13	6	36	37.57
11.	470	10	10	47	47	47.0

Graph: Draw a graph showing effect of variation in R_L on P_L using observation table. Take R_L on

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SCALE :- X axis :- 1 unit = 100 Ω
Y axis :- 1 unit = 5W.