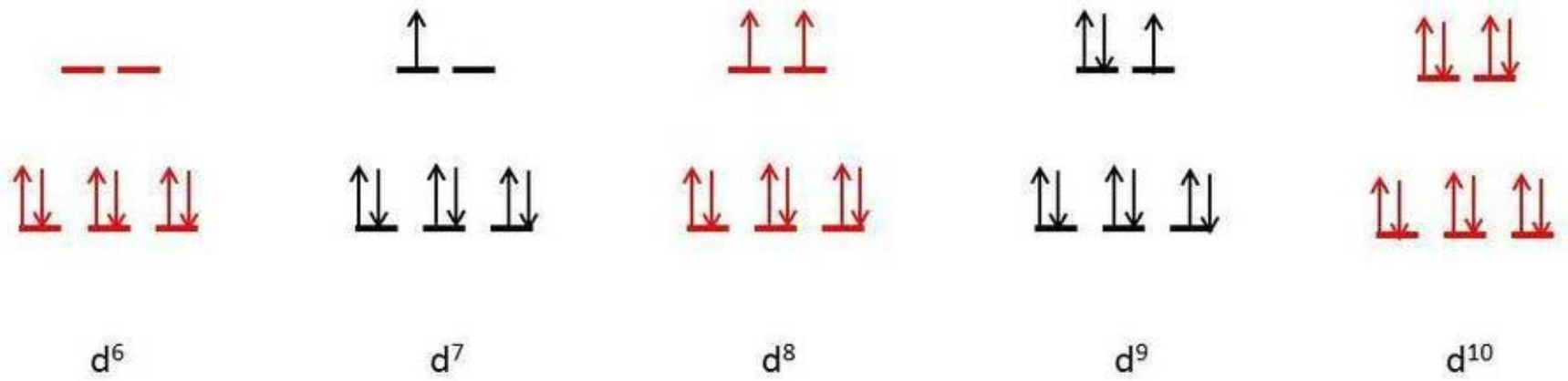
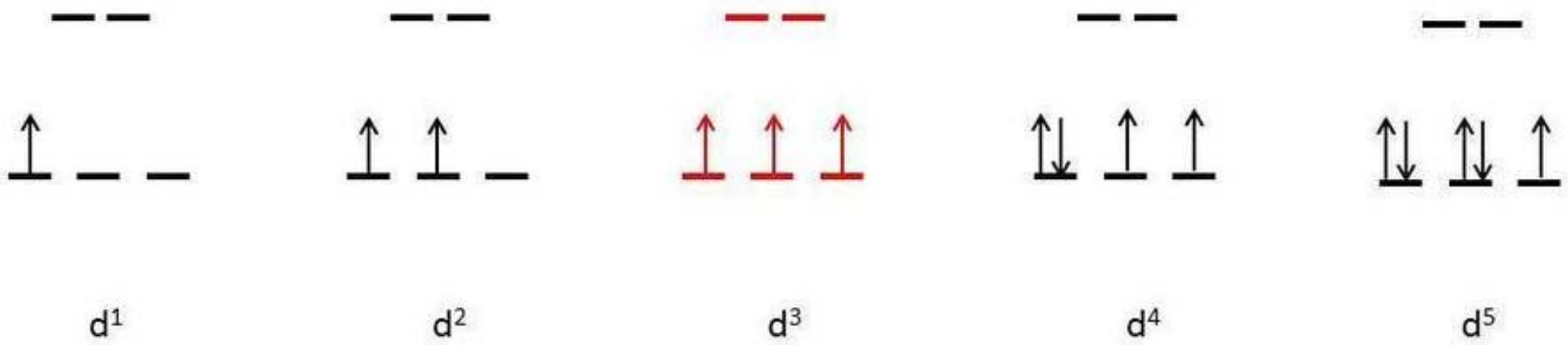
H.W. 1. Identify the J.T. Distortion for Low Spin Complexes

