

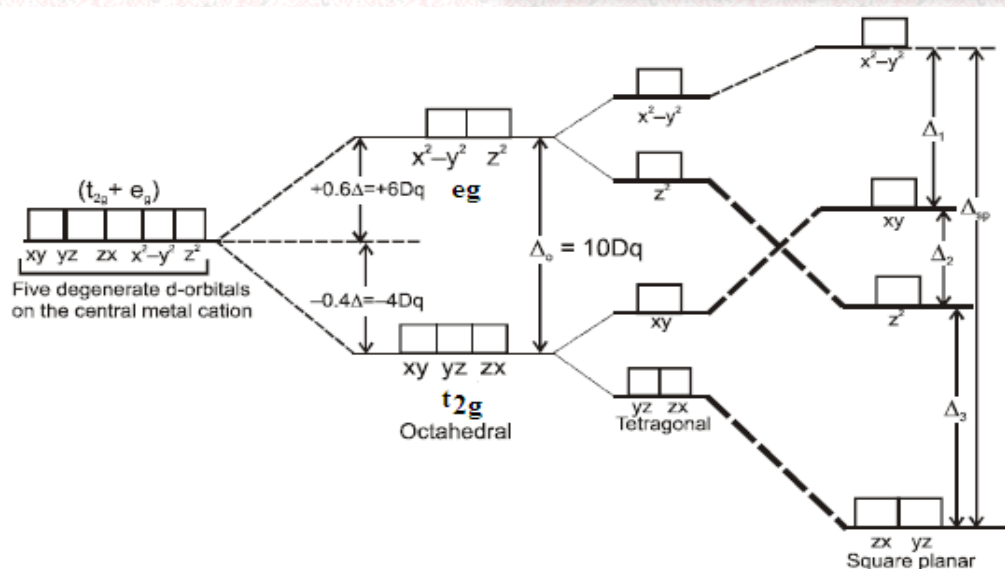
Metal-Ligand Bonding in Transition Metal Complexes

(Lecture-3)

B.Sc. 5th Semester (Pass Course)

INORGANIC CHEMISTRY

(As per MDU, Rohtak Syllabus)



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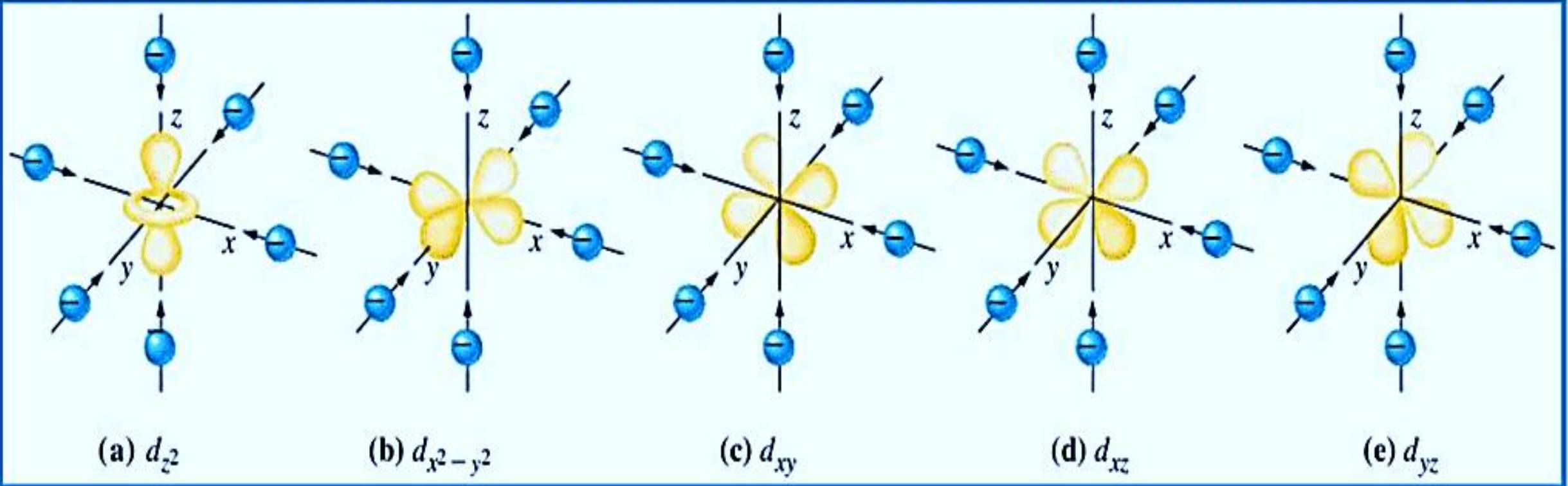
CONTENT

