



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal, Hyderabad – 500 043

LABORATORY WORK SHEET

Date: 16/06/2022

Roll No: 21951A6754 Name: P. JYOTHI PRASANNA

Exp No: 02 Experiment Name: PHOTO DIODE

DAY TO DAY EVALUATION:

	Preparation	Algorithm	Source Code	Program Execution	Viva	Total
		Performance in the Lab	Calculations and Graphs	Results and Error Analysis		
Max. Marks	4	4	4	4	4	20
Obtained	4	4	4	4	4	20

Signature of Lab I/C

START WRITING FROM HERE:

PHOTO DIODE

AIM: To draw V-I characteristics of Photo Diode for different light intensities.

APPARATUS:

- 1) Variable power source
- 2) Ammeter
- 3) Electrical bulb
- 4) Resistors
- 5) Photo diode
- 6) Voltmeter

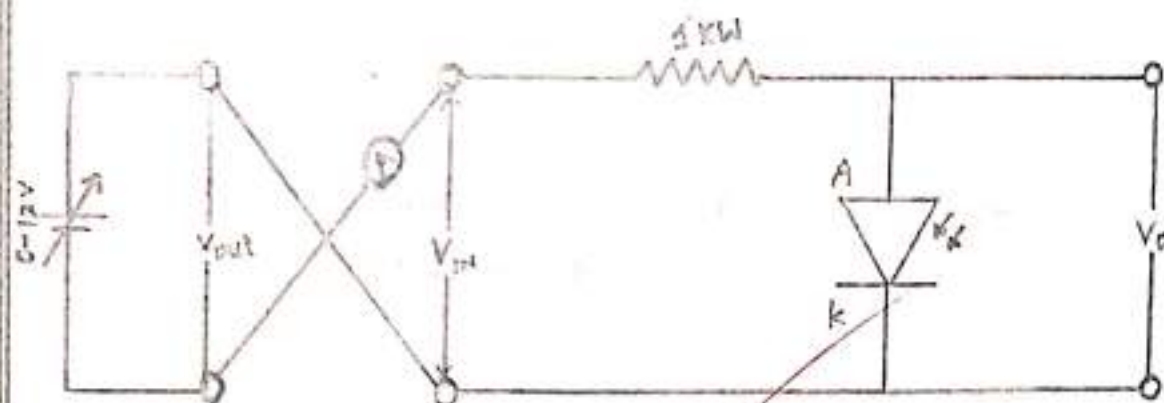


fig 1: Reverse Characteristics

TABULAR COLUMN:

V_0 (VOLTS)	I_0 (MA)	I_1 (MA)	I_2 (MA)
-0.02	-0.01	-0.07	-0.23
-0.05	-0.03	-0.32	-0.68
-0.08	-0.08	-0.76	-0.49
-0.11	-0.24	-1.46	-2.76
-0.14	-0.54	-2.72	-4.40
-0.17	-1.10	-3.92	-6.44

