Exp No.	Title	Date
H3	**Line and Load Regulation using Zener Diode**	**14 August**

Objective:

- To find the breakdown voltage of the Zener Diode

Equipment/Components Required:

S.No	Equipment/Component	Type	Rating	Quantity
1	Zener diode			1
2	RPS		0 – 30V	1
3	Voltmeter			1
4	Breadboard			1
5	Resistors		330ohm,1 Kohm,5.5Kohm,10Kohm	1each
6	Connecting wires			Few

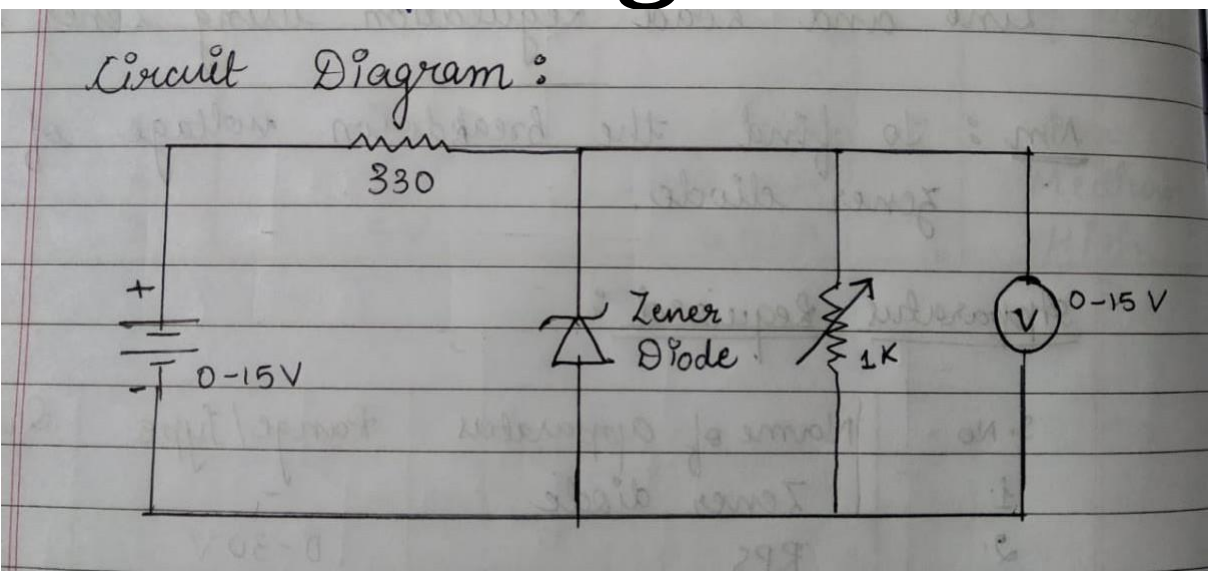
Precautions:

- Avoid loose connections. Meters should be adjusted to null deflection.
- Connections must be verified before switching ON power supply.
- Power supply should be switched OFF before making/breaking circuit connections.
- Readings should be taken without parallax error.

Theory:

Zener Diodes are generally used in reverse bias mode. Zener Diode has a region of almost constant voltage in its reverse biased characteristics, regardless of the current flowing through the diode. This voltage across the diode remains nearly constant with large changes in current through the diode caused by variations in the supply voltage or load. This ability to control itself can be used to great effect to regulate or stabilize a voltage source against supply or load variations. The output voltage across the load resistor Vl is ideally equal to the Zener voltage.

Circuit Diagram:



Observations:

