

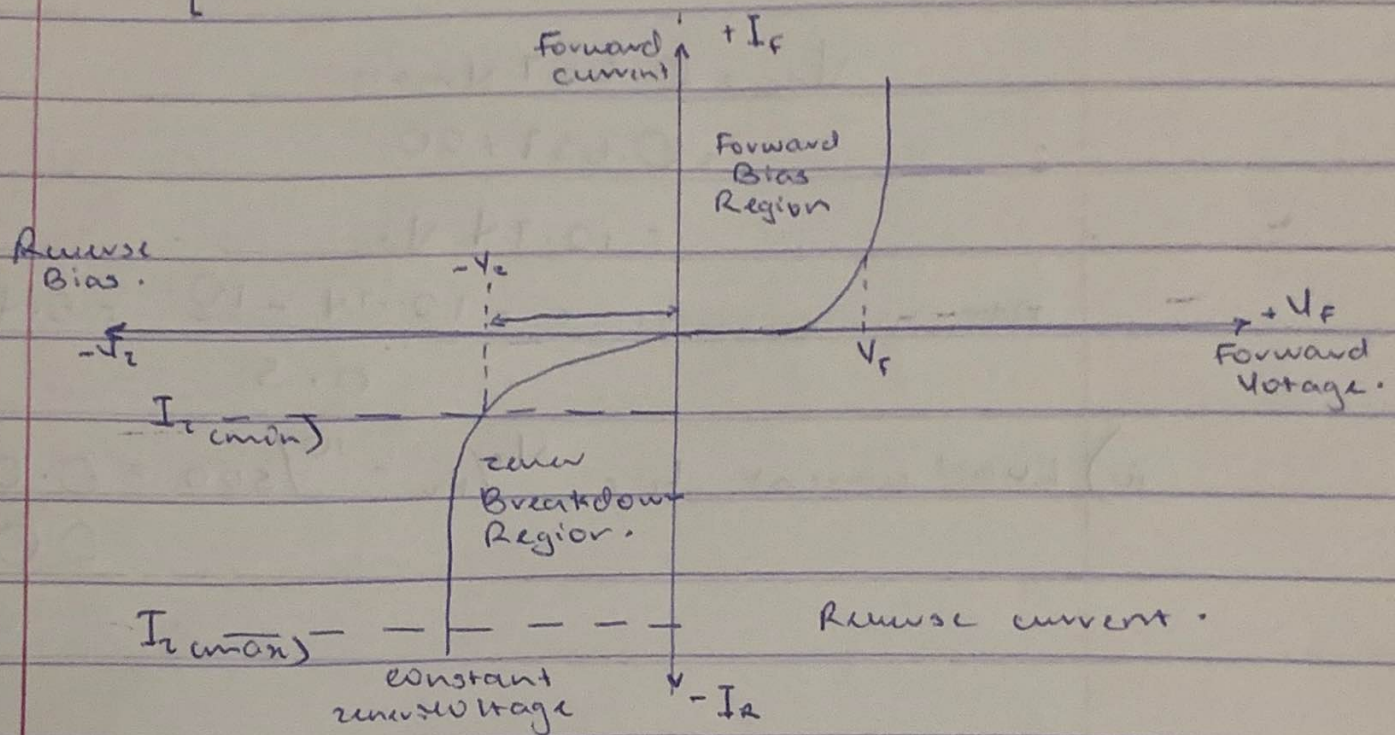
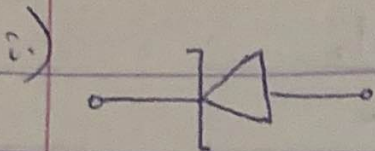
OKORIE ANANNA IROHA.

181ENG031046

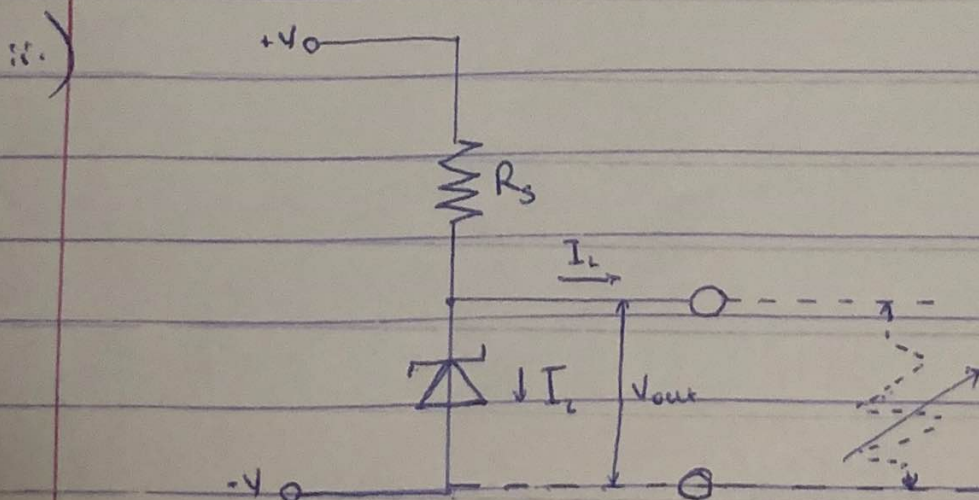
CIVIL ENGR.

ENG 202.

i.) A zener diode is a diode similar to the standard PN junction diode but they are specially designed to have a low & specified reverse breakdown voltage.



I-V characteristics curve.



2) Man Power = 5W $I_z = 500 \text{ mA} = 0.5 \text{ A}$, $20 \text{ V}_{\text{max}} = V_s$

i) Man. Current = $\frac{\text{Man Power}}{V_{\text{oltage}}} = \frac{5 \text{ W}}{10 \text{ V}} = 0.5 \text{ A}$

$$V_z = 10 \text{ volts.}$$

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

$$V_{dc} = 0.637 V_{\text{max}}$$
$$= 0.637 \times 20.$$

$$= 12.74 \text{ V}_{dc}$$

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

iii) Load current $I_L = \frac{V_z}{R_L} = \frac{10}{500} = 0.02 \text{ A}$ or 20 mA .