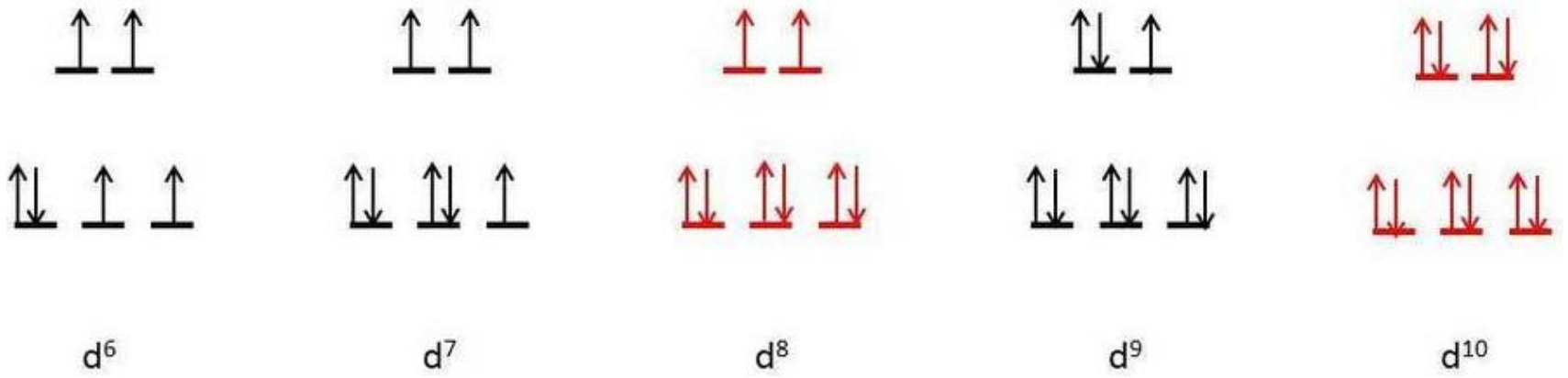


d^6 d^7 d^8 d^9 d^{10}

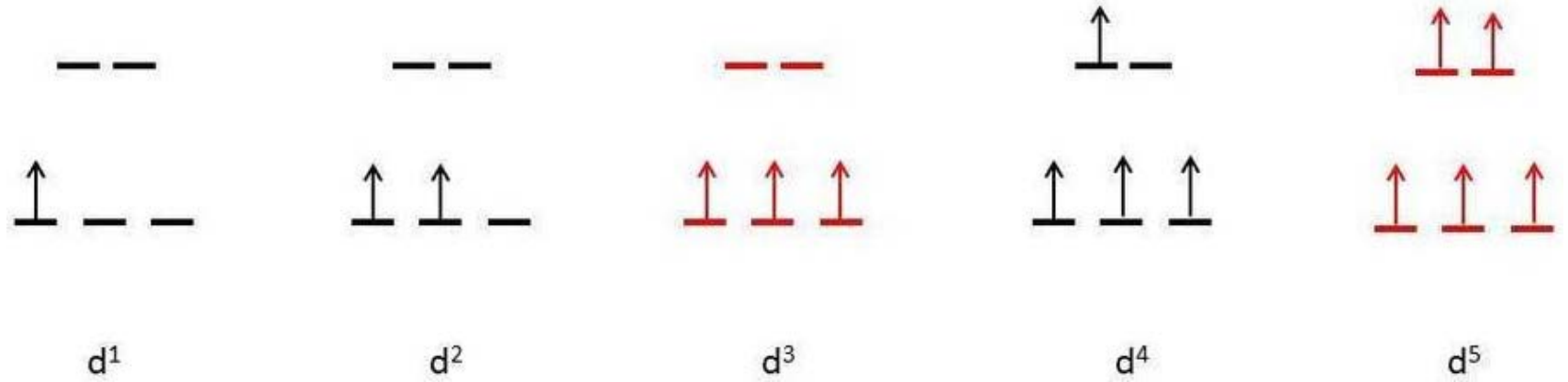


d^1 d^2 d^3 d^4 d^5

H.W. 2. Identify the J.T. Distortion for High Spin Complexes



