

EBONG PRINCE VINCENT

181ENIG041028

ELECTRICAL ELECTRONICS

Basic Electrical Engineering II

ENIG222

Labelings

- i) R_S — Resistor
- ii) V_S — Voltage source
- iii) V_{out} — Stabilised output voltage
- iv) R_L — Load Resistance
- v) I_2 — Load current across zero diode

2. Max Power = 5W

$$I_2 = 500\text{mA} = 0.5\text{A}, \quad 20\text{V}_{\text{max}} - V_S$$

$$\text{Maximum Current} = \frac{\text{Max Power}}{\text{Voltage}} = \frac{5\text{W}}{10\text{V}} = 0.5\text{A}$$

$$V_2 = 10\text{Volts}$$

$$\text{Minimum resistance} = \frac{V_2}{I_2} = \frac{10}{0.5}$$

$$V_{dc} = 0.637 V_{\text{max}} = 0.637 \times 20 = 12.74\text{V}_{dc}$$

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

ii) Load current $I_L = \frac{V_2}{R_L} = \frac{10}{500} = 0.02\text{A}$,
OF 20mA

$$I_2 = I_S - I_L$$

$$= 500 - 20 = 480\text{mA}$$