

$$2) \text{ Voltage across } = 20V$$

$$I_A = 500mA$$

$$= 500 \times 10^{-3}$$

$$= 0.5A$$

$$V_{dc} = 20 \times 2 = \frac{40}{\sqrt{2}} = 12.73V_{dc}$$

i) Minimum value

$$R_S = \frac{V_5 - V_2}{I_2}$$

$$V_2 = \frac{P_2}{I_2} = \frac{5}{0.5} = 10V$$

$$R_S = \frac{12.73 - 10}{0.5} = \frac{2.73}{0.5} = 5.46\Omega$$

$$ii) I_L = \frac{V_2}{R_L}$$

$$= \frac{10}{500} = 0.02A \Rightarrow I_L = 20mA$$

BTRUS JESSE
18/ENG02/028

1) A Zener diode is a general purpose diode, which behaves like a normal diode when forward biased. But when it is reverse biased above a certain voltage known as Zener breakdown voltage or Zener voltage or avalanche point or Zener knee voltage the voltage remains constant for a wide range of current.

