



② To determine the minimum value of the series resistor to the Zener diode.

$$R_s = \frac{V_s - V_z}{I_z}$$

$$\text{max Current} = \frac{\text{Wattz}}{\text{Voltage}}$$

$$500 = \frac{5}{R_s}$$

Cross multiply

$$R_s = 10V$$

$$V_s = 20V_{\text{max}} = 12.74 = 0.657 \times 20$$

$$R_s = \frac{12.74 - 10}{500} = 4\Omega$$

$$I_L = \frac{V_z}{R_L} = \frac{10}{500} = 20mA$$

$$I_z = I_s - I_L = 500mA - 20mA = 480mA$$

LEGHEND SOLOMONS

18/ENGR08/010

BIO MEDICAL ENGINEERING

ENG 022 Assignment

1. Zener Diode as voltage regulator. They are widely set as shunt voltage regulators to regulate voltage across small loads. Zener diodes have a sharp reverse breakdown voltage and breakdown voltage will be constant for a range of currents. Thus we will connect the Zener diode parallel to the load such that the applied voltage will reverse bias it. Thus if the reverse bias voltage across the Zener diode exceeds the knee voltage, the voltage across the load will be constant.

(1) Symbol