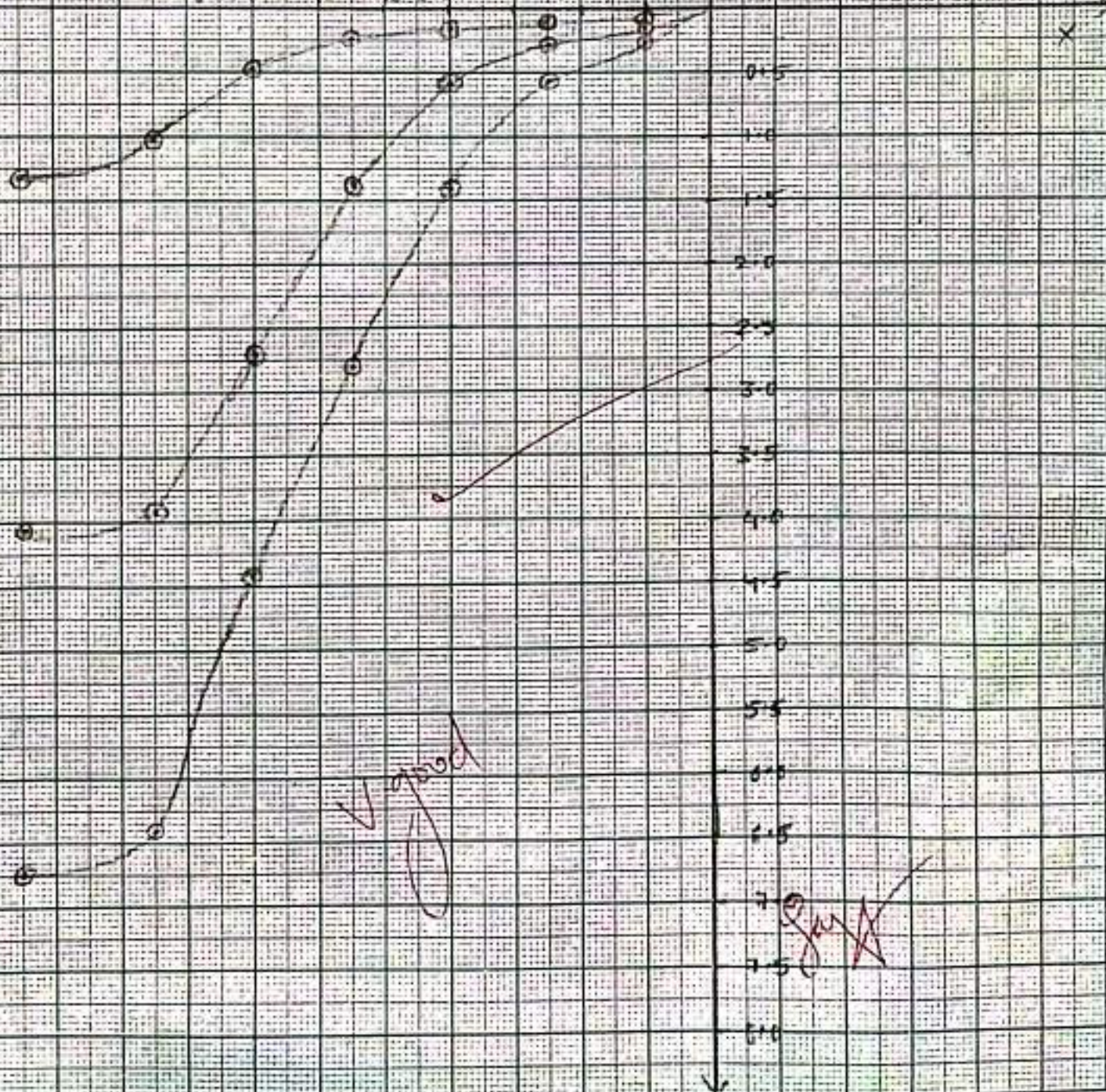
Y ↑

Scale:

X axis: 1 unit = 0.02(V)

Y axis: 1 unit = 0.5 (mA)

0.020 0.018 0.016 0.014 0.012 0.010 0.008 0.006 0.004 0.002 0



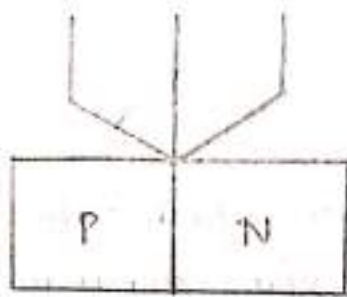


fig.2(a)

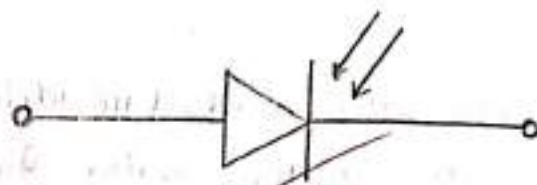


fig.2(b)

