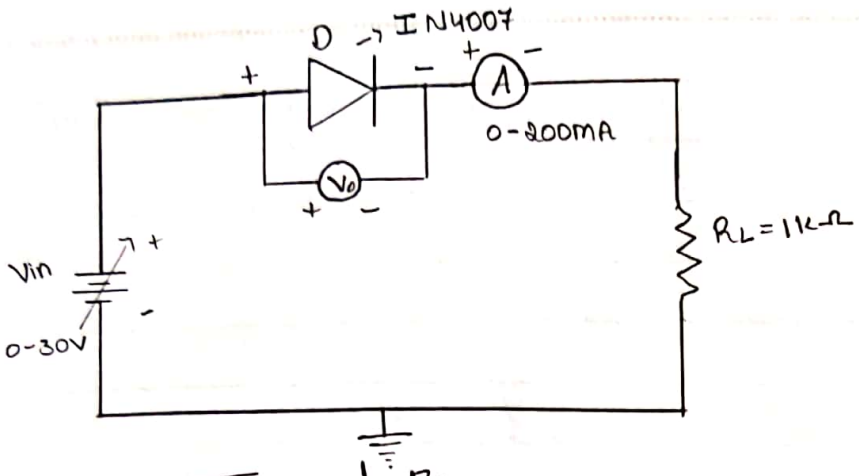
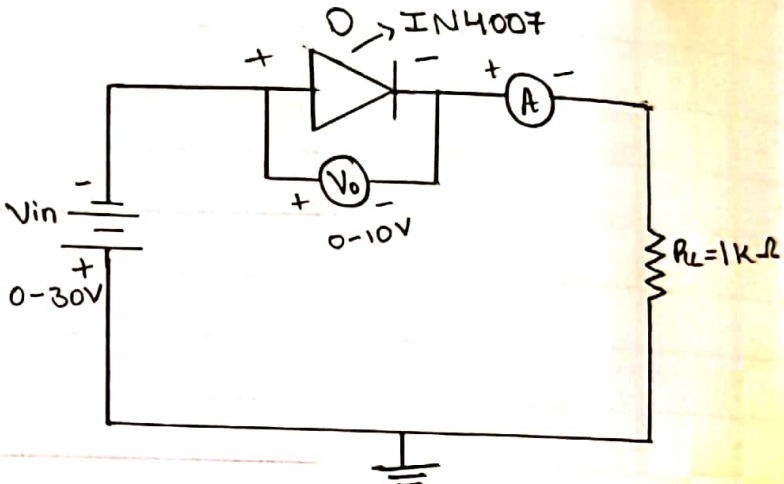
CIRCUIT DIAGRAM :

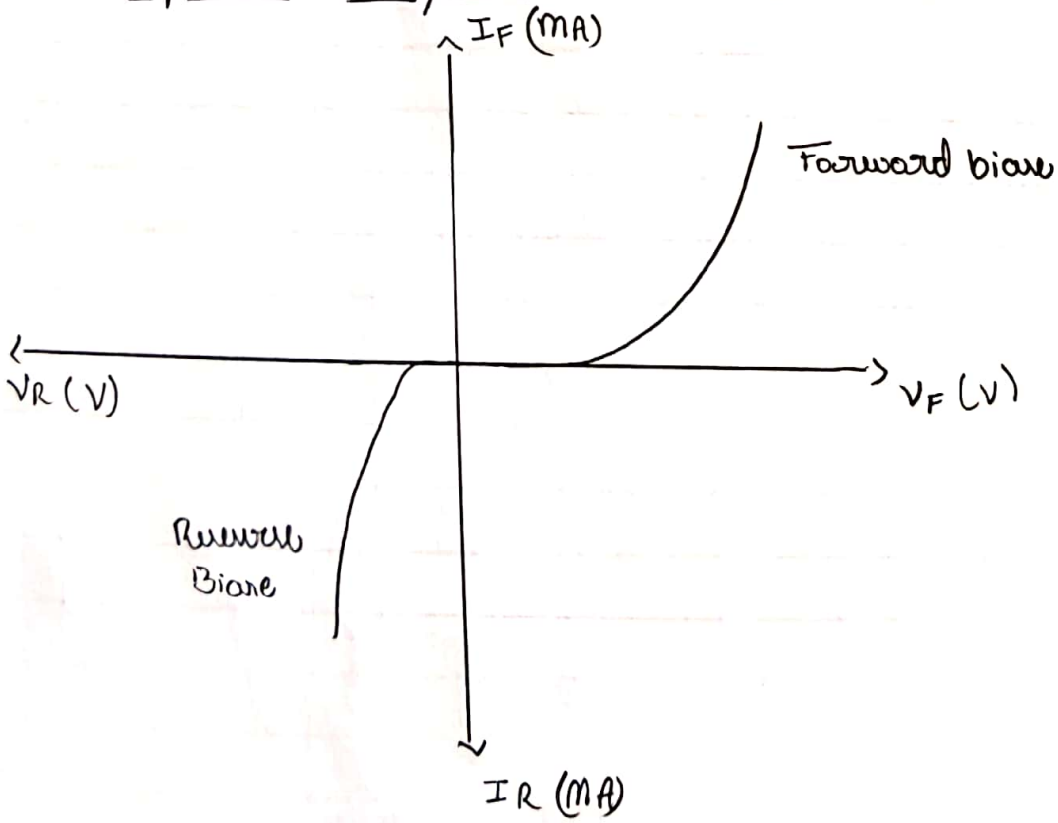


Forward Biase



Reverse Biase

Expected waveform :



Experiment No. : 01 Date: Page No.:

Name of the Experiment : V-I characteristics for P-N junction diode.

Aim: To Plot the V-I characteristics of P-N junction diode and zener diode

APPARATUS REQUIRED:

* Diode
* voltmeter
* Ammeter
* Resistor
* Bread board
* Connecting wires
* DC-Power Supply (0-30V) / Voltage Source.

THEORY:

* Diode is a semi-conductor device that essentially acts as a one-way switch for current in one direction flow

* if a single semi-conductor crystal is doped to P-type on one-side and n-type on the other. the area where the P and n-type region meet is called as P-N junction. The resulting device is a diode.

* When P-n junction is formed some electron at the n-side are attracted and holes are on the P-side Because of the ions accumulation, barrier Voltage is created at the junction.

Tabular Columns:

Forward bias:

V_{in}	V_R	I_R
0.2	0.2	0
0.4	0.4	0
0.6	0.5	0.1
0.8	0.5	0.2
1.0	0.6	0.4
2.0	0.6	1.5
3.0	0.6	2.5
4.0	0.6	3.6
5.0	0.6	4.6

Reverse bias:

V_{in}	V_R	I_R
0.0	0	0
0.2	-0.20	0
0.4	-0.39	0
0.6	-0.44	-0.2
0.8	-0.47	-0.4
1.0	-0.48	-0.6
2.0	-0.52	-1.6
3.0	-0.53	-2.7
4.0	-0.55	-3.7
5.0	-0.57	-4.8

Experiment No. : .....Date: .....Page No.:.....

Name of the Experiment : .....

* Diodes designed for operation in reverse breakdown are found its breakdown voltage that remains extremely stable over a wide of current levels. one such diode is termed as Zener Diode.

Result:

The VI characteristics for P-N junction diode and Zener diode is Plotted and verified.