- **Crystal field splitting of an Octahedral M-L Complex**
- **Concept of High Spin and Low Spin Complex**

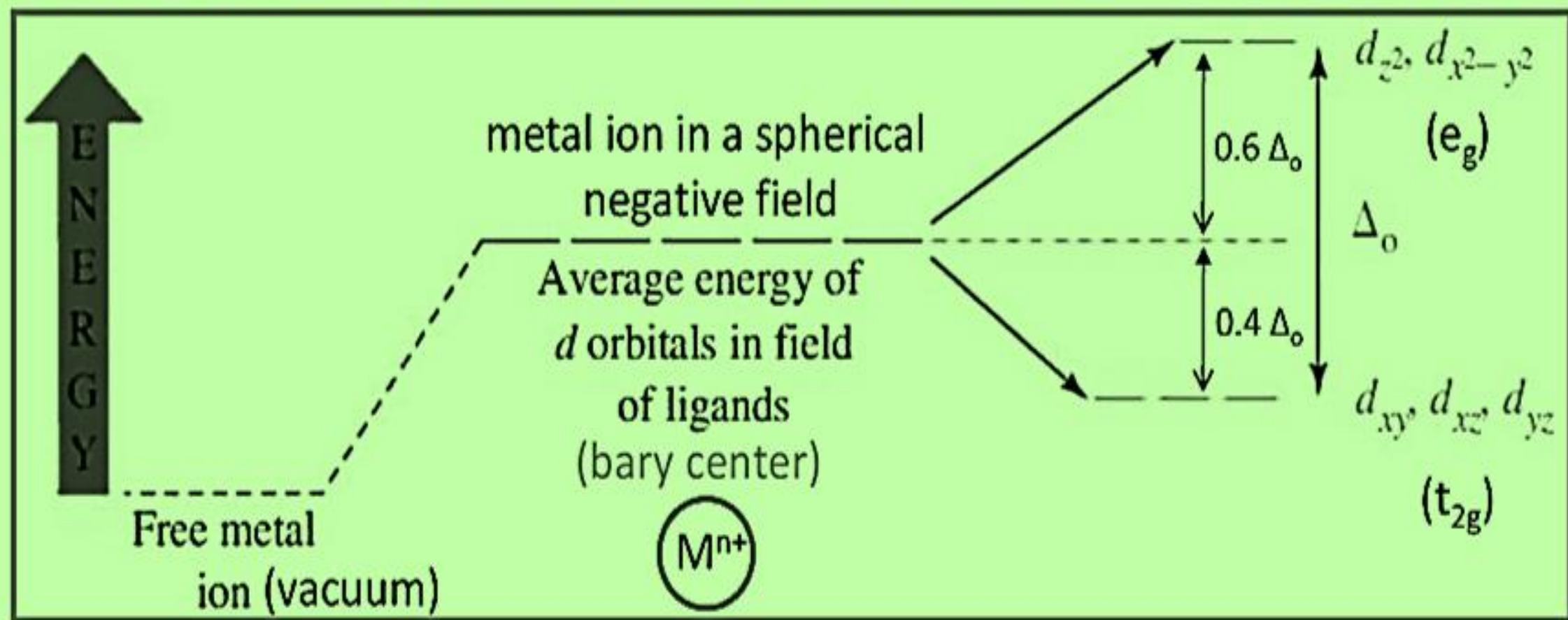
Crystal field splitting in an octahedral field

