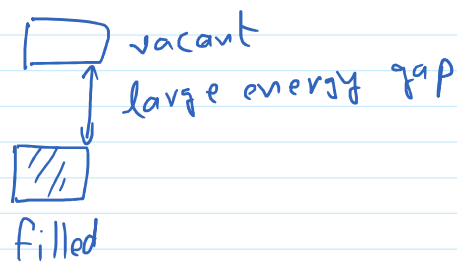


Conduction of Electricity in insulators

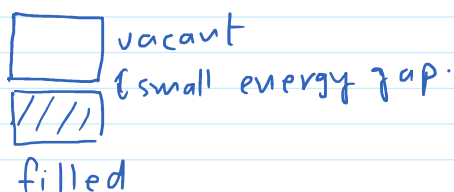
In an insulator the gap between filled valance band and the next higher unoccupied band (conduction band) is large, electrons cannot jump to it. Thus an insulator has very small conductivity.



Conduction of Electricity in Semiconductors

In case of semiconductors, the gap between the valance band and conduction band is small. Therefore some electrons may jump to conduction band and show some conductivity.

Electrical conductivity of semiconductors increases with rise in temperature, since more electrons can jump to the conduction band. Substances like silicon and germanium show this type of behaviour and are called intrinsic semiconductors



The conductivity of these intrinsic semiconductors is too low to be of practical use. Their conductivity is increased by adding an appropriate amount of suitable impurity. This process is called doping. Doping can be done with an

impurity which is electron rich or electron deficient as compared to the intrinsic semiconductor silicon or germanium. Such impurities introduce electronic defects in them.