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