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Experiment-3 : V-I charecteristic of Semiconductor diode

Aim : To study the current-voltage characteristics of Si/Ge in forward bias and reverse bias.

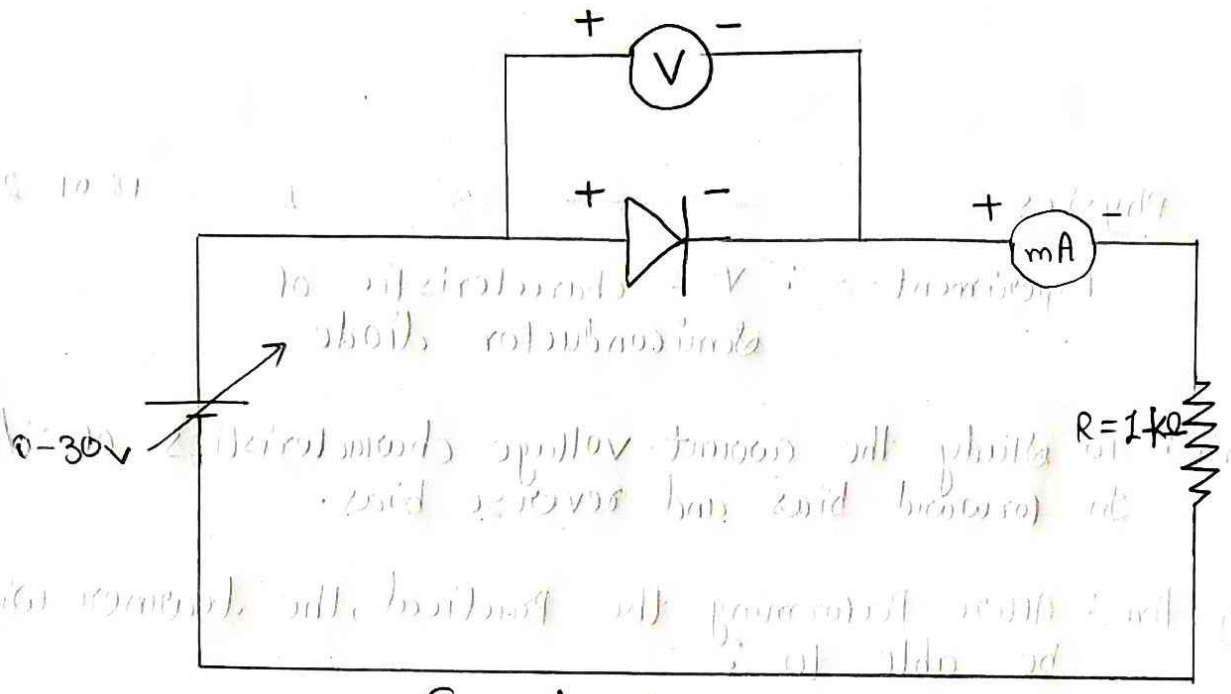
Objective : After Performing the practical, the learner will be able to :

PRO 1 : Study the V-I characteristics of Diode in forward bias

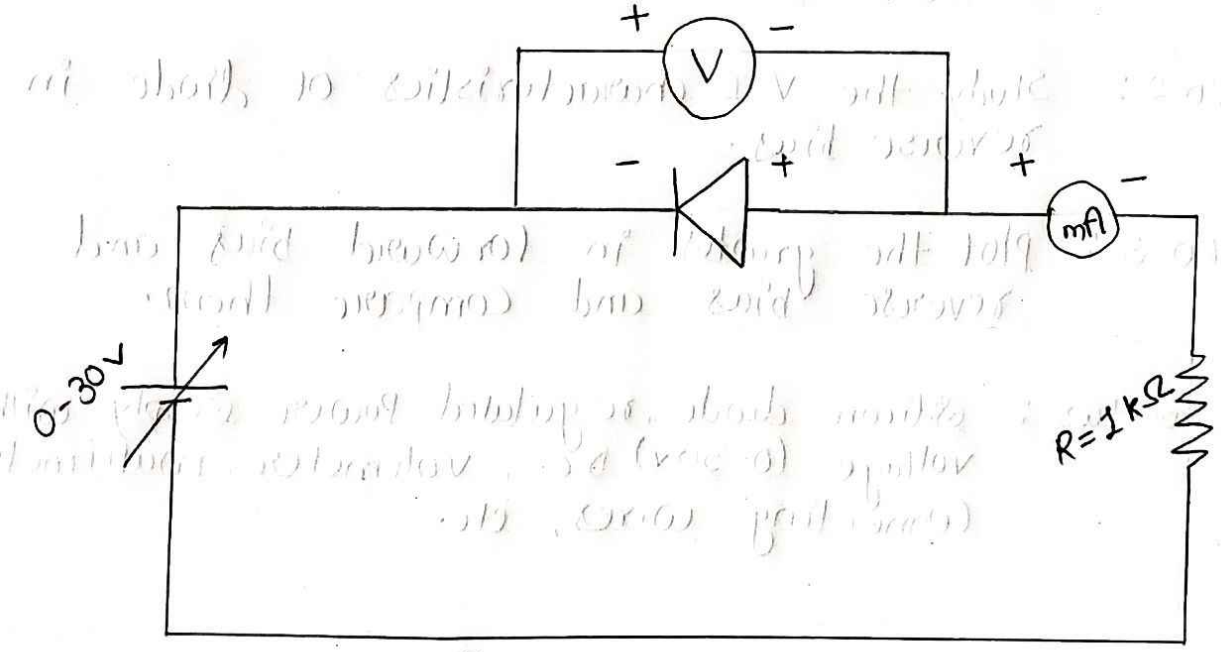
PRO 2 : Study the V-I characteristics of diode in reverse bias.