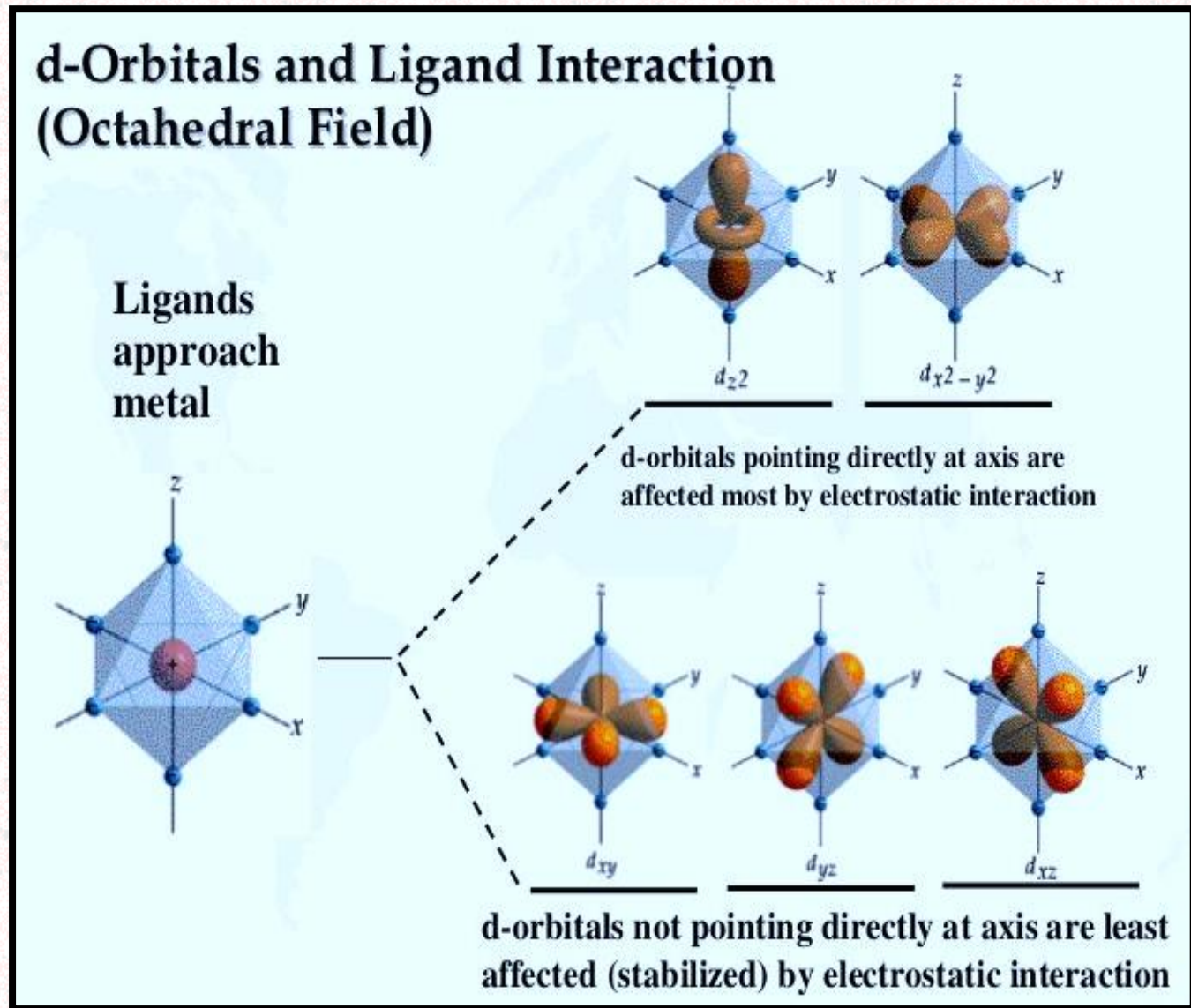
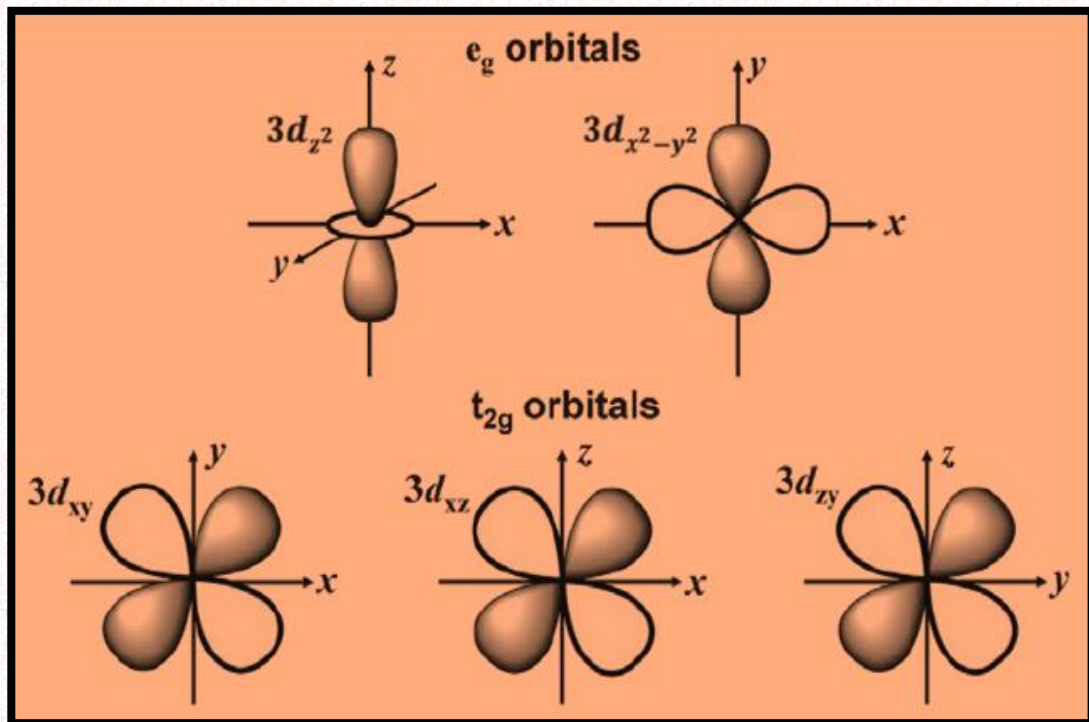
