

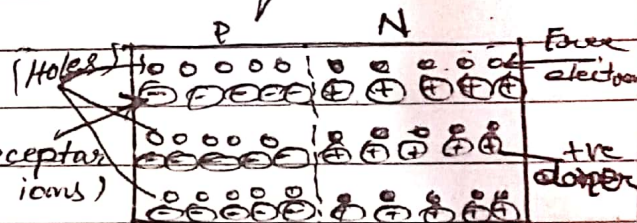
Date  
15/2/24

B.Sc-DIT (H)  
Paper VI 'B'

P-N junction → A P-n junction is formed from a piece of ~~an~~ semiconductor by diffusing P-type material (Acceptor impurity ~~one~~ atoms) to one half side and N-type material to (Donor impurity atoms) other half side. The plane dividing the two zones is known as 'junction'.

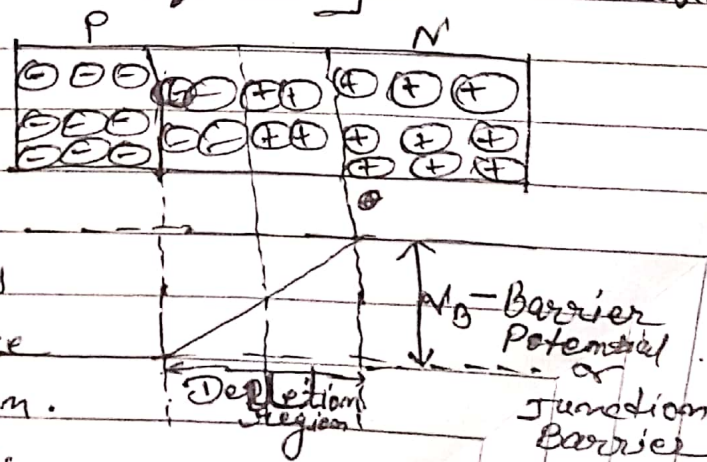
The P-region of the semiconductor contains a large number of holes and N-region, contains a large number of electrons.  
in fig (a)

This process is called diffusion when PN junction is formed.



There is a tendency for the electrons in the N-region to diffuse into the P-region and hole from P-region to N-region. While crossing the junction, the electrons and holes recombine with each other, leaving the immobile ions in the neighborhood of the junction neutralized in fig (b)

By immobile in fig due to the potential barrier no further diffusion of electrons and holes takes place across the junction.



Potential barrier is defined as a potential difference built up across the PN junction which restricts further movement of charge carriers across the junction (As and S).