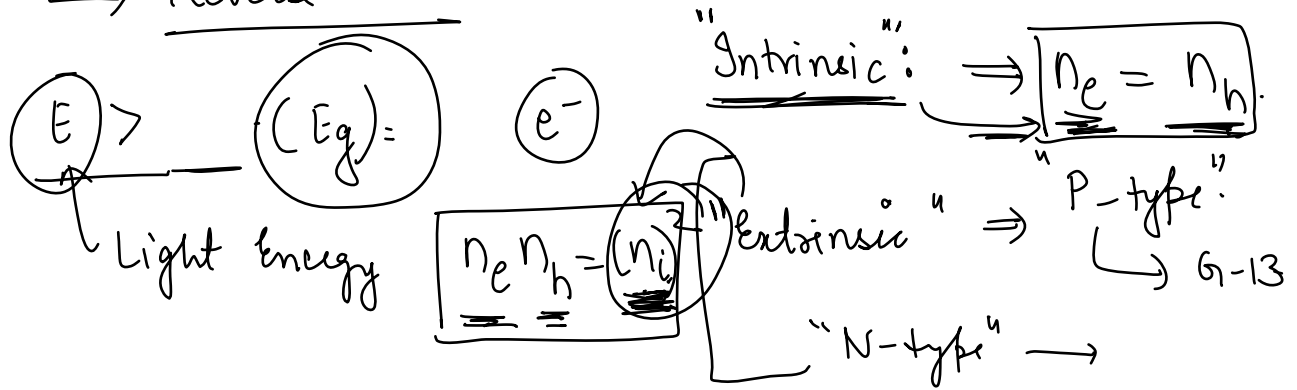


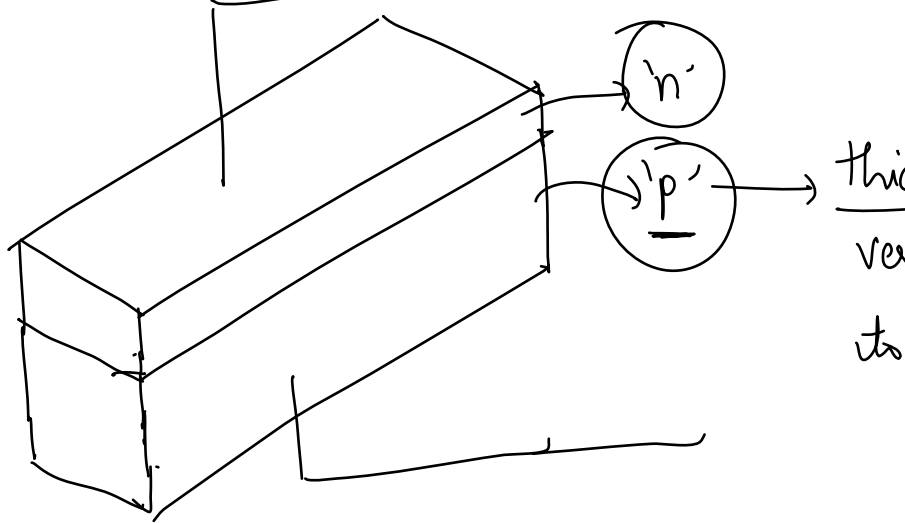
Zener diode: "Regulator" . → Heavily doped .
 → Depletion layer - Thin
Voltage -

Photodiode: → PN Junction diode . Depletion layer ↓
 ↳ Reverse Bias . Forward | Reverse ↑



Solar Cell : (Photodiode) [Convert light energy \rightarrow Electricity].

- 1) Emf generated when solar radiation falls on the pn junction.
- 2) No external emf is applied and the junction area is kept much larger for solar radiation to be incident.