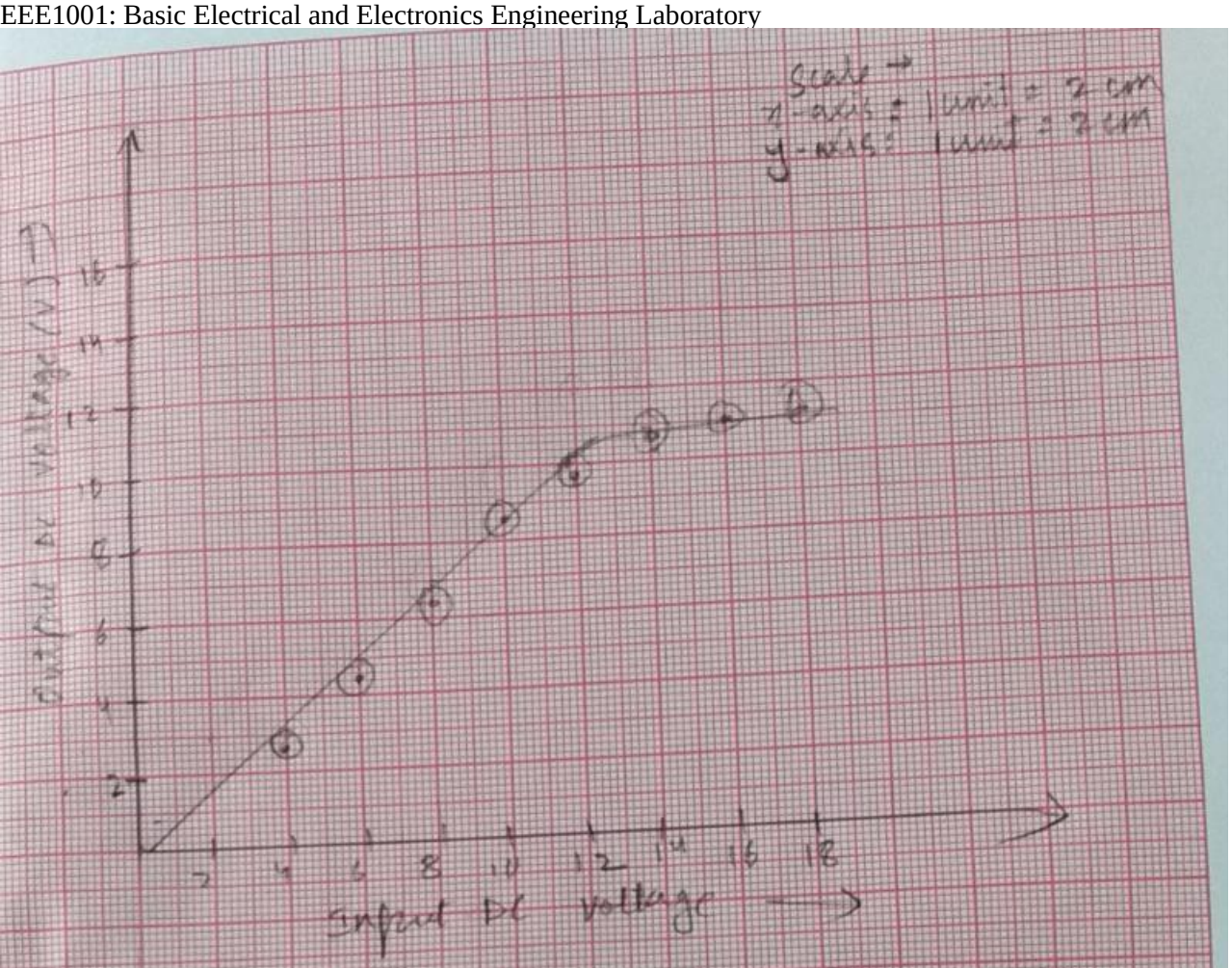
Specifications of Zener Diode: Breakdown Voltage = 9.29 V

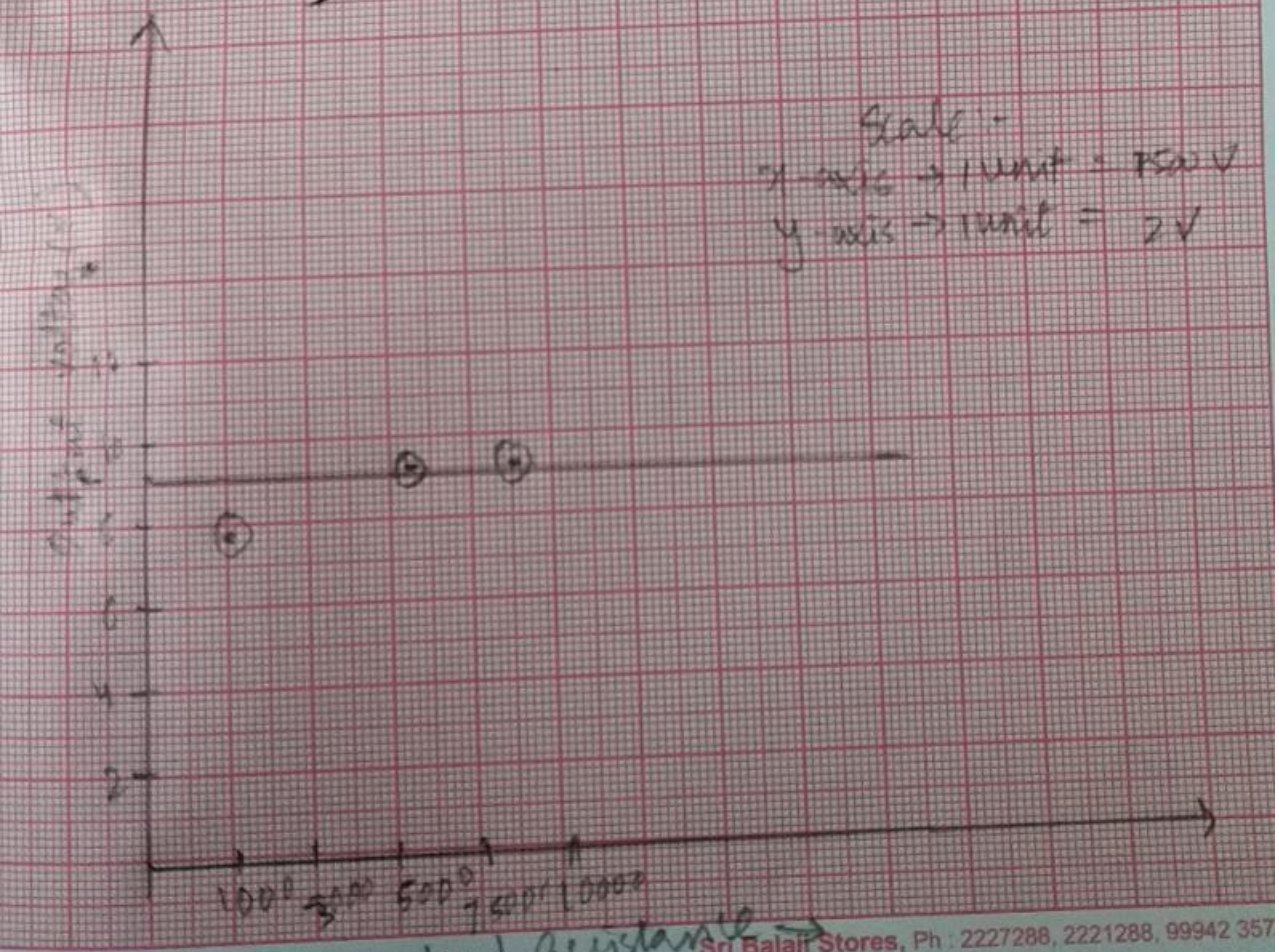
Table 1: Load Resistor = 1000Ω.

