

# MP 309 Virtual Lab Experiment

Name – Patel Mihir Hemantkumar

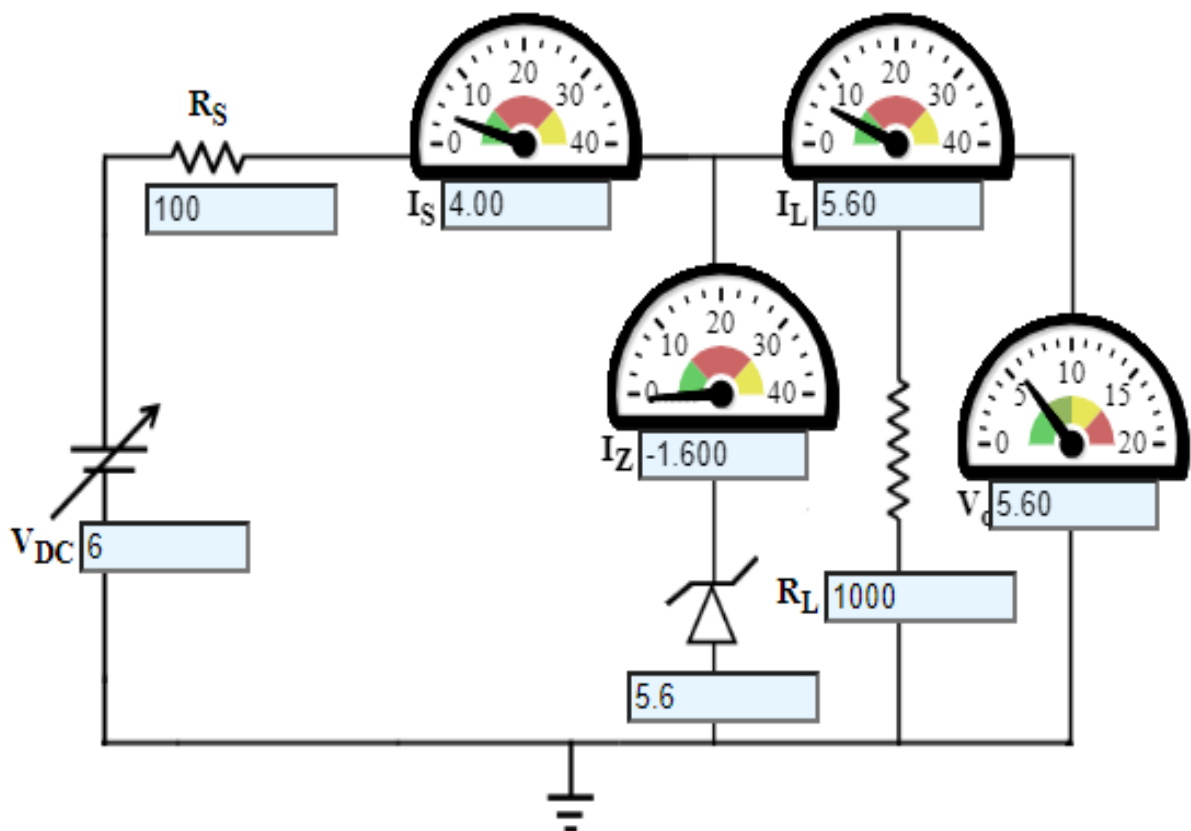
Admission no. – I18PH037

3<sup>rd</sup> year      Semester-5

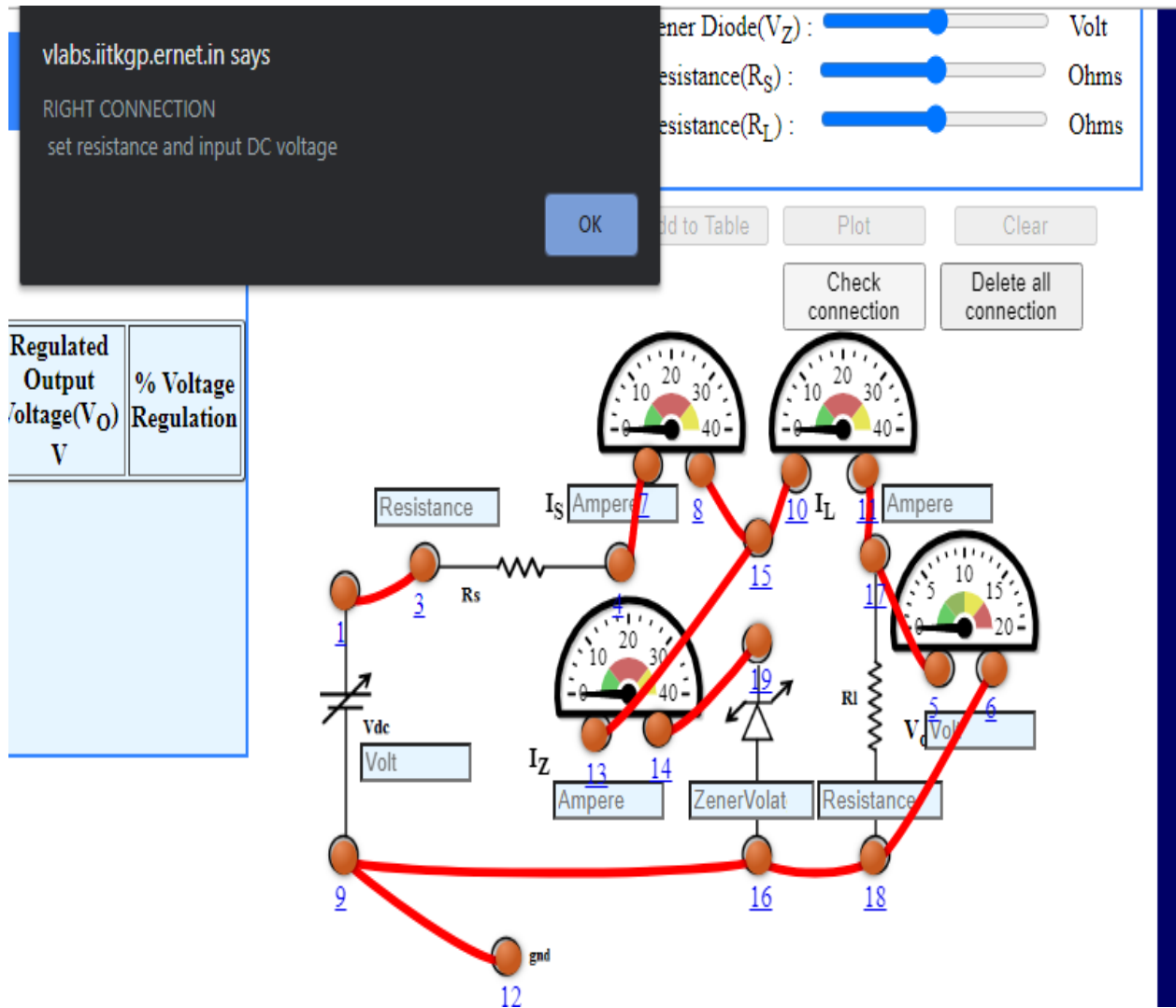
## Experiment – 1

### Part 1 - Zener Diode – Line Regulator

❖ Circuit Diagram :--



## ❖ Connections :--



❖ Observation Table :--

EXPERIMENTAL TABLE

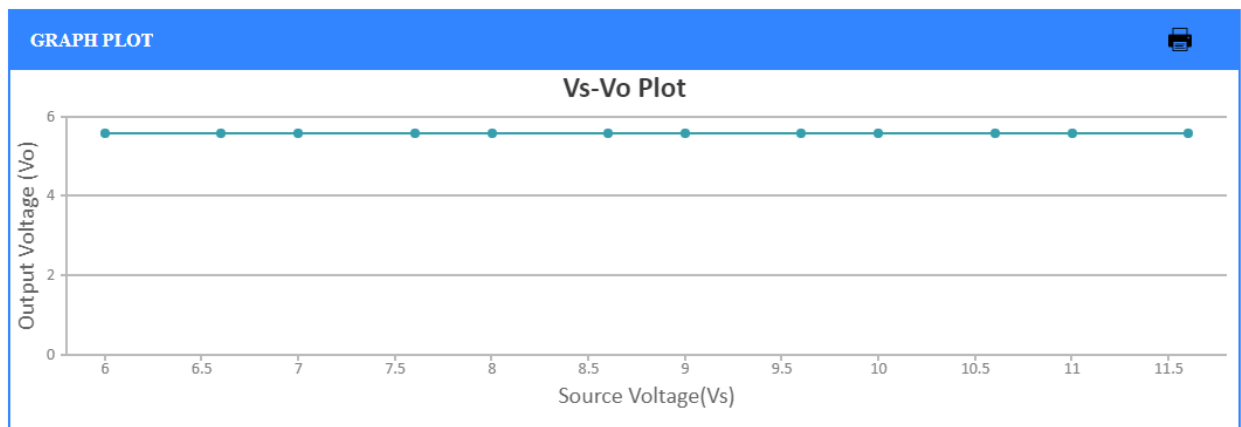
Zener Voltage( $V_Z$ ): 5.6 V

