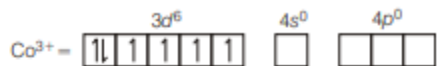


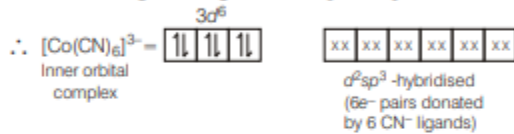
The metal d -orbitals that are directly facing the ligands in $K_3[Co(CN)_6]$ are (2019 Main, 12 Jan I)

- (a) d_{xz} , d_{yz} and d_{z^2} (b) $d_{x^2-y^2}$ and d_{z^2}
 (c) d_{xy} , d_{xz} and d_{yz} (d) d_{xz} and $d_{x^2-y^2}$

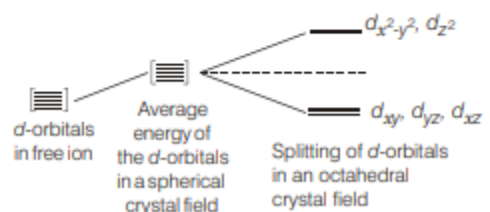
In $K_3[Co(CN)_6]$, Co have +3 oxidation state and electronic configuration of Co^{3+} is $[Ar]_{18} 3d^6$.



As, CN^- is a strong field ligands so it pairs up the de^- s



In an octahedral complex, the metal is at the centre of the octahedron and the ligands are at the six corners. The lobes of the e_g orbitals ($d_{x^2-y^2}$ and d_{z^2}) point along the axes x , y and z under the influence of an octahedral field, the d - orbitals split as follow.



As the d -orbitals, i.e. $d_{x^2-y^2}$ and d_{z^2} are vacant. Hence, these both orbitals are directly facing the ligands in $K_3[Co(CN)_6]$.