S.No	Input DC voltage (V)	Output DC Voltage (V)
1.	4 V	2.96 V
2.	6 V	4.47 V
3.	8 V	5.97 V
4.	10 V	7.40 V
5.	12 V	8.90 V
6.	14 V	9.29 V

Table 2: Input DC Voltage = 10V

S. No	Load Resistance	Output DC voltage (Vc) in volts.
1.	1000	7.4 V
2.	5600	9.16 V
3.	10000	9.23 V





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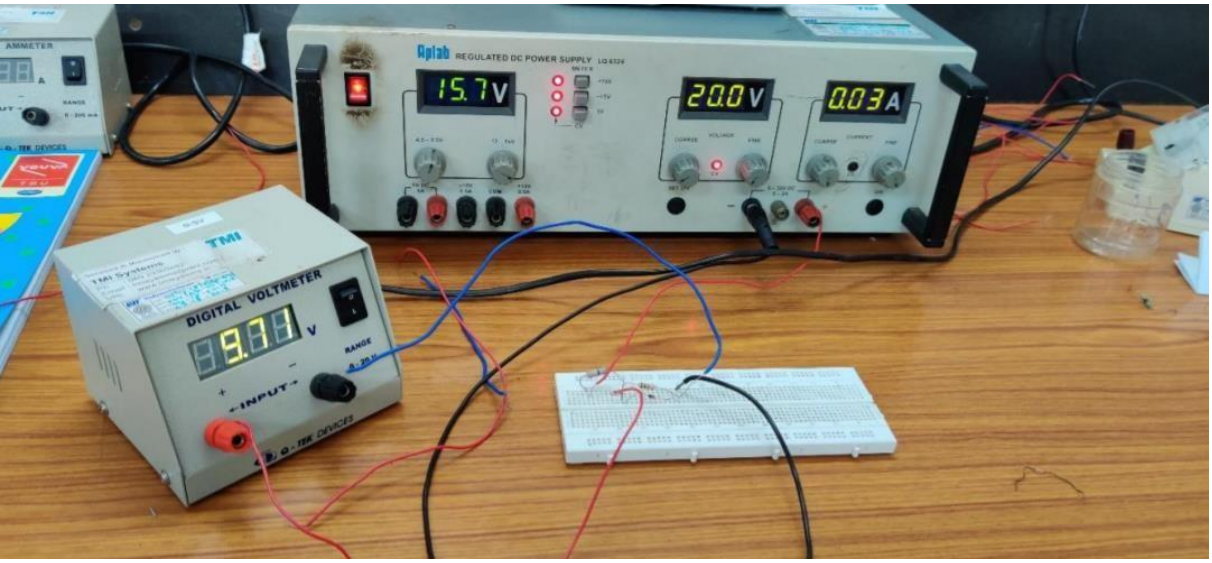

