A dark blue vertical bar runs down the left side of the page. A blue arrow points to the right from the bar, containing the date.

12.05.2022

EXPERIMENT NO.2

EC111

Several thin, curved lines in dark blue and light grey originate from the bottom left and sweep upwards and to the right.

VISHAL KUMAR PRAJAPATI

ROLL NO. 2101227

GROUP NO. 18

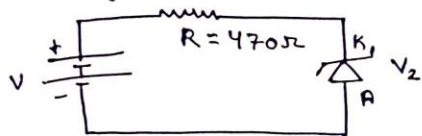
Name: Vishal Kumar Prajapati
Roll No.: 2101227

Experiment No. 2

Objective:

- ① Draw the reverse bias characteristics and determine breakdown voltage.
- ② Determine resistance from reverse bias characteristics.

Circuit Diagram:



$V_{in} (V)$	$V_Z (V)$	$I (mA)$
0	0	0
0.5	0.5085	0
1	1.0773	0
1.5	1.5846	0
2.0	2.0993	0
2.5	2.5946	0.01×10^{-3}
3	3.0867	0.10×10^{-3}
3.5	3.603	1.05×10^{-3}
4	4.085	5.00×10^{-3}
4.5	4.579	25.26×10^{-3}
5.0	4.788	183.96×10^{-3}
5.5	5.107	0.9589
6.0	5.105	1.9575
6.5	5.122	2.5575
7.0	5.130	4.093
7.5	5.137	4.983
8.0	5.147	5.669
8.5	5.155	6.998
9.0	5.156	7.910
9.5	5.163	9.109
10.0	5.164	10.336

12.5.22

EXPERIMENT NO. 2

TITLE: TO STUDY THE REVERSE CHARACTERISTICS OF ZENER DIODE.

OBJECTIVE:

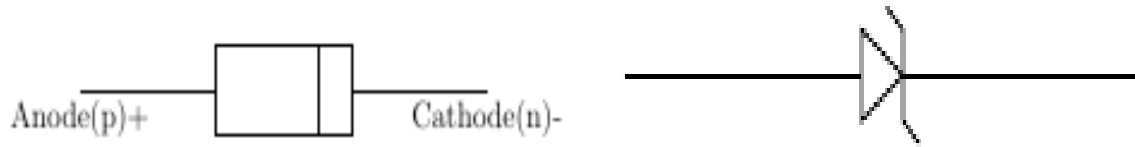
- Draw the reverse bias characteristics and determine breakdown voltage.

APPARATUS REQUIRED:

- Resistor 470ohm
- power supply
- breadboard
- Zener diode
- wires, etc.

THEORY:

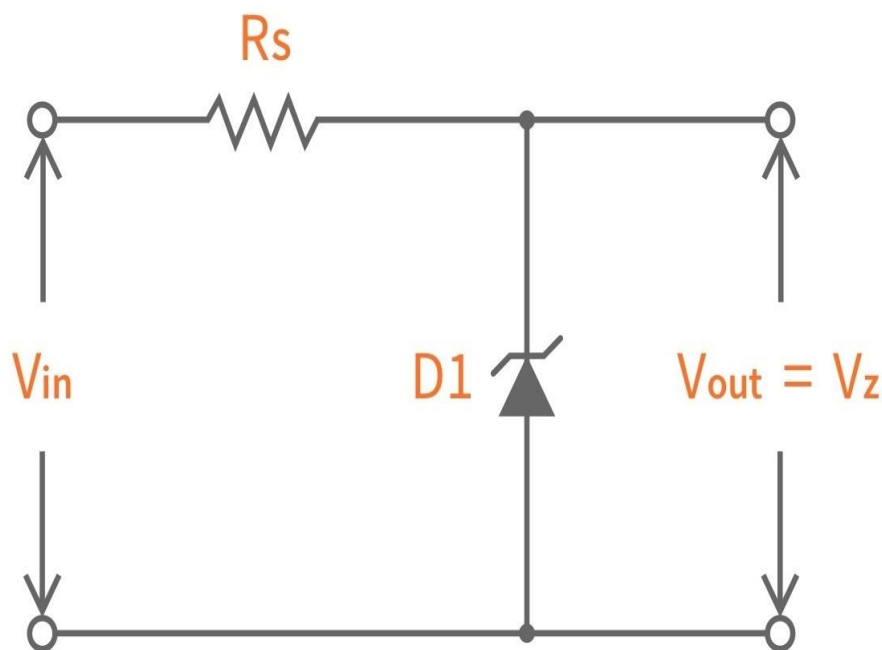
Zener diodes are a special kind of diode that permits current to flow in the forward direction.



Zener diodes will also allow current to flow in the reverse direction when the voltage is above a certain value. This breakdown voltage is known as the Zener voltage. In a standard diode, the Zener voltage is high, and the diode is permanently damaged if a reverse current above that value is allowed to pass through it.

In the reverse bias direction, there is practically no reverse current flow until the breakdown voltage is reached. When this occurs there is a sharp increase in reverse current. A varying amount of reverse current can pass through the diode without damaging it. The breakdown voltage or Zener voltage (V_Z) across the diode remains relatively constant.

CIRCUIT DIAGRAM:



OBSERVATION:

S.NO.	V_{IN} (V)	$\underline{V_z}$ (V)	\underline{I} (mA)
1	0.0	-0	0.0
2	0.5	-0.5085	0.0
3	1.0	-1.0773	0.0
4	1.5	-1.5846	0.0
5	2.0	-2.0993	0.0
6	2.5	-2.5946	-0.00001
7	3.0	-3.0867	-0.0001
8	3.5	-3.603	-0.00105
9	4.0	-4.085	-0.005
10	4.5	-4.579	-0.02526
11	5.0	-4.788	-0.18396
12	5.5	-5.105	-0.9589
13	6.0	-5.107	-1.9575
14	6.5	-5.122	-2.5575
15	7.0	-5.130	-4.093
16	7.5	-5.137	-4.983
17	8.0	-5.147	-5.669

18	8.5	-5.155	-6.998
19	9.0	-5.156	-7.910
20	9.5	-5.163	-9.109
21	10.0	-5.164	-10.336

RESULT:

Reverse bias characteristics of Zener diode:

