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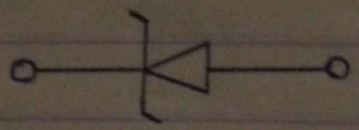
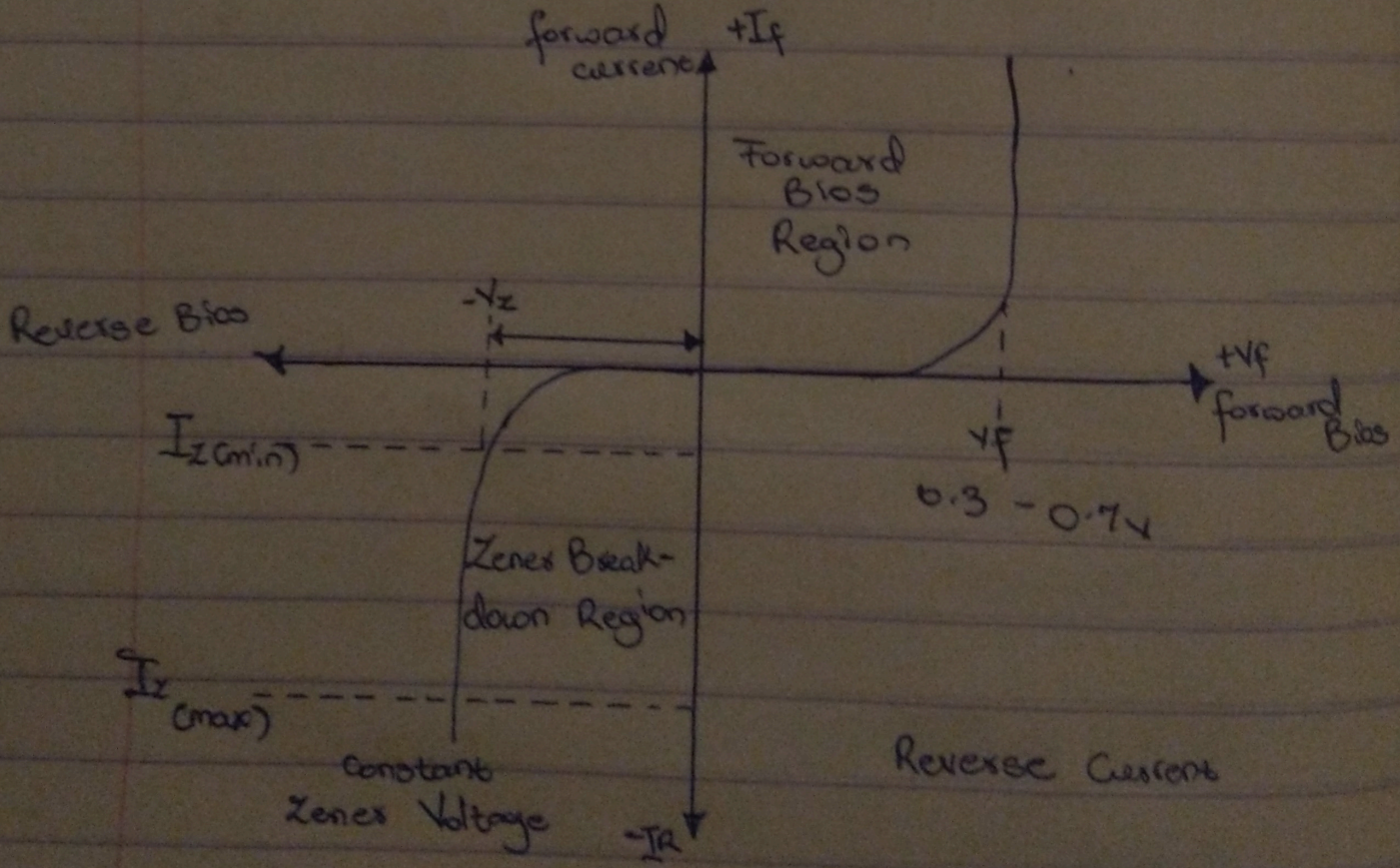
Course : Basic Electronics.

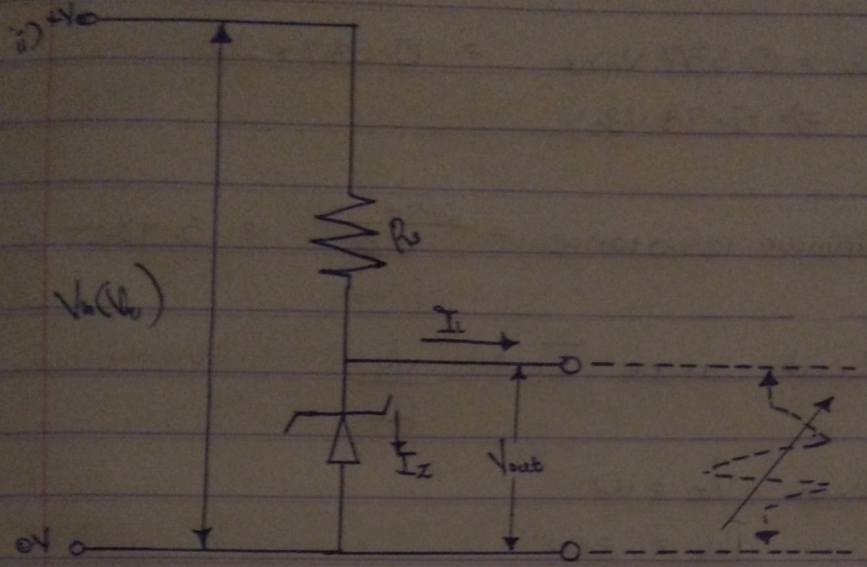
i) A zener diode is a diode similar to the standard PN junction diode but they are especially designed to have a low and specified Reverse Breakdown Voltage

ii)





I-V characteristic Curve



where;

RS = Resistors

Vs = Voltage Sousse

Vout = stabilized output Voltage

RL = Load Resistance

Iz = load current across zenex diode

2) Max Powex = 5w $I_z = 500mA = 0.5A$, 20 $V_{max} = V_s$

i Maximum Current = $\frac{\text{Max Powex}}{\text{Voltage}} = \frac{5w}{1}$

$\therefore 0.5A$

V_z = 10 volts

Minimum resistance = $\frac{V_s - V_z}{I_z}$

$V_{dc} = 0.637 V_{max} = 0.687 \times 20$

$\Rightarrow 12.74 V_{dc}$ //

Minimum resistance $= \frac{12.74 - 10}{0.5} = 5.48 \Omega$ //

ii) Load current $I_L = \frac{V_z}{R_L}$

where $V_z = 10$

$R_L = 500$

$\Rightarrow 10/500 \rightarrow 0.02A$ or $20mA$ //