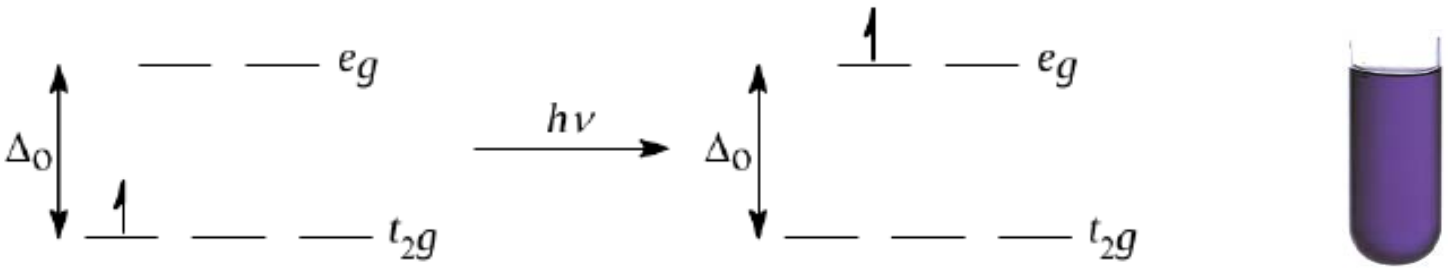
d^6 d^7 d^8 d^9 d^{10}



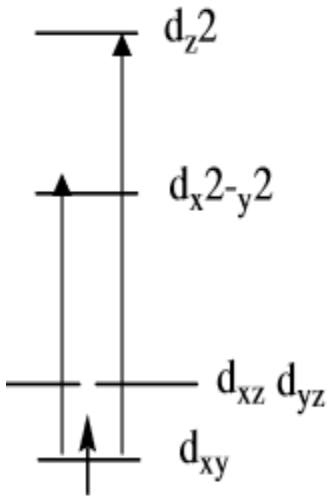
d^1 d^2 d^3 d^4 d^5

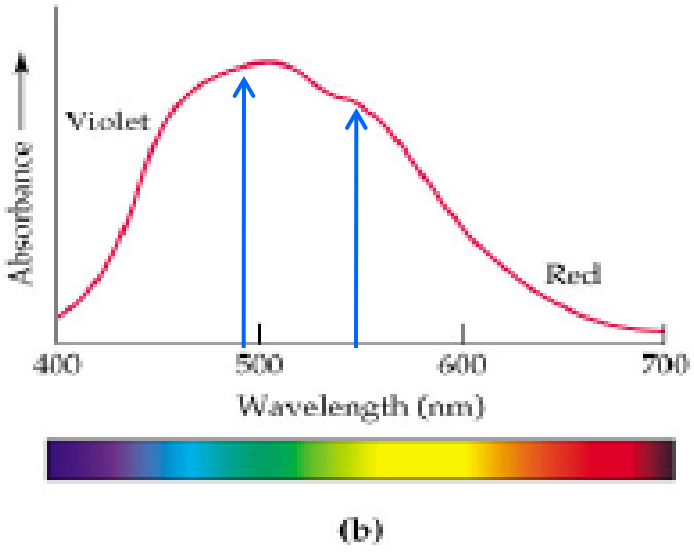
H.W. 3 Discuss about colour of $[Ti(H_2O)_6]^{3+}$ using CFT

