

### **Tutorial-3: 1<sup>st</sup> Yr: CFT & Chelate Effect: Problems**

1. Solutions of the complexes  $[\text{Ni}(\text{NH}_3)_6]^{2+}$ , and  $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$  are colored. One is blue and another is green. Assign each color to one of the complexes.
2. The crystal field splitting energy,  $\Delta_o$ , in  $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$  is  $243 \text{ kJ mol}^{-1}$ . Find out its absorption maximum in nm.
3. What is the CFS energy for the following complexes?  
(a)  $[\text{Fe}(\text{CN})_6]^{3-}$  (b)  $[\text{FeF}_6]^{3-}$ , (c)  $[\text{CoCl}_4]^{2-}$  (d)  $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ .
4. What is chelate effect? What is the driving force behind this effect?