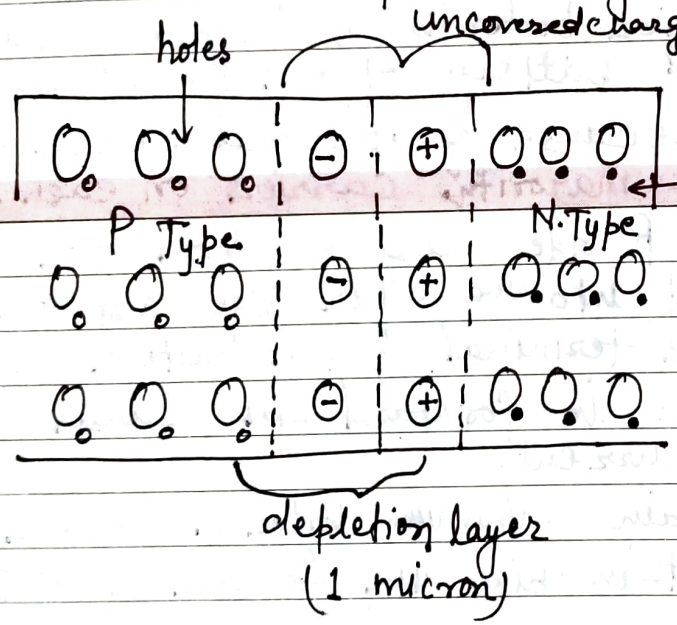
P-N junction

P-N junction or Diode

It is constructed by simply placing a P-type semiconducting material in contact with N-type semiconducting material.

Because of concentration gradient, some electrons on the N side move over to P side and neutralise the holes there. It results in creation of uncovered charges on each side of the junction. This small layer on each side of the junction, which has been depleted of mobile carriers i.e. electrons and holes, is called depletion layer.



Barrier potential

Due to diffusion of electrons to the P side of the jn. it gets negatively charged and N type side gets positively charged. Thus an electric field is created which stops the movement of charges from occuring further. In effect a potential difference called barrier potential is created which opposes the further movement of majority carriers.

Barrier potential is also known as contact potential and is created instantaneously on placing an N type material in contact with P type.