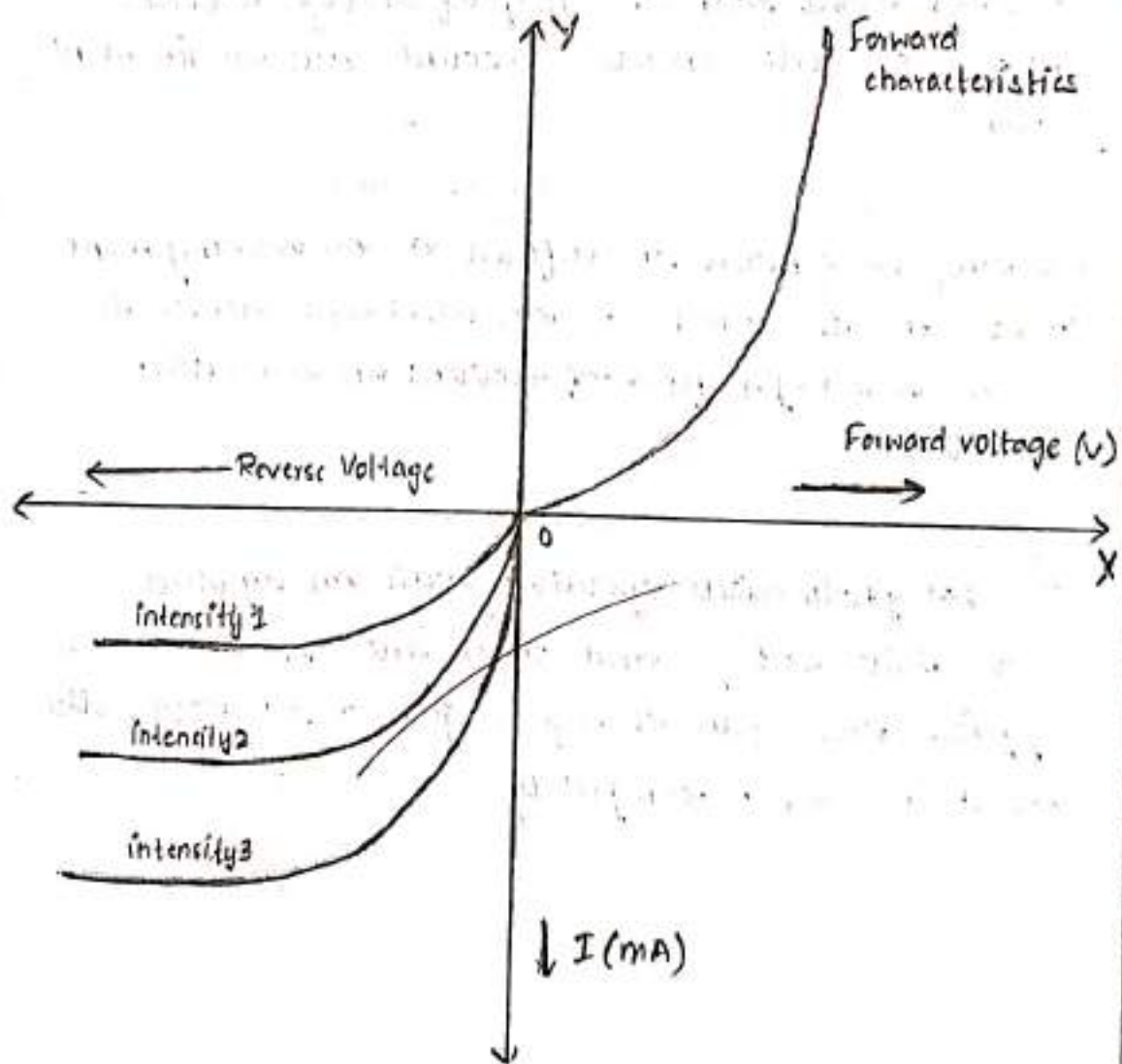


fig.2(c) Characteristics curves of a photo diode

RESULT : V-I characteristics of PN and Avalanche diode diodes are studied.

VIVA VOCE :

1. What is photo diode?

A photo diode is used to detect optical signals. The fractional change in the minority carrier dominated reverse bias current due to the photo effect is more easily measurable than fractional change in forward bias current.

2) How photo diode is different from LED.

LED and photodiode are reverse of each other. LED generates light with the help of charge carriers while photodiode generates currents due to incident photons.

3. What do you mean by biasing of diode?

Biasing in general, is defined as an arrangement made in the diode or an electrical device to allow a larger flow of current in a certain direction.

4. Explain the principle of PN and Avalanche photo diode

The PN photodiode operates with an applied reverse bias voltage and when the reverse bias is applied, the space charge region must cover the intrinsic region completely.