Series Resistance( $R_S$ ): 0.1 K $\Omega$

Load Resistance ( $R_L$ ): 1 K $\Omega$

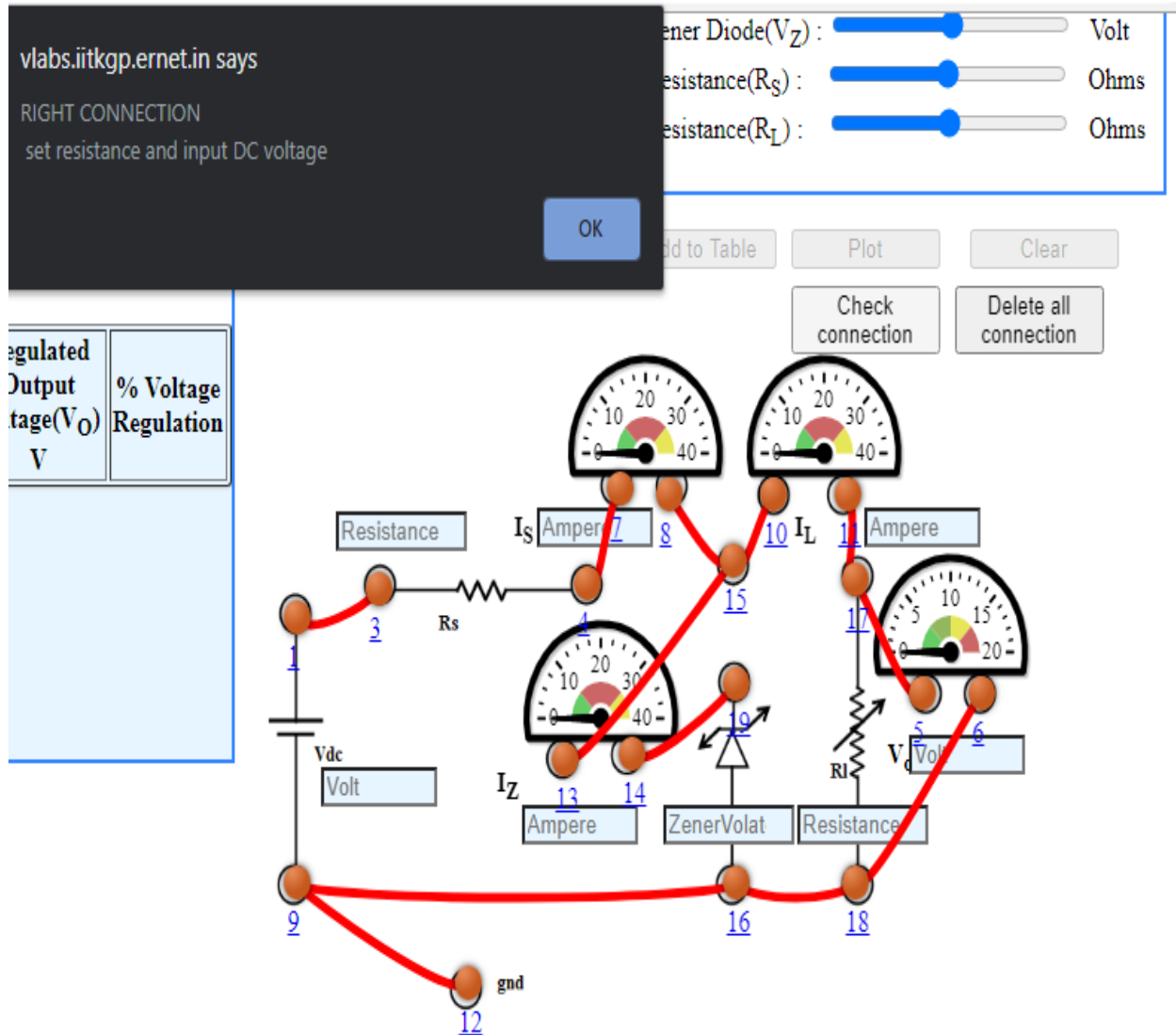
Serial No.	Unregulated supply voltage( $V_S$ ) V	Load Current( $I_L$ ) mAmp	Zener Current( $I_Z$ ) mAmp	Regulated Output Voltage( $V_O$ ) V	% Voltage Regulation
1	6	5.60	-1.600	5.60	83.3
2	6.6	5.60	4.400	5.60	83.3
3	7	5.60	8.400	5.60	71.4
4	7.6	5.60	14.400	5.60	71.4
5	8	5.60	18.400	5.60	62.5
6	8.6	5.60	24.400	5.60	62.5
7	9	5.60	28.400	5.60	55.6