PRO 3 : Plot the graphs in forward bias and reverse bias and Compare them.

Apparatus : Silicon diode, regulated Power Supply with voltage (0-30v) D.C., Voltmeter, multimeter, Connecting wires, etc.



Forward Bias



Reverse Bias

Observation :

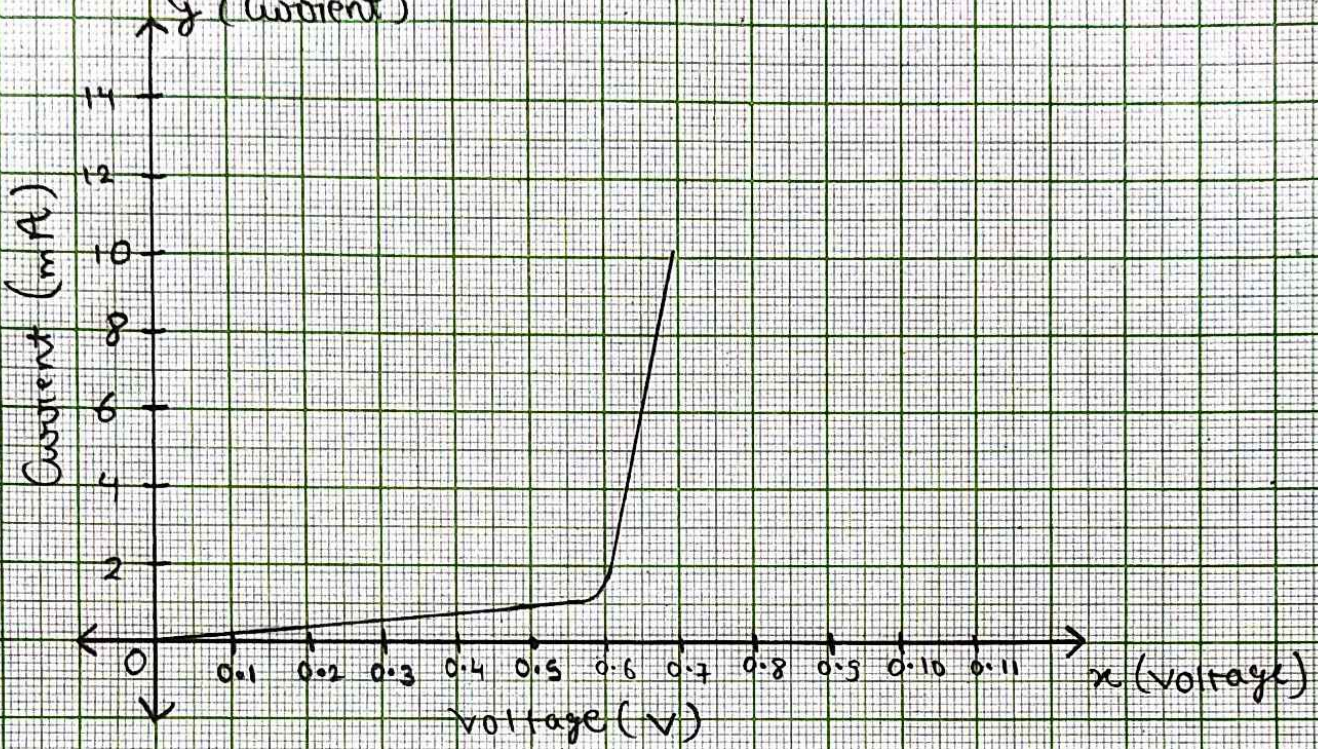
1) Forward bias

PRO-1		
Sr. NO	Voltage(V)	Current (mA)
1	0	0
2	0.550	0.400
3	0.554	0.601
4	0.557	0.801
5	0.560	1.000
6	0.574	2.600
7	0.580	3.610
8	0.586	5.010
9	0.592	6.410
10	0.597	8.010