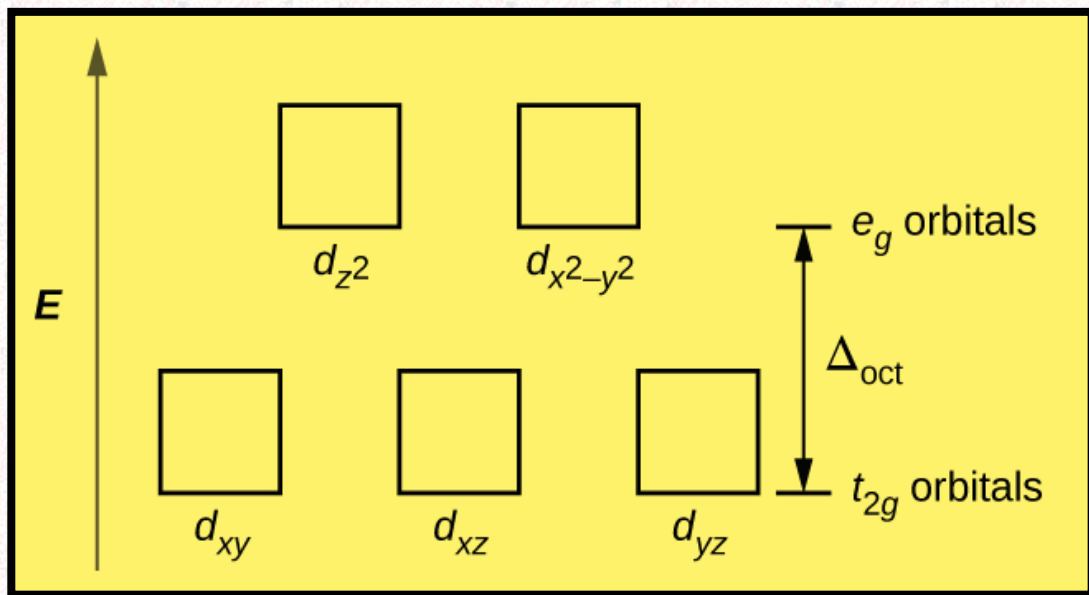
Crystal Field Theory: Octahedral Complexes

