

Inorganic Chemistry

Nomenclature Homework

DUE Wednesday October 6, 2010 @ 8 AM

On a separate piece of paper, complete the following. **Please do your own work.**

1. Name the following formulas.

- (a) $[\text{Cr}(\text{NH}_3)_6]\text{Cl}_3$
- (b) $\text{K}[\text{Co}(\text{edta})]$
- (c) $\text{K}_3[\text{FeO}_3]$ (assume the oxygens are separate species--not peroxides or superoxides)
- (d) $[\text{Cr}(\text{OH})(\text{NH}_3)_2(\text{H}_2\text{O})_3]^{2+}$
- (e) $[\text{RhBr}_2(\text{SCN})_2(\text{NH}_3)_2]^-$

2. Give formulas for the following.

- (a) triammineaquadichlorocobalt(III) chloride
- (b) μ -cyano-bis[pentaaquachromium(III)] ion
- (c) tetrabromocyanonitroferrate(II) ion

3. Draw all possible isomers (including optical isomers) and correctly name each species for the following formulas.

- (a) $[\text{Pt}(\text{acac})(\text{Cl})(\text{NH}_3)]$
- (b) $[\text{Ru}(\text{C}_2\text{O}_4)_2(\text{NH}_3)_2]^-$
- (c) $[\text{Fe}(\text{OH}_2)_4(\text{en})]^{3+}$

4. Give formulas and structures for the following.

- (a) *mer*-trihydridotris(triphenylphosphine)ruthenium(III)
- (b) Λ -trinitritochromium(IV) (assume the nitrito ligand is bidentate) (draw the complex from both a "normal" octahedral perspective and through the triangular face (three-fold axis))

5. Give the formula and draw the structure for the following bridging complex. Note that the metal centers are not identical.

- (a) tetraammineisothiocyanatocobalt(III)- μ -cyano-bromotetrachlorocobaltate(III)

6. Give the Δ or Λ designation for each complex below and redraw through the three-fold axis to back up your claim.