the $[Ti(H_2O)_6]^{3+}$ complex has a d^1 electron configuration,



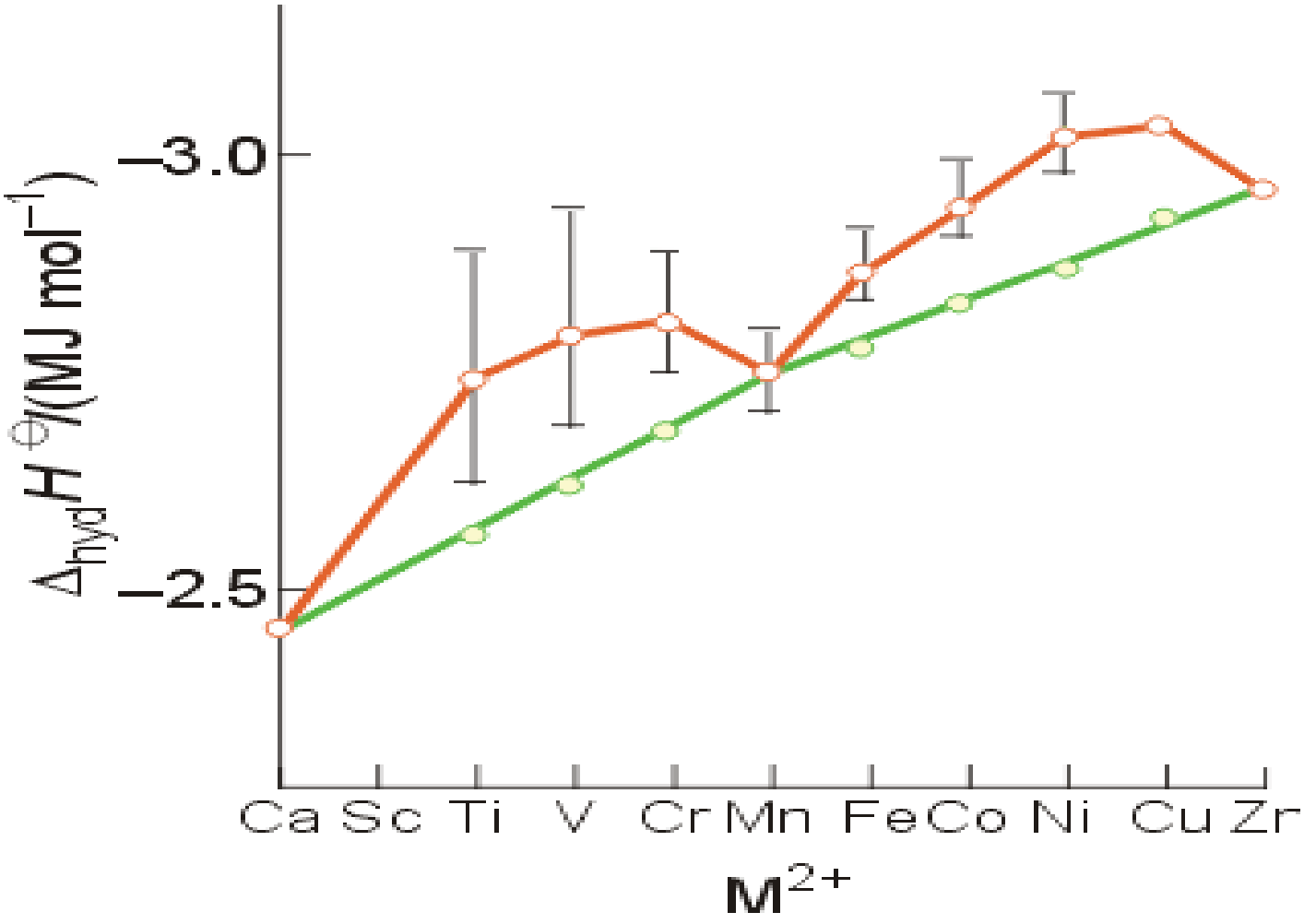
Since, Jahn-Teller Distortion occurs, the energy levels are spilt more here. Hence two transitions occur and result a broad absorption (look at two blue-arrows describing the absorption).