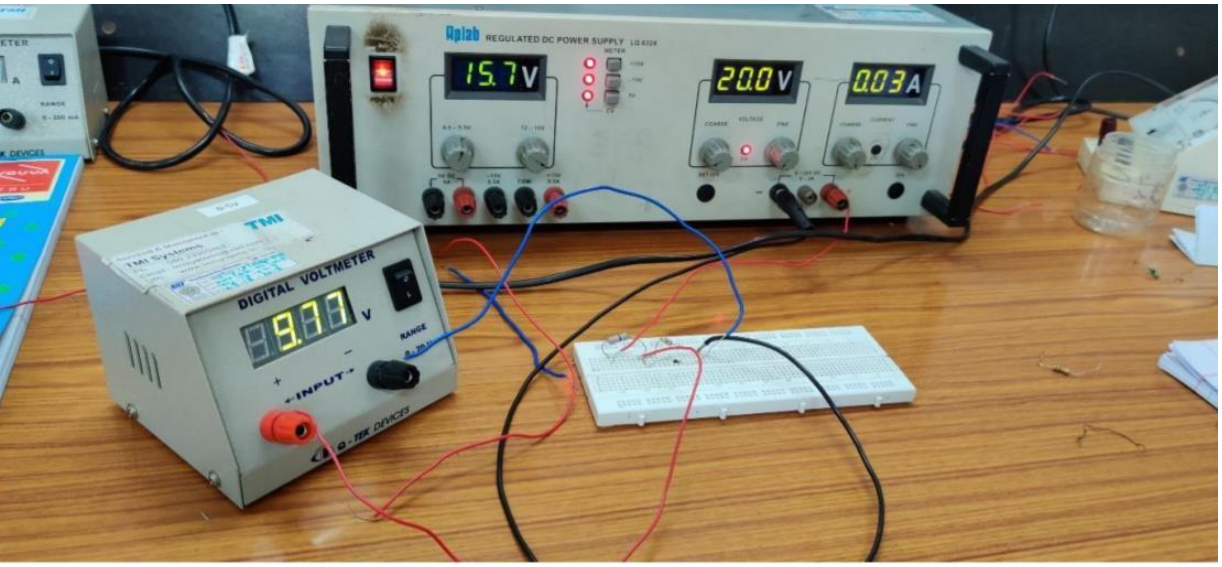

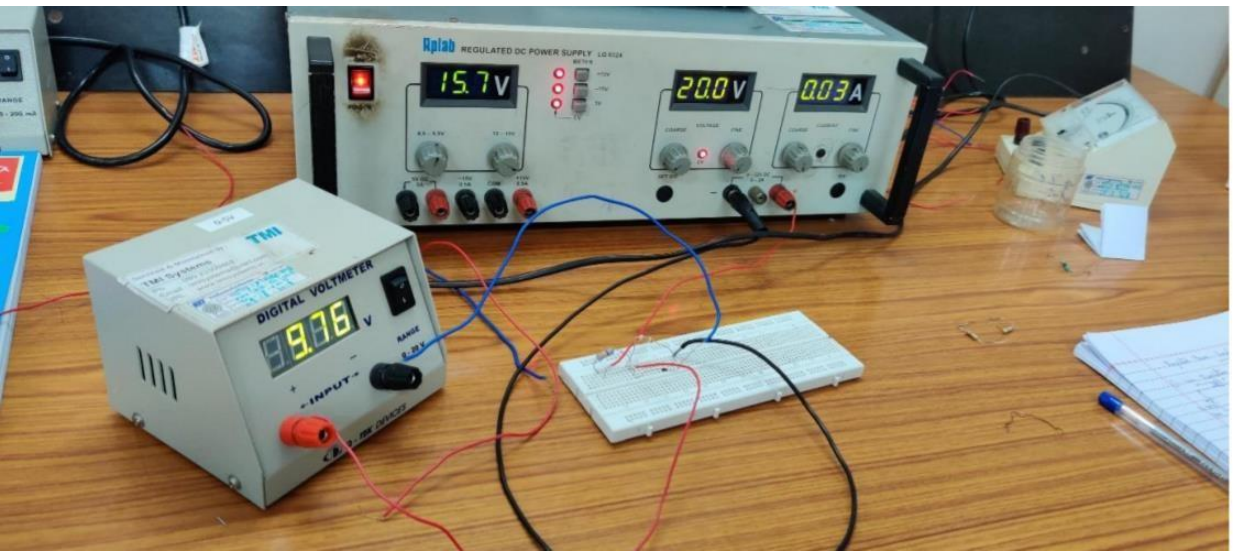

Reg no: 19BCE0811

Conclusion & Inference:

WE FOUND REGULATED LINE AND LOAD VOLTAGE FOR ZENER DIODE.

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