- i. Bond Angle: It is the distance between two consecutive crests or troughs and is denoted by λ . It is defined as the angle between the orbitals containing bonding electron pairs around the central atom in a molecule/complex ion. Bond angle is expressed in degree which can be experimentally determined by spectroscopic methods.
- ii. Bond Length: Bond length is defined as the equilibrium distance between the nuclei of two bonded atoms in a molecule.
- iii. Lattice Enthalpy: The Lattice Enthalpy of an ionic solid is defined as the energy required to completely separate one mole of a solid ionic compound into gaseous constituent ions. For example, the lattice enthalpy of NaCl is 788 kJ mol⁻¹.
- iv. Bond Order: Bond order is defined as half of the difference between the number of electrons present in bonding and antibonding molecular orbitals. The bond order may be a whole number, a fraction or even zero. It may also be positive or negative.

v. Bond Enthalpy: It is defined as the amount of energy required to break one mole of bonds of a particular type between two atoms in a gaseous state. The unit of bond enthalpy is kJ mol–1. For example, the H – H bond enthalpy in hydrogen molecule is 15.8 kJ mol^{-1.}

Molecular Orbital Theory (MOT)

Molecular Orbital Theory (MOT) Molecular orbital (MO) theory was developed by F. Hund and R.S. Mulliken in 1932. According to MOT, a molecular Sconsidered to be cuite different from the constituent atoms. All the electron blonging to the atoms constituting a molecule are considered to be moving along the entire move le under the influence of all the nuclei. Thus, a molecule is supposed to have orbitals of varying energy levels, in same way as an atom. These orbitals are called molecular orbitals.

Resonance

When light of a suitable frequency is allowed to incident on a metal, ejection of electrons take place. This phenomenon is known as photo electric effect.

When a compound has same molecular formula but different structural formulas and structures differ with respect to electrons only. These structures are known as resonating structures or canonical structures. None of these structures can explain all the properties of that compound. This phenomenon is known as resonance.

Hydrogen Bonding

When highly electronegative elements like nitrogen, oxygen, flourine are attached to hydrogen to form covalent bond, the electrons of the covalent bond are shifted towards the more electronegative atom. Thus, partial positive charge develops on hydrogen atom which forms a bond with the other electronegative atom. This bond is known as hydrogen bond and it is