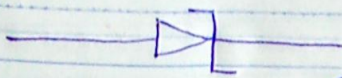


Oreoluwa Ayodele Akindele

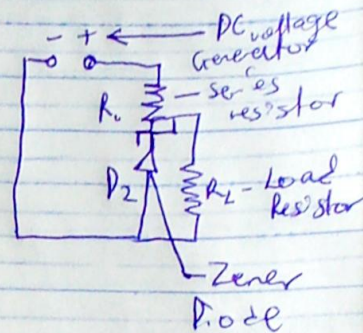
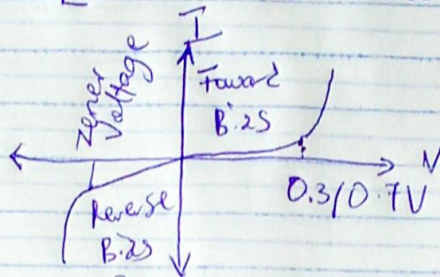
18/ENG03/052

Civil Engineering

1) A zener diode is a type of diode that allows current to flow in the conventional manner - from its anode to its cathode i.e. when the anode is positive with respect to the cathode. When the voltage across the terminals is reversed and the potential reaches the zener voltage (or "knee"), the junction will break down and current will flow in the reverse direction - a desired characteristic. This effect is known as Zener Effect, after Clarence Zener, who first described the phenomenon.



Zener diode ii)



2) $I_{max} = 500 \times 10^{-3} A = 500 mA = 0.5 A$

$$V = \frac{5W}{0.5A} = 10V$$

$$i. R_s = \frac{20V - 10V}{0.5A} = \frac{10V}{0.5A} = 20 \Omega$$

ii) $R_1 = 500 \Omega$

$$I_1 = \frac{10V}{500 \Omega} = 0.02 A$$

$$I_2 = 0.5 A - 0.02 A = 0.48 A$$