



Semiconductors

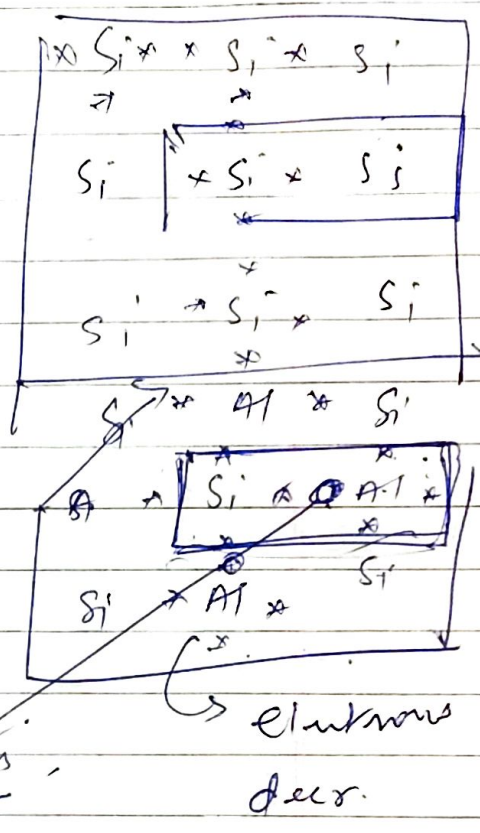
Alternating current

Semiconductors

- # Half wave } rectifier
- # full wave }

→ CE - Transistors

- # Zener diode → 2
- (a) as voltage regulator
- (b) - - - - -



P - Types Semiconductors

Semiconductor + Trivalent atom
= P - Types

⇒ e^- density decreases

⇒ $n_p \gg n_e$

⊕ holes behave like +ve charges

⇒ Holes is majority charge carrier

Impurities are acceptor

N - Types Semiconductors

Semiconductor + Pentavalent
= N - Types

e^- density increased

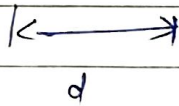
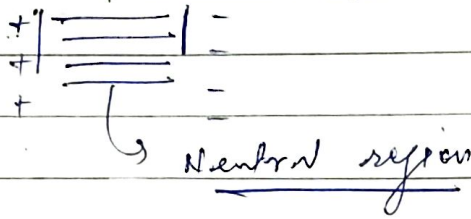
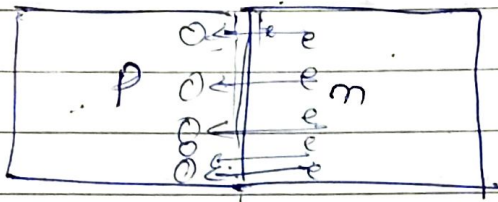
$n_e \gg n_p$

⇒ e^- is majority charge

Impurities are donor

P-n junction

→ P-n

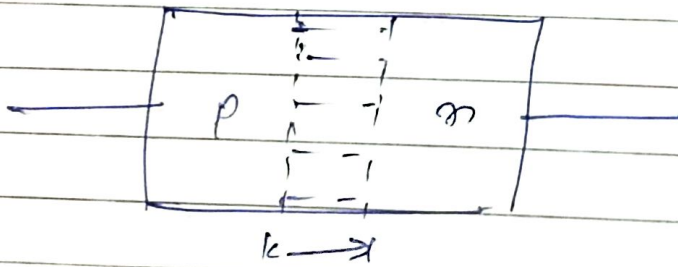


$$E = \frac{V}{d}$$

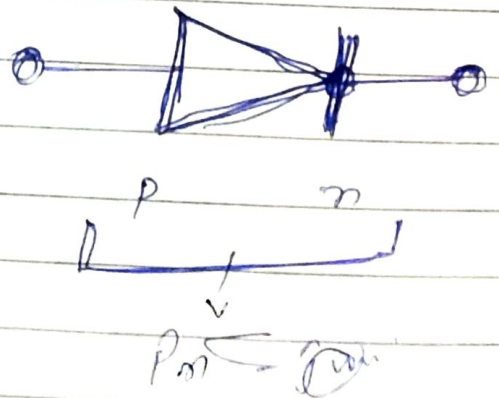
$$V = E d$$

→ This potential is called
→ Potential Barrier,

The P-n junction of Depletion region
it is called diode.



