NAME: ELENWOKE OBINNA MICHAEL

MATRIC NO: 18/ENG06/020

DEPARTMENT: MECHANICAL ENGINEERING

SOLUTIONS

1.

(i). I (mA) Forward Current

Knee Forward bias

Reverse break down voltage

( (-v) Reverse Voltage (+v) Forward v Voltage

Zener diode breaking Reversed 0.2 – 0.3v Germanium

0.6 – 0.7v Silicon

-I (mA) Reversed current

I – V CHARACTERISTIC CURVE

(ii) +v

R3

+

* Vact = VZ RL

I2

-v

CIRCUIT DIAGRAM

2. (i) First Voltage of Zener diode, V2 = watt/current = 5/500mA = 10v

This minimum value, Rs = V3 – V2/I2 = (20 – 10)/500mA

Rs = 20 ohms

(ii) Current at 500ohms

IL = V2/RL = 10v/500ohms = 0.02A

IL = 0.02A