8	9.6	5.60	34.400	5.60	55.6
9	10	5.60	38.400	5.60	50.0
10	10.6	5.60	44.400	5.60	50.0
11	11	5.60	48.400	5.60	45.5
12	11.6	5.60	54.400	5.60	45.5

Graph( $V_S - V_O$ ) :--



## Part 2 - Zener Diode – Load Regulator

### ❖ Circuit Diagram connections :--



❖ Observation Table :--

EXPERIMENTAL TABLE					
DC Voltage ( $V_{DC}$ ): 8 V Zener Voltage( $V_Z$ ): 5.6 V					
Series Resistance( $R_S$ ): 0.1 K $\Omega$					
Serial No.	Load Resistance( $R_L$ ) Ohm	Load Current( $I_L$ ) mA	Zener Current( $I_Z$ ) mA	Regulated Output Voltage( $V_O$ ) V	% Voltage Regulation
1	150	37.3	0	8	40.0
2	250	22.4	1.60	5.60	28.6
3	350	16.0	8.00	5.60	22.2
4	450	12.4	11.6	5.60	18.2
5	550	10.2	13.8	5.60	15.4
6	650	8.62	15.4	5.60	13.3
7	750	7.47	16.5	5.60	11.8
8	850	6.59	17.4	5.60	10.5
9	950	5.89	18.1	5.60	9.52
10	1050	5.33	18.7	5.60	8.70
11	1150	4.87	19.1	5.60	8.00
12	1250	4.48	19.5	5.60	7.41

❖ Graph( $V_S - V_O$ ) :--

