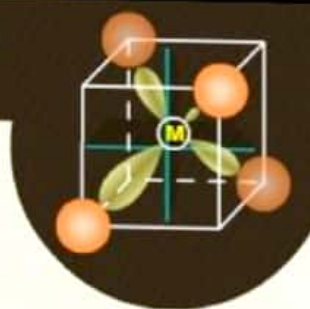
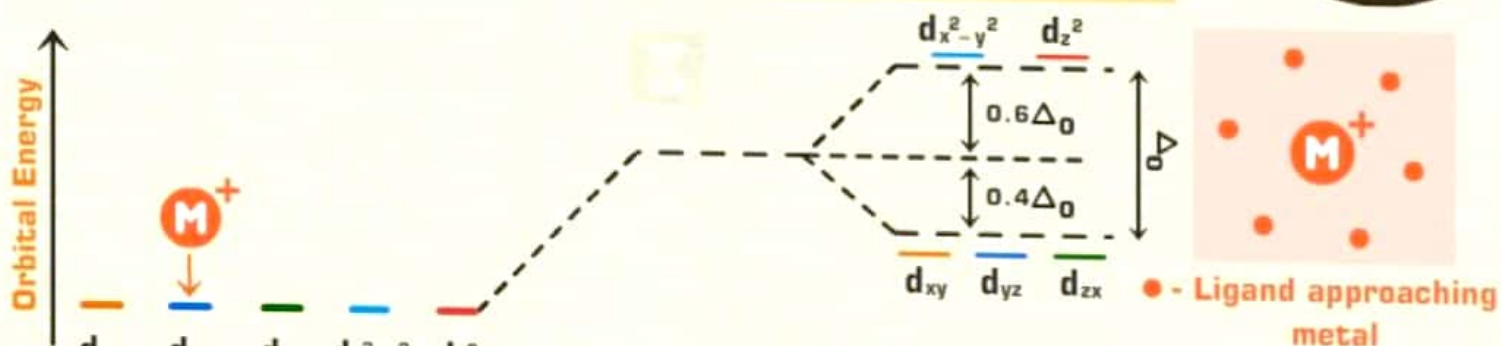


CRYSTAL FIELD THEORY

In crystal field theory, bonding between metal and ligands is purely electrostatic. Ligands are considered as negative point charges.



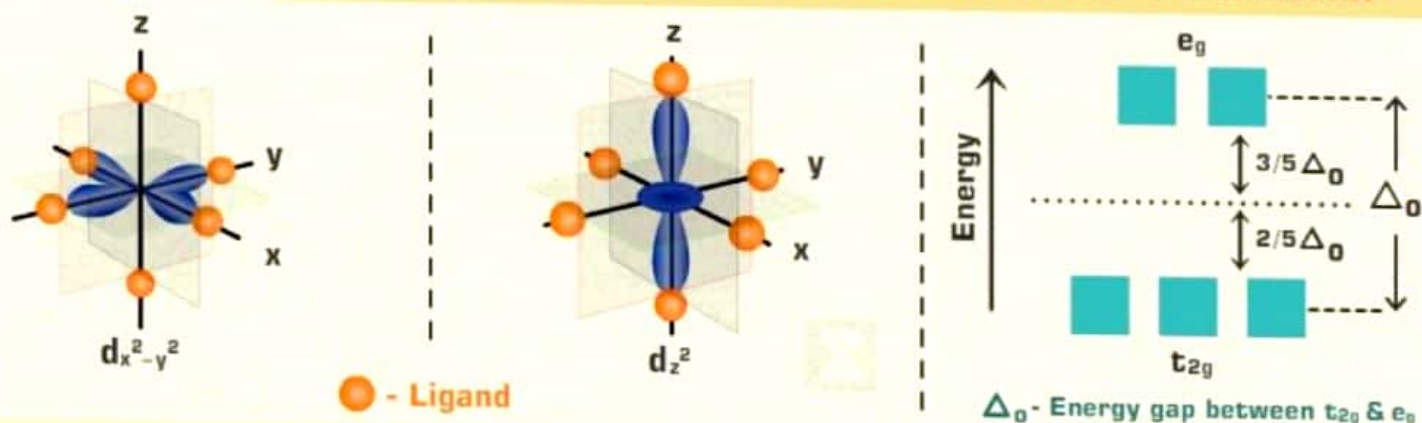
WHAT HAPPENS WHEN LIGANDS APPROACH A METAL



D-orbitals of metal ions when there are no-surrounding ligands

When Ligand approaches the metal ions, there will be a change in energy of electrons in d-orbitals of Metal ions.

ORBITAL SPLITTING IN OCTAHEDRAL COMPLEXES



In Octahedral complex, Ligands approach along x, y, z axis. $d_{x^2-y^2}$ and d_{z^2} orbitals align along the axis. So the **repulsion between Orbitals and Ligands** leads to increase in energy.

ORBITAL SPLITTING IN TETRAHEDRAL COMPLEXES



In tetrahedral complexes, Ligands approach between the x, y and z axis, therefore d_{xy} , d_{yz} and d_{zx} has more energy than $d_{x^2-y^2}$ and d_{z^2}

Strength of ligands