Depletion region



Connection

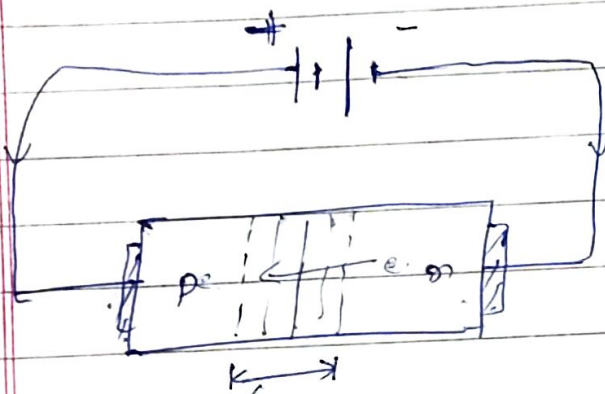


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1. forward bias

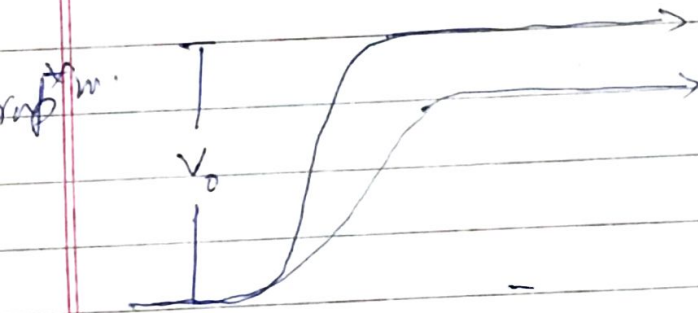
2. Reversed Bias

Forward Bias



→ p.d. with connection

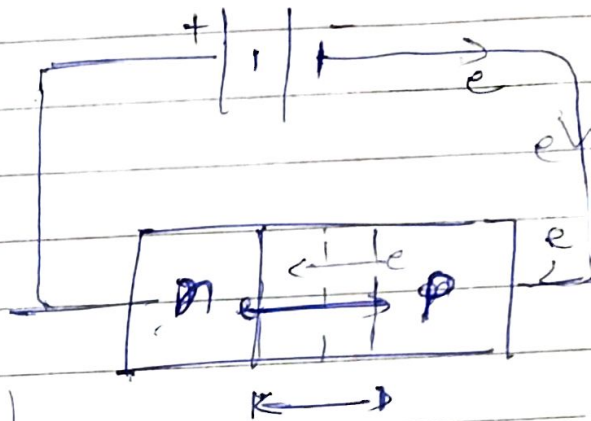
* after connect it is decreased.



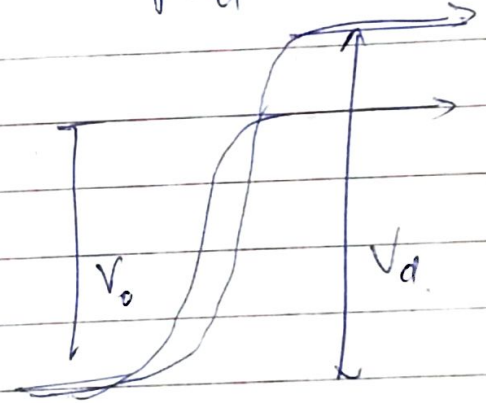
* external voltage help the flow of e^-

* low resistance shows by diode so that the flow of current in circuit is max.

Reversed Bias



p.d. is incre



ext. voltage oppose the flow of e^-

→ High resistance shows by diode then no current is flow in circuit.