Experiment no. 1

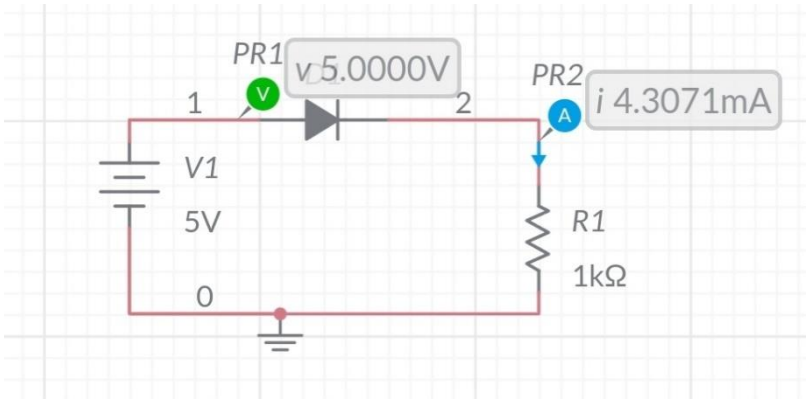
Objective: To study characteristics of V-I in PN junction diode

Software used: Multisim Live

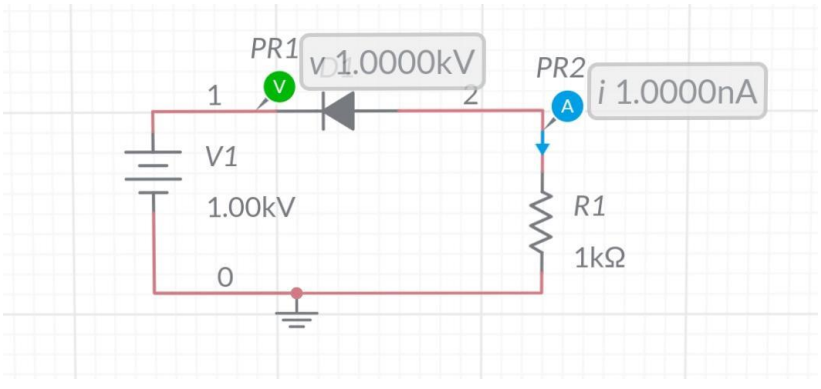
Theory: In N-type semiconductor majority carriers are electrons and in P-type semiconductor majority carriers are holes when both P and N type semiconductors are joined then it will form a PN junction diode.

Circuit diagram:

1.Forward biased circuit



2.Reverse biased circuit

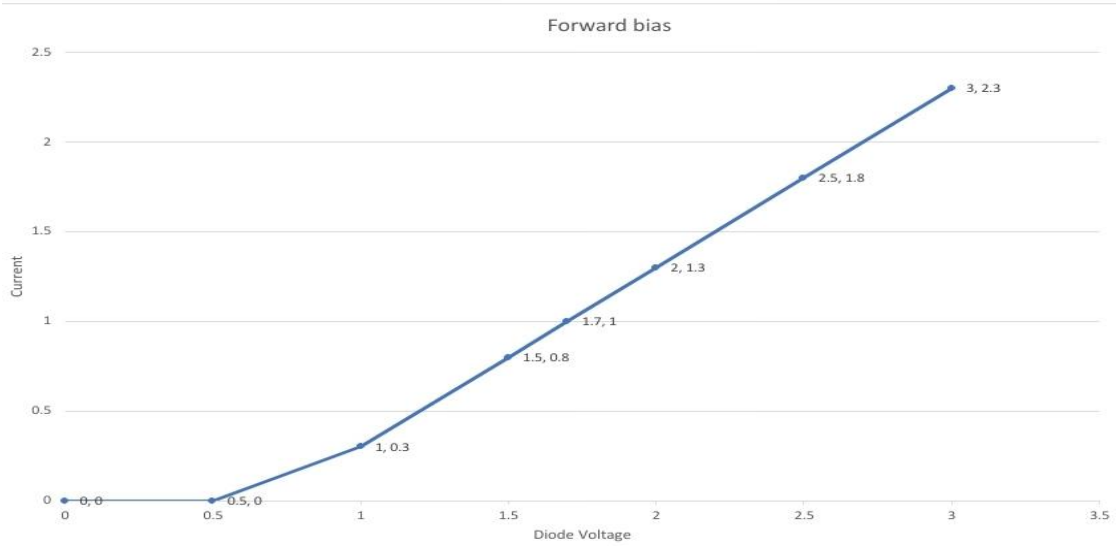


Results & observations:

Observations Table:

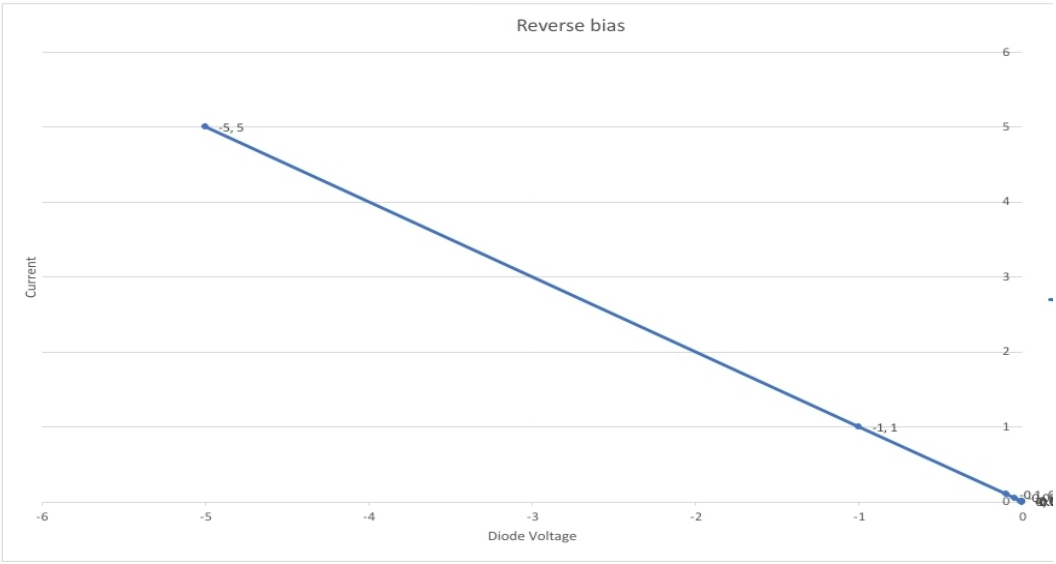
1.Forward Bias:

Applied Voltage(V)	Diode Voltage(V)	Current(mA)
0	0	0
0.5	0.5	0
1	1	0.3
1.5	1.5	0.8
1.7	1.7	1
2	2	1.3
2.5	2.5	1.8
3	3	2.3



2.Reverse Bias:

Applied Voltage (GV)	Diode Voltage (GV)	Current(mA)
0	0	0
0.001	-0.001	0.001
0.005	-0.005	0.005
0.01	-0.01	0.01
0.05	-0.05	0.05
0.1	-0.1	0.1
1	-1	1
5	-5	5
10	-10	10



Result: In PN junction diode if it is forward biased then current will flow and if it is reverse biased the current flow will block.

Cut off Voltage=1.7 V

Submitted by: Gelle Hruthesh reddy

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