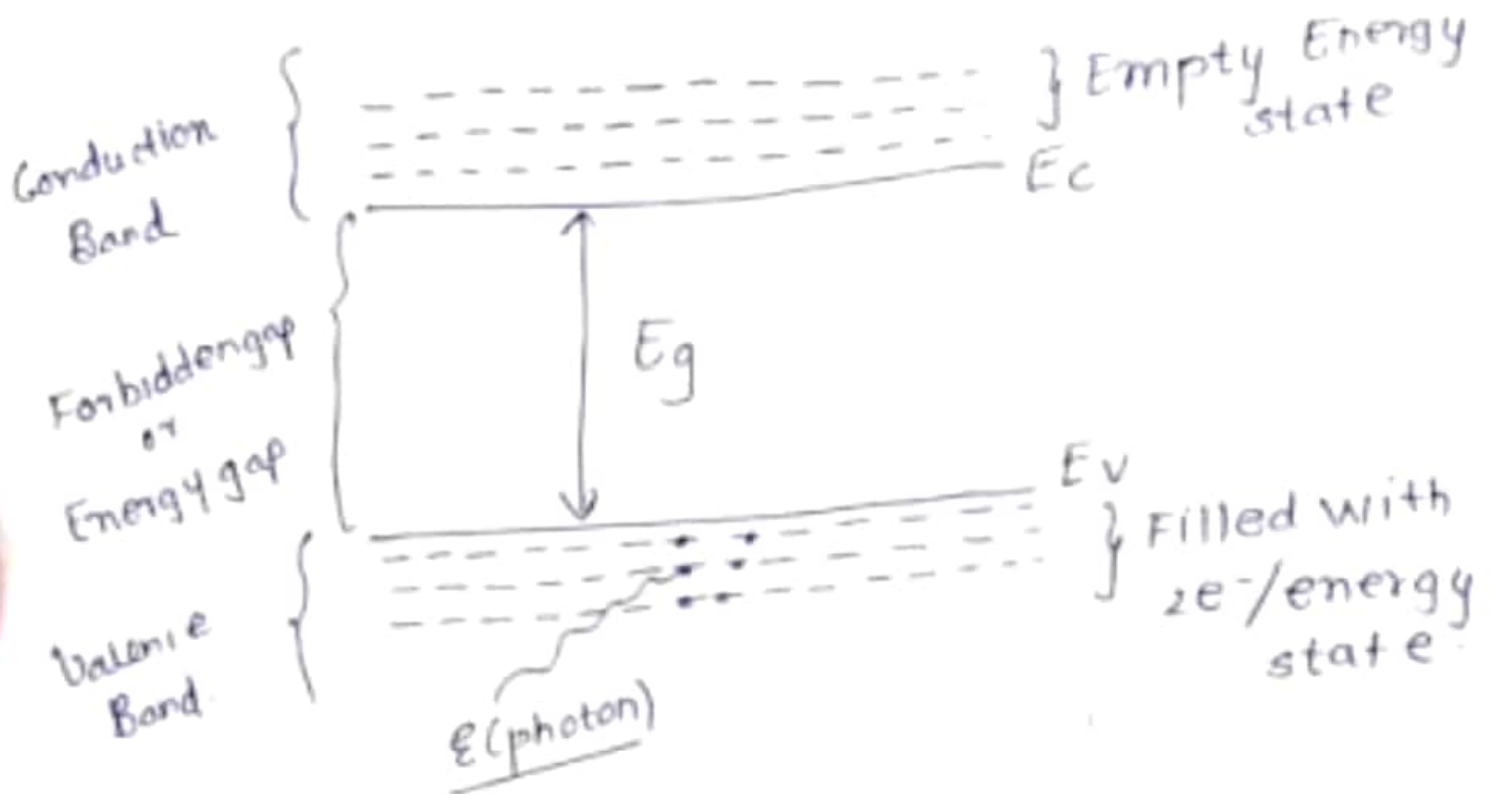


4) Energy Bands present:-



Valence Band:-

The electrons present in the outermost shell are called as valence electrons. These valence electrons, containing a series of energy levels forms an energy band as Valence Band.

Conduction Band:-

The electrons that are free and are responsible for conduction of current in conductor are called Conduction Electrons. The energy

Figure 1 shows energy diagrams for the three types of materials.

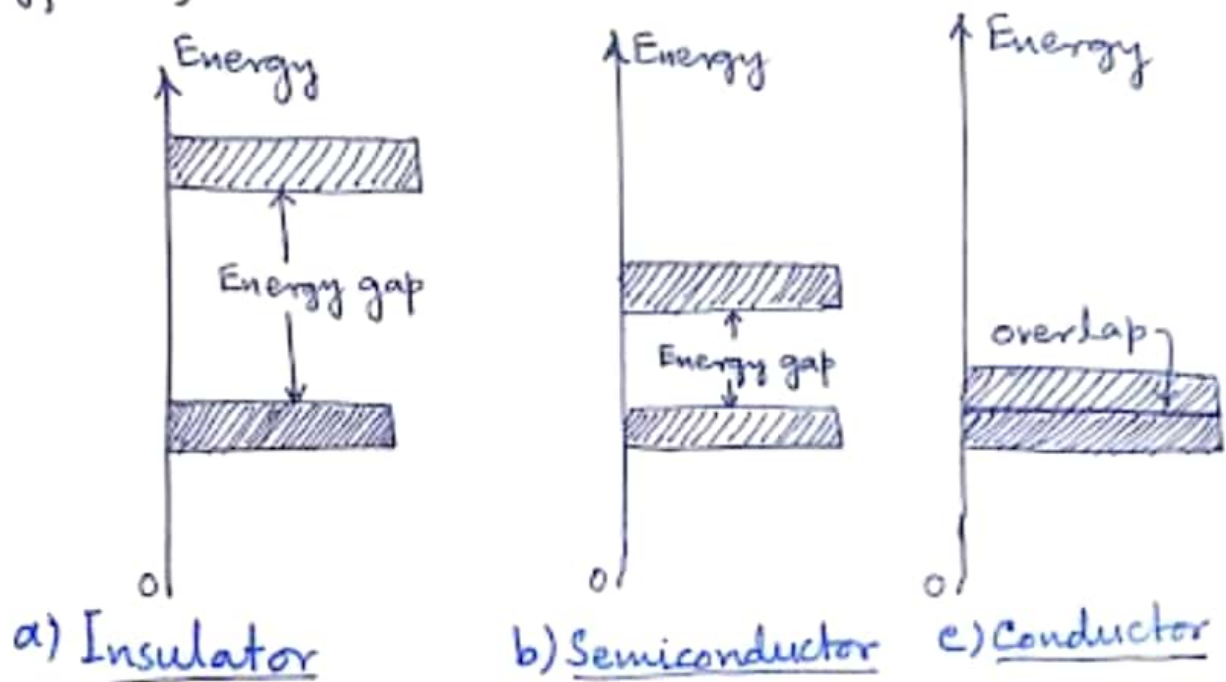


Fig. 1. Energy diagrams for the Three types of materials

Notice in part (a) that insulators have a very wide energy gap. Valence electrons cannot jump into the conduction band except under breakdown conditions where extremely high voltages are applied across the material. In Fig. 1(b), note that semiconductors have a much narrower energy gap. This gap permits some valence electrons to jump into the conduction band and become free electrons. The energy band in conductors overlap hence there are large number of free electrons.