Approach of six anions to a metal to form a complex ion with octahedral structure

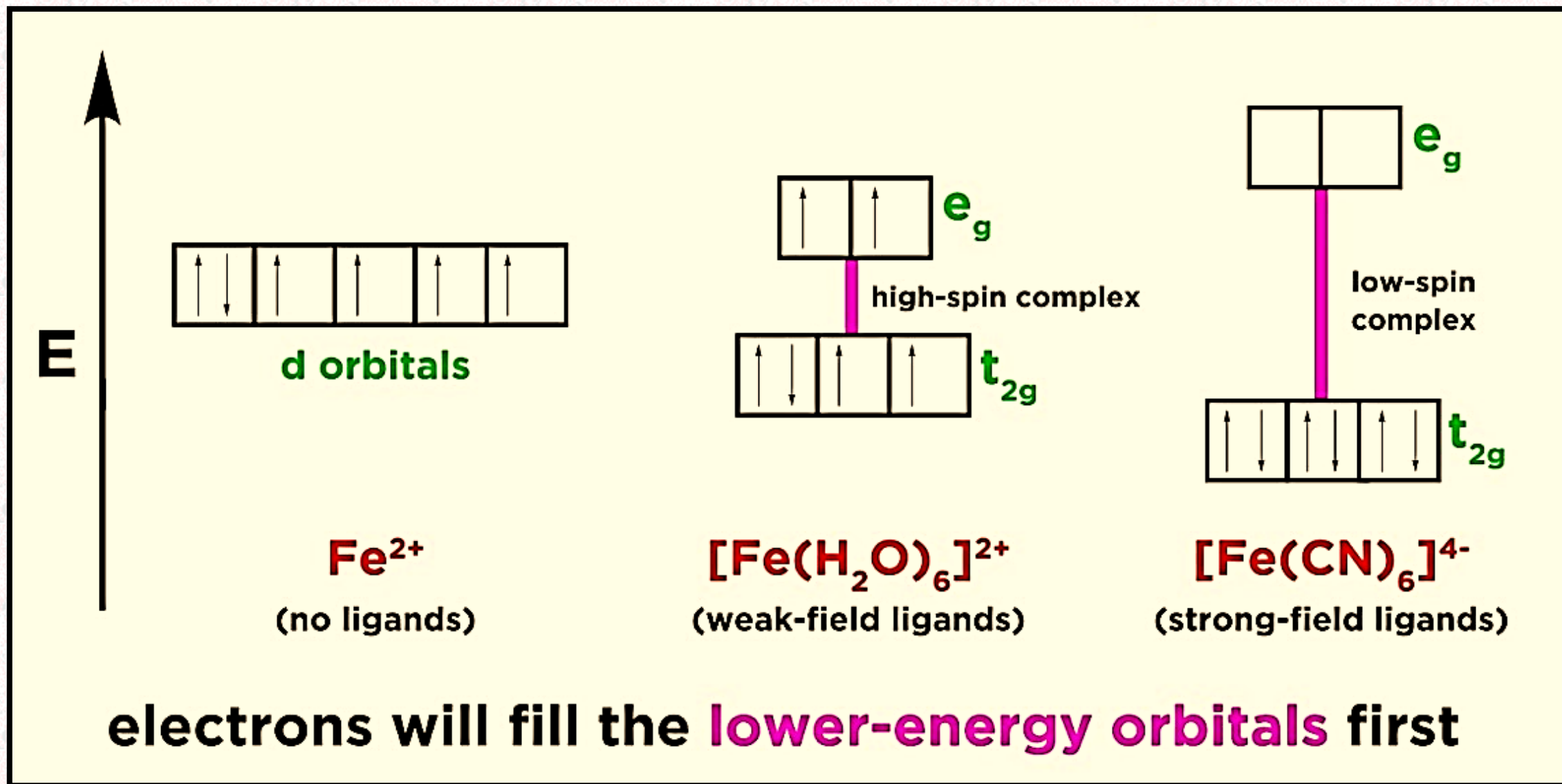


Splitting of d energy levels