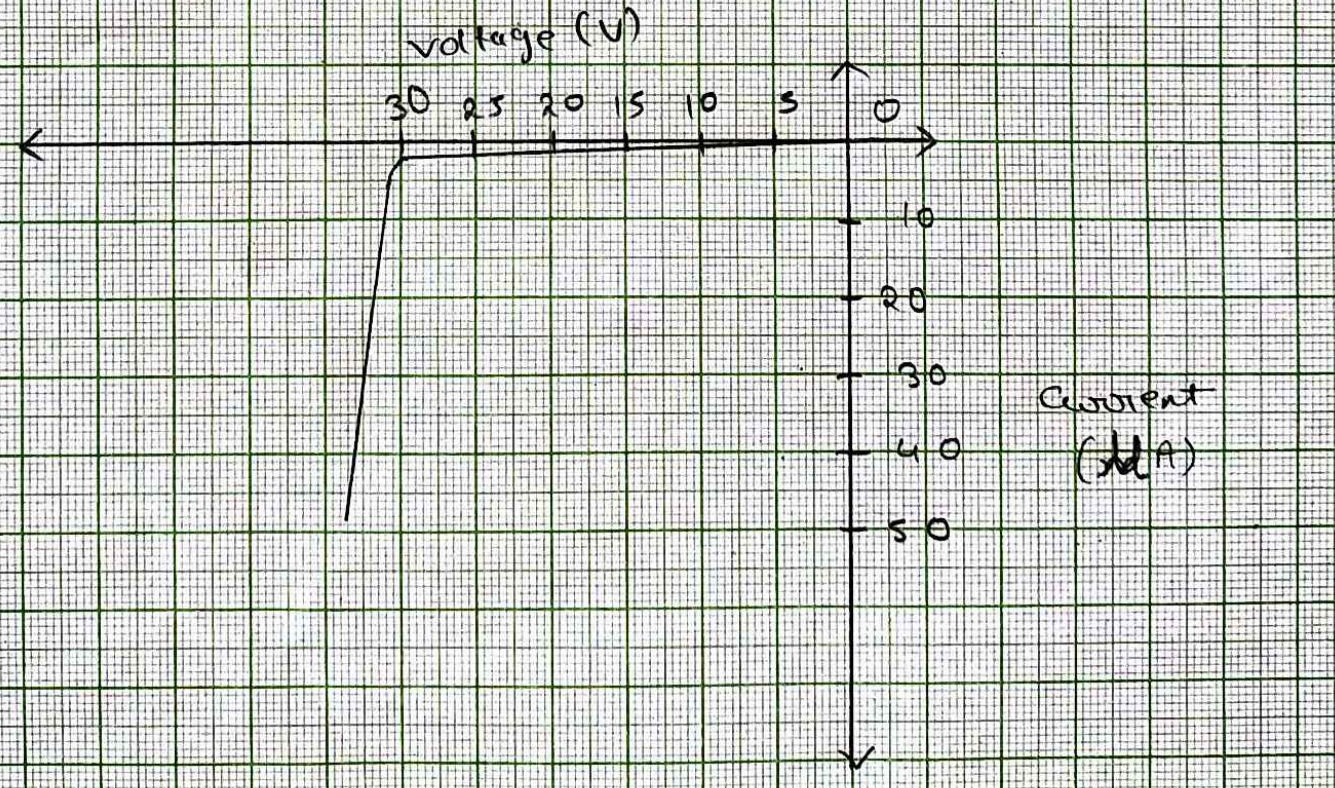
2) Reverse bias

PRO-2		
Sr. NO	Voltage (V)	Current (mA)
1	0	0
2	0.485	0.100
3	2.420	0.100
4	6.87	0.100
5	11.6	0.100
6	19.5	0.100
7	33.2	0.100
8	28.9	0.100
9	30	0.100
10	30.4	37.790

1) Forward Bias



2) Reverse Bias



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result and Discussion :

PRO 1 :- from the V-I Curve, current through and voltage across a diode are interdependent.

PRO 2 :- During forward bias, the diode Conducts Current with increase in voltage.

PRO 3 :- During reverse bias, the diode does not Conduct the Current with increase in voltage Until break down voltage reaches.

Conclusion :- forward bias decreases a diode resistance, and reverse bias increases a diode resistance. The Current flows effortlessly while in forward bias, but reverse bias does not permit Current to flow through the diode.

Quiz :-

1) What are Applications of diode
Ans → Rectifying a voltage, turning AC into DC voltage in LED and Sensors.

2) what is the principal of diode in forward bias?
Ans → forward bias acts like a closed switch provide the forward biasing voltage must be greater than the barrier potential.

3) Name any two Semiconductor used in LED display?
Ans → gallium arsenide GaAs, gallium phosphide (GaP).

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Objective	PRO 1	PRO 2	PRO 3	Total Score	ES and H Department TCET
Weight	20	20	20		
point					Date of performance → 18/01/22
Score					Date of correction →
					Roll no → 29
Earned points (EP) (Total score = 60)					Signature →