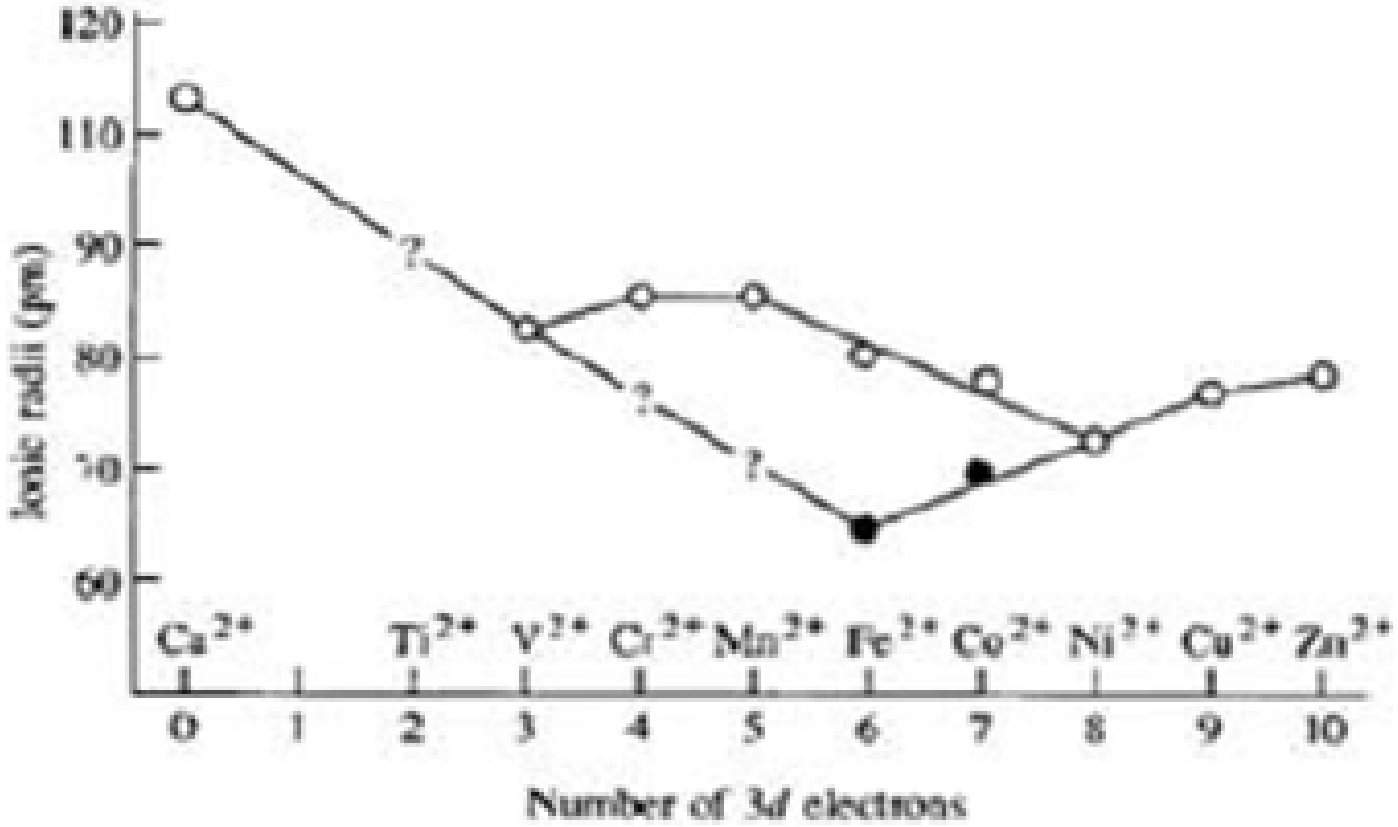


494 nm = 20,300 cm^{-1}

H. W. 4 A: Explain the enthalpy of hydration of transition metal ions from the given graphical report.



H.W. 4B: In case of strong field ligand (CN^-) ionic radii of M^{2+}



Chelate Effect?

H. W. 5: How can you justify the chelate formation is linked with entropy Gain?

$Cd^{2+} + 4\ NH_3 \leftrightarrow [Cd(NH_3)_4]^{2+}$

$Cd^{2+} + 4\ MeNH_2 \leftrightarrow [Cd(MeNH_2)_4]^{2+}$

$Cd^{2+} + 2\ en \leftrightarrow [Cd(en)_2]^{2+}$

Ligands	log β
$4\ NH_3$	7.44
$4\ MeNH_2$	6.52
2 en	10.62