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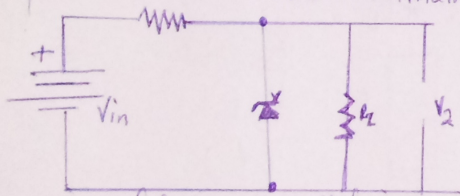
Dept: Electrical Engineering.

Course Code: EN4 222

Assignment.

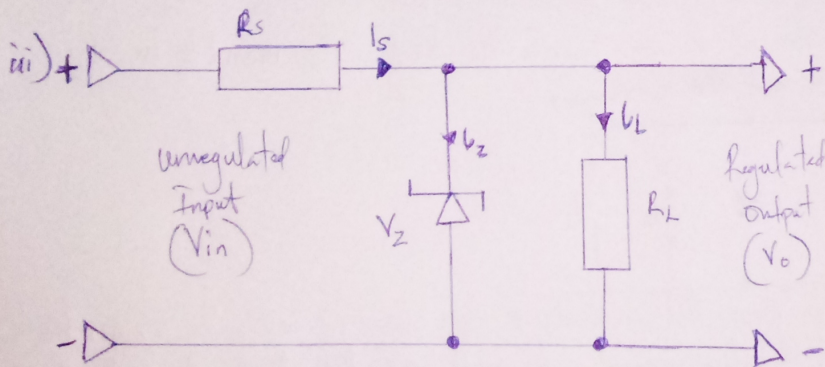
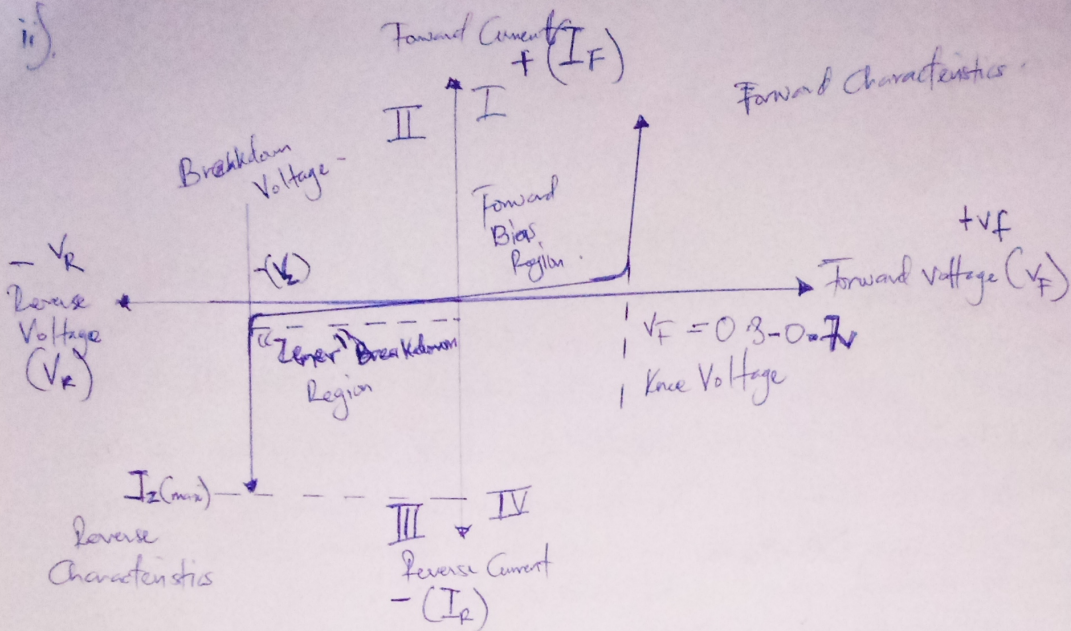
1. The purpose of a zener diode is to stabilize the value of the output voltage. Hence it can be used as the voltage regulator. A resistor that limits the current is connected across the load along with the zener diode. The resistor is responsible for the stabilization of the output. In this case, the zener diode consists of an anode and the cathode as its terminals. The terminal cathode is connected with the positive side of the supply DC. Hence, this connection is known as reverse biasing and it makes the diode to operate in the reverse bias 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. It seemed to be through the diode. The results in the dissipation of the power to be at the maximum.



Once the load is connected in parallel in such a way that in order to maintain the same amount of the voltage at the resistor as well as the diode. In order to make the voltage stabilize first of all current passing through the diode must be limited to the minimum value. Then only the stabilization of the voltage becomes more effective. The maximum limit for current is determined by the rating that is provided. But the only problem for this kind of circuits is that they tend to generate noise as the DC supply is provided. But this noise does not affect stabilizing. The capacitor is also connected across the diode so that the output generated gets smoothed because the capacitor acts as a filter.

ii)



2. Maximum current = 500mA
Maximum Watt = 5W.

$$I_s = 27V$$

$$V_Z = 20V$$

$$I_Z = 500mA$$

$$\text{Minimum Value} = \frac{I_s - I_Z}{I_Z} = \frac{27 - 20}{500} = 0.014$$

$$= 0.014 \times 1000 = 14\Omega$$

$$\text{Current} = I_C = \frac{V_Z}{R_L} = \frac{20}{500} = 0.04A //$$