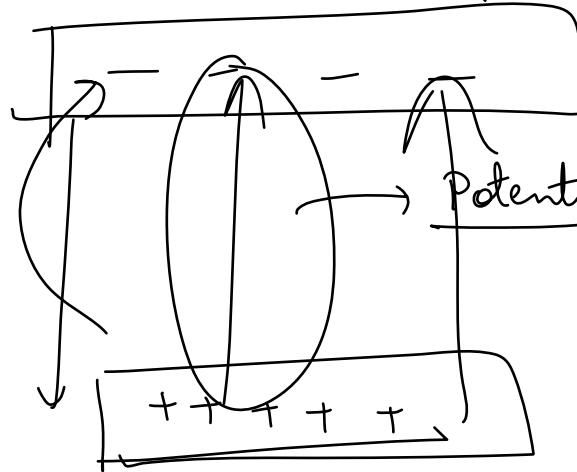


thickness of p type is very much in comparison to n type

- A pn junction which generates emf when solar radiation falls on the pn junction.
- Works on the same principle as photodiode (reverse bias)
- Junction Area is kept much larger for solar radiation to be incident to generate more power.
- The generation of emf is due to electron-hole pairs ^{when} light falls on the junction ~~which~~

- Electrons reach n-side and holes reach p-side. The p-side becomes +ve and n-side becomes more negative due to

Band gap
(1 to 1.8 eV)
High optical Absorption -
Costly =



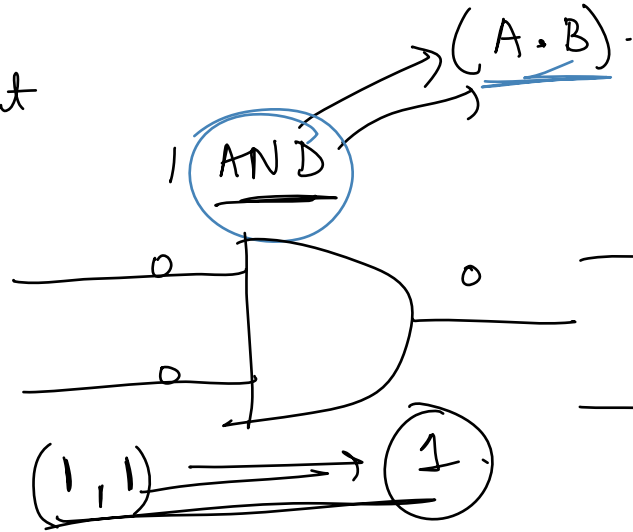
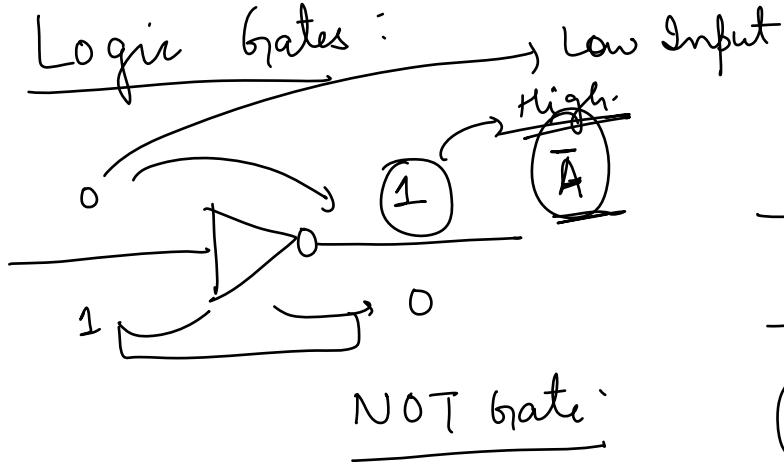
High voltage is generated -

