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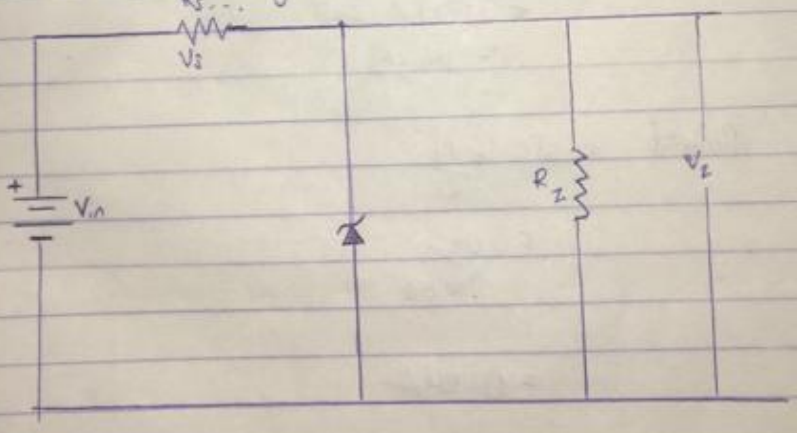
18/ENG04/006
Electrical Engineering
ENG 222: Basic electrical Engineering

1. Zener Diode Regulator.

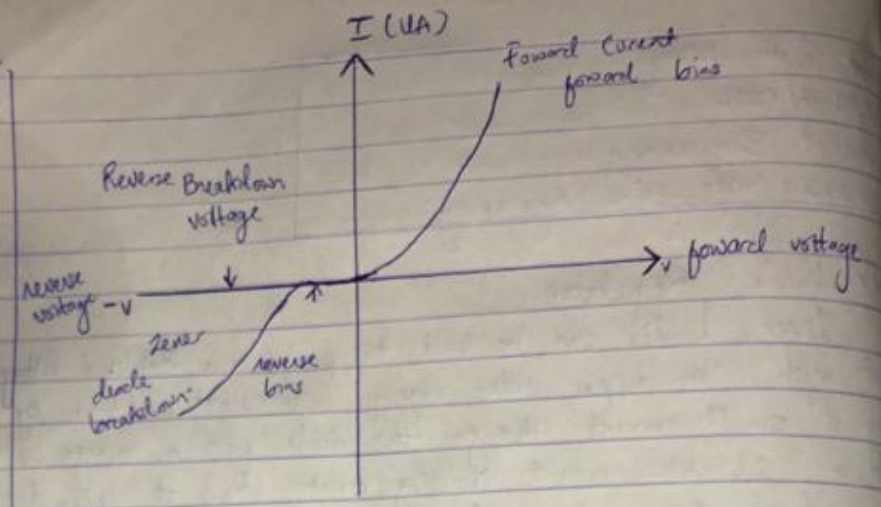
Zener Diodes can be used to produce a stabilised voltage output with low ripple under varying load current conditions. By passing a small current through the diode from a voltage source, via a suitable current limiting resistor (R_s), the zener diode will conduct sufficient current to maintain a voltage drop of Vout.

In this case, the zener diode consists of an anode and the cathode as its terminals. The terminal cathode is connected with the positive side of the supply of Dc. Hence this connection is known as reverse biasing and it makes the diode to operates in the reverse biase condition. The purpose behind the resistor connection is to limit the maximum flow of the current through the circuit. If the load is not powered up with any supply then there is no evident load current. So that the total amount of the flow of current is seemed to be through the diode.

II)



I)



I-V Characteristic Curve

2) Maximum watt = 5W
" Current = 500ma

I) V_s = 27V
V_z = 20V
I_L = 500 ma

minimum value = $\frac{27-20}{500}$ = 0.014

= 0.014 × 1000

= 14 Ω

II) Current = $I_c = \frac{V_z}{R_L}$

= $\frac{20}{500}$

= 0.04A.