

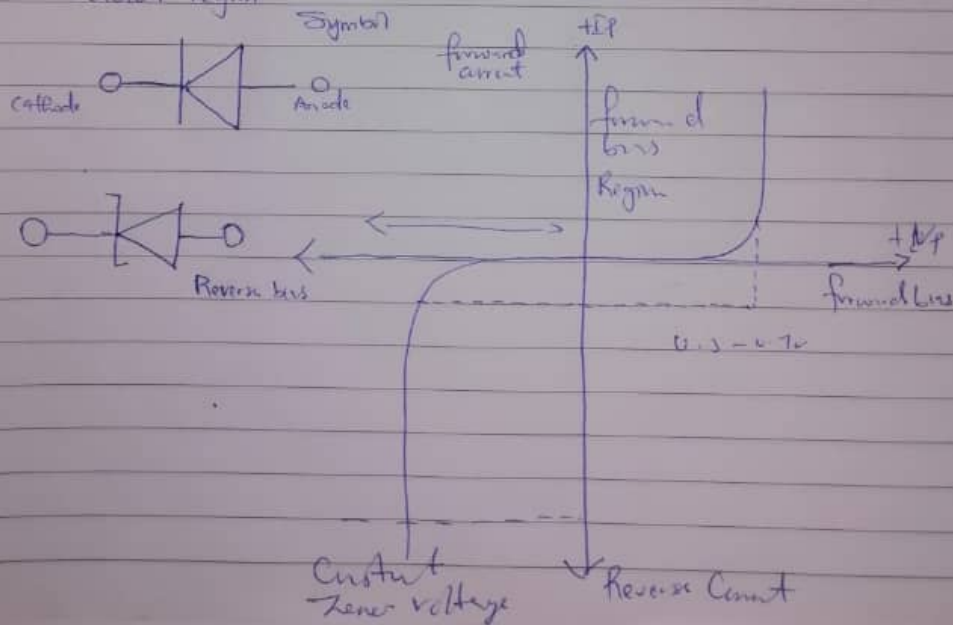
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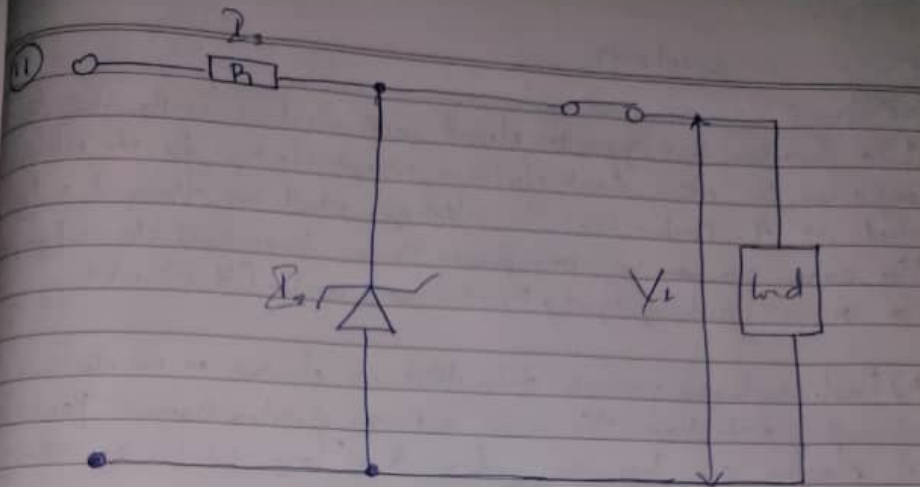
Basic Electronics Engineering  
ENG222

Solution

(17) Zener diodes can be used to produce a stabilized voltage output with low ripple diode under varying load current condition. By passing a small current through the diode from a voltage source, via a suitable current to maintain a voltage drop limiting resistor ( $R_s$ ), the Zener diode will conduct sufficient current to maintain a voltage drop of volt.

The function of a Zener diode regulator is to provide a constant output voltage to a load connected in parallel with it in spite of the ripple in the supply voltage or variations in the load current. A Zener diode will continue to regulate its voltage until the diode holding current falls below the minimum  $I_{Zmin}$  value in the reverse breakdown region.





(2) maximum WAC-S = 5W  
 Maximum current = 500mA

(1)  $V_s = 27V$   
 $V_L = 20V$   
 $I_2 = 500mA$

$$\text{Minimum Value} = \frac{27-20}{5W} = 0.014$$

$$= 0.014 \times 1000$$

$$= 14\Omega$$

$$\text{Current} = I_L = \frac{V_L}{P_L} = \frac{20}{5W}$$

$$= 0.04A$$