Potential barrier ↑

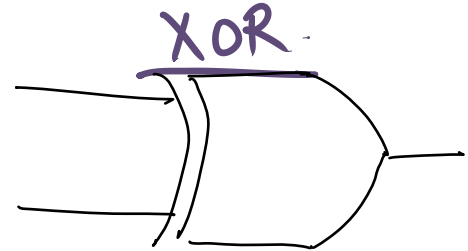
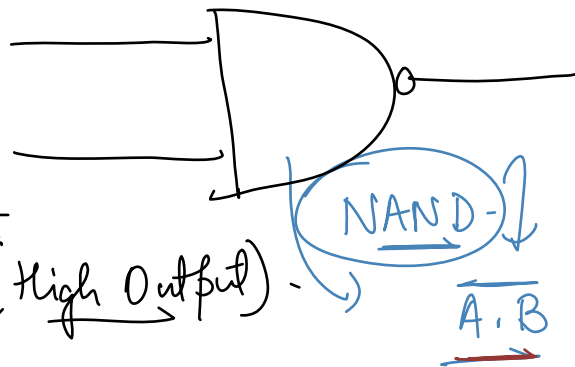
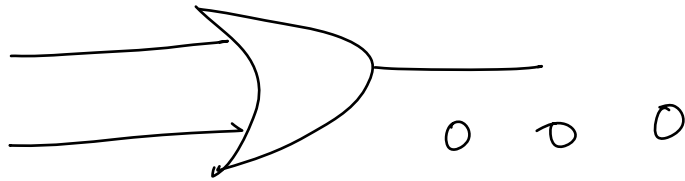
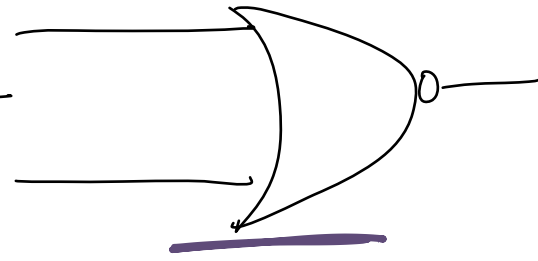
1.5 eV. are used for
solar cell fabrication

Current is supplied to the light.

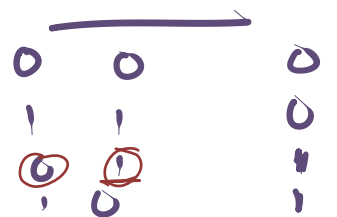
Logic Gates:



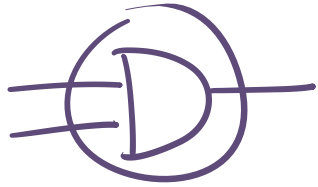
NOR: $\overline{A+B}$



OR Gate: $A + B$
 Else → output $\bar{1}$ [High Output]



NAND → Universal gate



Transistor:

- Switching devices: Amplify the electrical signal like voltage | Current
- Transfer
- Resistance offered to the junction

Transistor consists of:

1.) Two PN junction diode.

2.) It has 3 terminals :

1) Emitter → Heavily doped with large majority carriers.

2) Base → Least doping

3) Collector → lightly doped, with the largest thickness.

Emitter - base junction is forward-biased while Collector base junction

is reverse bias junction.

Emitter



Base

Collector

N

Arrow → direction
of flow of conventional
current in the emitter
with forward biasing applied
to the emitter-base

