FACULTY OF ENGINEERING AND TECHNOLOGY

Department of Computer Engineering

EEF 362: **ANALOG ELECTRONICS**

LEVEL AND SEMESTER: Undergraduate L300, Second semester

Credit value: 3

LAB 3 REPORT

TITLE: ZENER DIODE CHARACTERISTICS

Group number: Group 5

Subgroup number: Subgroup 4

Group members(name and matricule number)

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AIMS

- To measure the effects of forward and reverse biased on the Zener diode current and to construct the Zener diode characteristics
- To study a Zener voltage regulator by determining the range over which the Zener maintains a constant output voltage.

OBJECTIVES

- Identify and characterize the Zener diode and to differentiate it from the pn junction diode;
- Give advantages of Zener diode regulator over regulators
- Manufacture a proper Zener voltage regulator for dedicated applications
- Understand the specific role played by a Zener diode in electronic devices

Figure 1: line regulator

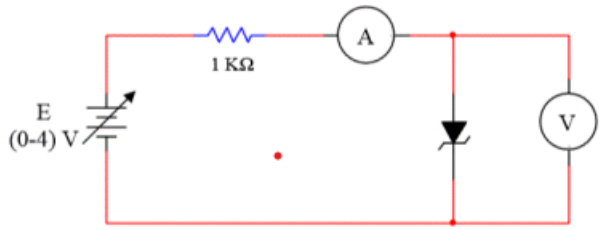

Figure (1)

i. Forward biased

E(v)	0	1	2	3	4	5	6	7	8	9
Vf(v)	0.00	0.70	0.74	0.76	0.77	0.78	0.78	0.79	0.79	0.79
If(mA)	0.00	0.40	1.20	2.32	3.28	4.35	5.27	6.04	6.96	7.90

ii. Reversed biased

E(v)	0	2	4	6	8	10	12	13	14	15
Vz(v)	0.00	2.15	4.24	6.13	3.56	8.67	8.71	8.73	8.74	8.76
Iz(mA)	0.00	0.00	0.00	0.00	0.00	1.34	3.22	4.16	4.72	6.17

Figure2: load regulation

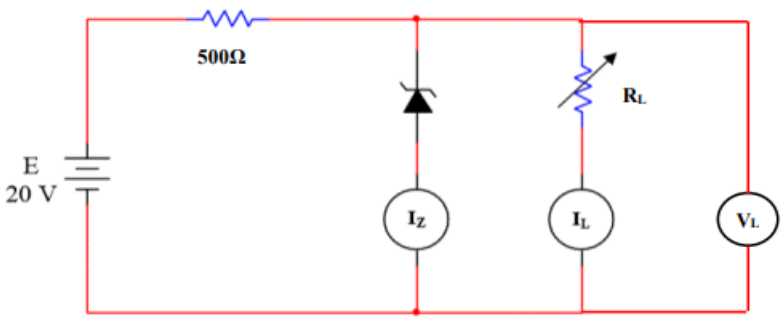

Figure (2)

i.

Rl(k ohms)	1	2	3	4	5	6	7
Iz(mA)	0.72	5.00	6.45	7.23	9.40	7.92	9.42
Il(mA)	8.86	4.50	3.00	2.25	1.80	1.49	1.35
Vl(v)	8.73	8.85	8.86	8.89	8.94	8.92	8.95