in the formation of an octahedral complex ion

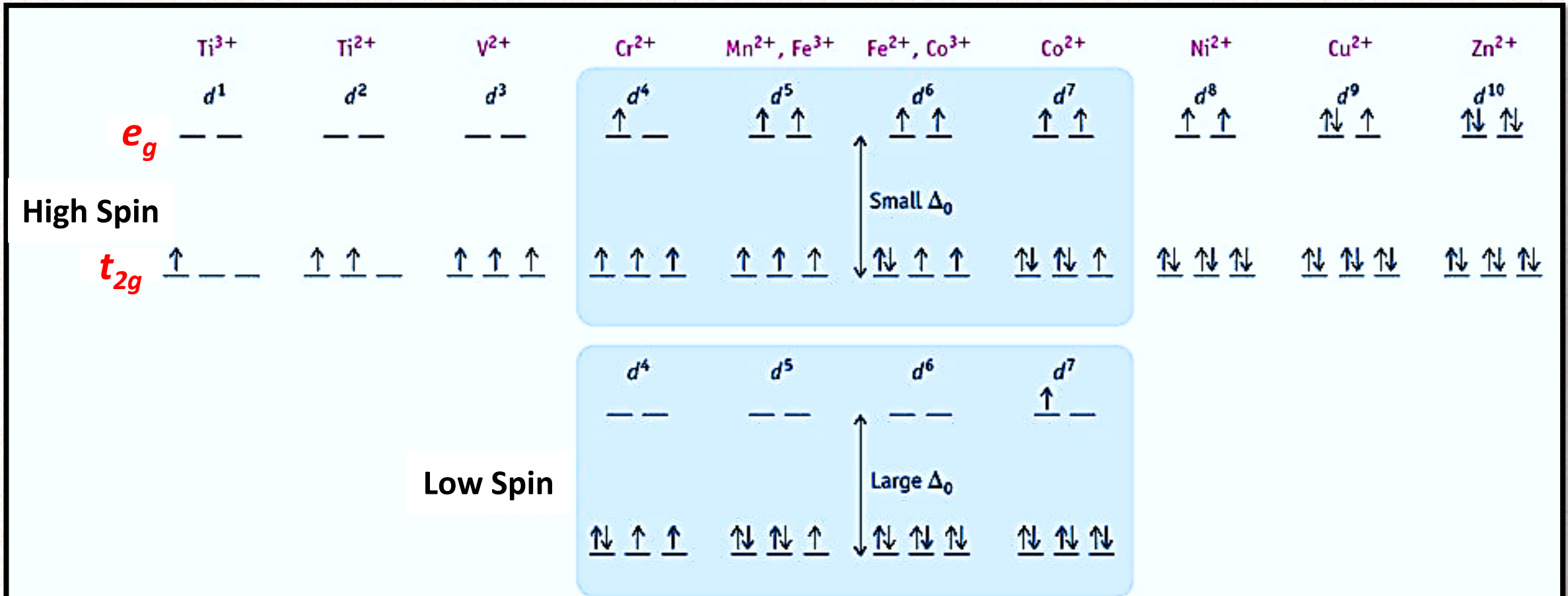




Crystal Field Splitting in Low spin and High spin complexes:



