Due: **Monday, 19-May-2003** at the review/study session. Early submissions are always acceptable.

1) Give formulas corresponding the following names:
   a) Potassium hexafluoroferrate(III)
   b) Tetrachloroplatinate(II) ion
   c) Potassium tris(oxalato)chromate (III)
   d) Tris(ethylenediamine)cobalt(III) pentacyaniodomangante(II)

2) Give names corresponding to the following formulas:
   a) $[Pt(H_2O)(NH_3)BrCl]$  
   b) $K_3[Cr(CN)_6]$  
   c) $[Co(NH_3)_3(NO_3)_3]$  
   d) $[Pt(NH_3)_4][CuCl_4]$  
      *(Hint: think about common oxidation states for Pt & Cu.)*

3) Obtain the distribution of d-electrons in the complex ions listed below using Crystal Field Theory. Each ion is either tetrahedral or square planar. Based on the number of unpaired electrons (given in parentheses), determine the correct geometry.
   a) $Pt(NH_3)_2(NO_2)_2^{2+}$  
   b) $MnCl_4^{2-}$  
   c) $NiCl_4^{2-}$  
   d) $AuF_4^-$

4) There are only two geometric isomers of the triamminetricloroplatinum(IV) ion, $Pt(NH_3)_3Cl_3^+$. How many geometric isomers would be expected for this ion if it had a regular planar geometry? Give drawings for them. Does this rule out a planar hexagonal geometry for $Pt(NH_3)_3Cl_3^+$? Explain.