NP N - Transistor

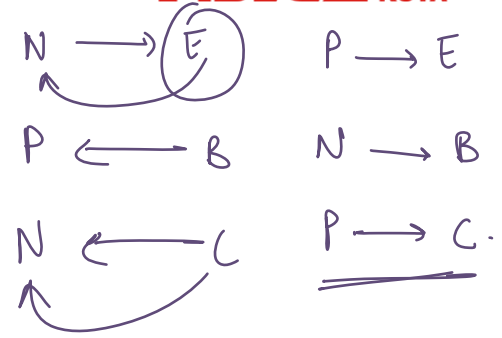
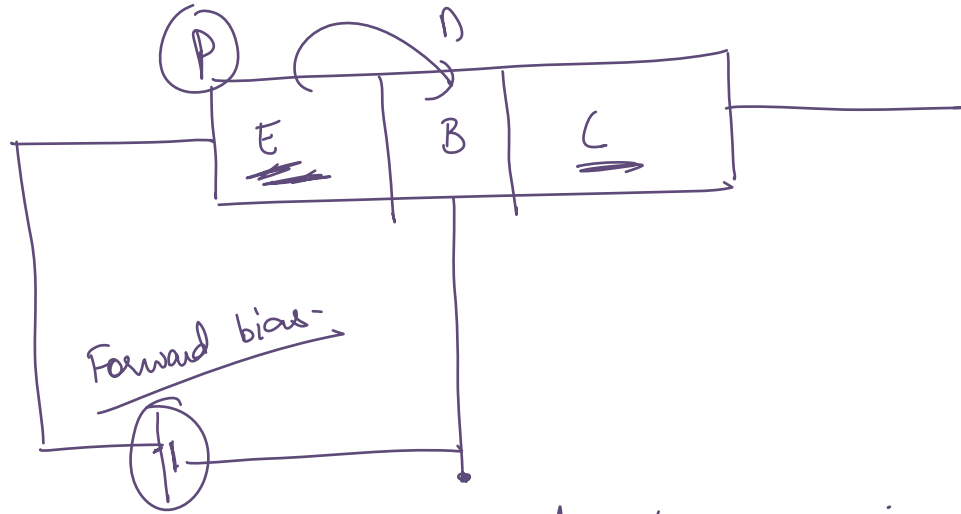
Emitter 'P'



Base

Collector

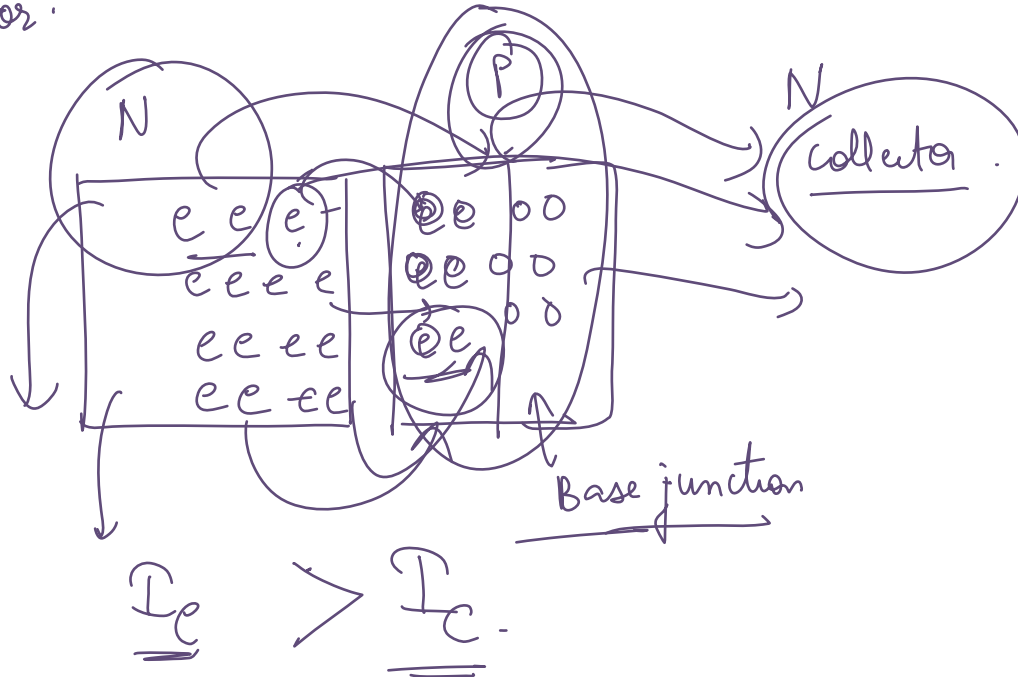
PNP Transistor



Emitter: It supplies the large majority charge carriers - emitter is connected in forward bias with respect to the base so that it can supply majority charge carriers to the base. Highly doped, Moderate in Size.

Base:

It is lightly doped and thin so that majority charge carriers can flow to the collector.



Collector:

The It collects the major portion of the majority charge carriers supplied by the emitter.

Moderately doped, but large in size so that it can collect most of the charge carriers supplied by emitter.

Its function is to remove the majority charges from its junction with base-

Reverse Bias -