Low Spin (LS) and High Spin (HS) Complexes

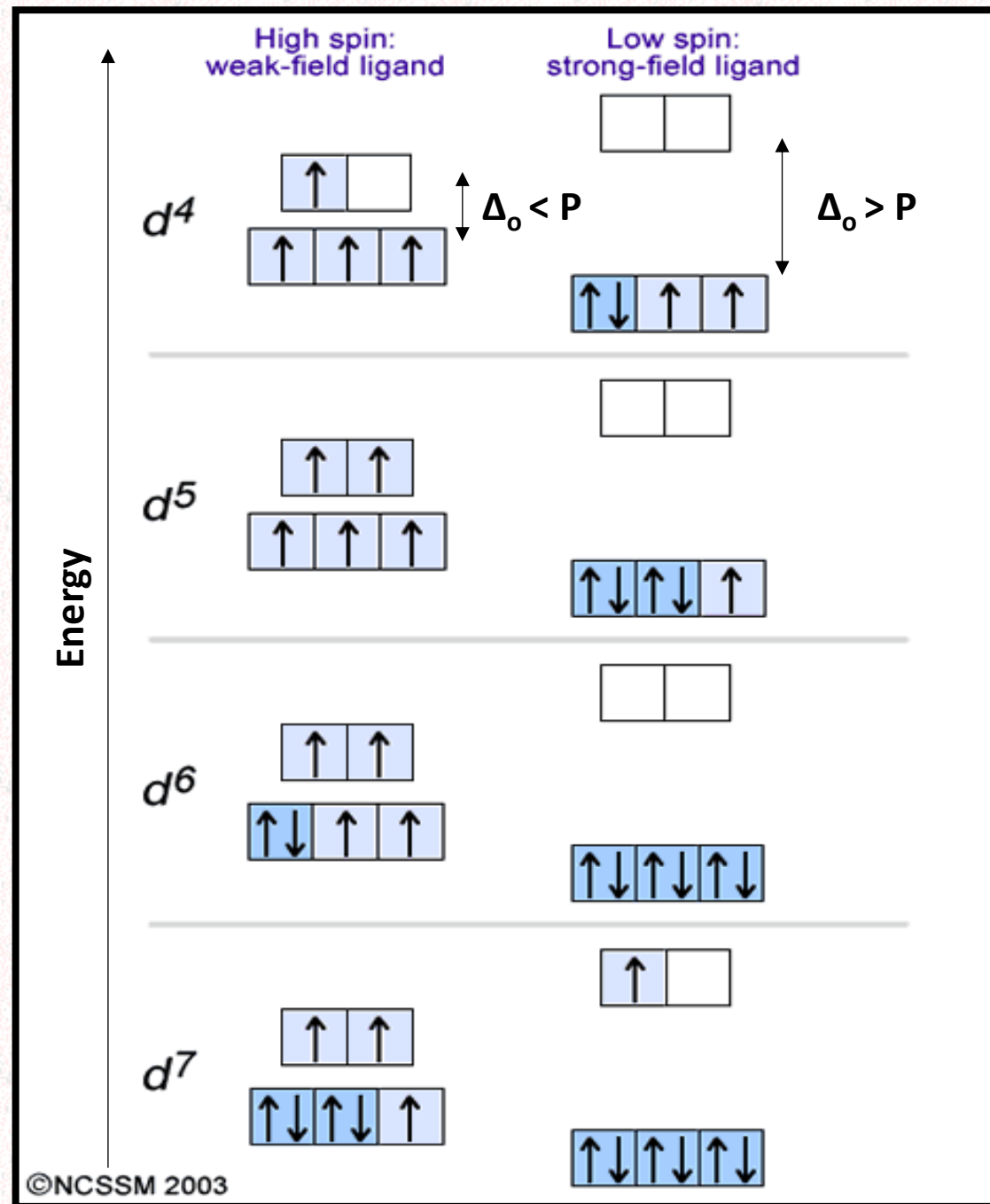


High or low spin octahedral complexes only possible for d^4 , d^5 , d^6 , and d^7 configurations.

High Spin Complex



$$\Delta_o < P$$

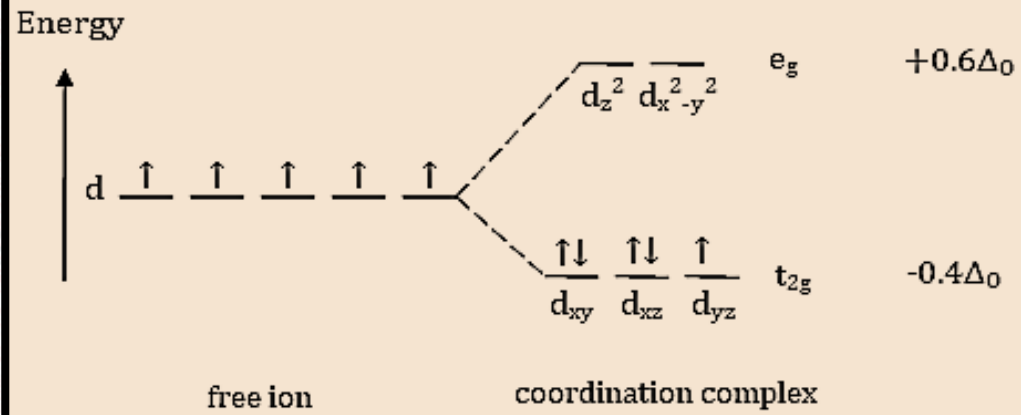


Low Spin Complex



$$\Delta_o > P$$

Octahedral d^5 - low spin



Octahedral d^5 - high spin

