**ANSWERS TO EXTRA CREDIT CHEM 1114 PROBLEMS Due Monday 28 November 2011**

1)Solubility problem 50g page 475 **MgCO3 is not soluble based on rule 6 (Mg2+ is not listed as**

**exception in rule 2)**

2)Double problem 52d/ p 475 **3Na2CrO4(aq) + 2AlBr3(aq)**

Replacement  **🡪 6NaBr(aq) + Al2(CrO4)3(s)**

rule 2 rule 6 (Na+ salts all soluble) (CrO42- salts ppt

and Al3+ is not an exception in rule 2)

3)Acid/Base problem 72a/p 477 3**HNO3(aq) + Al(OH)3(s) 🡪 3H2O + Al(NO3)3(aq)**

Rule 1, all NO3- are soluble

4)Titration problem 80a/p 477 mol OH- = Cb(mol/L)\*Vb(L) = Ca (mol/L)\*Va(L)

=0.5062\*0.01658= Ca\*0.01 n

=>0.5062\*0.01658 = Ca = **0.839 M**

0.01

5)Titration problem 80b/p 477 0.839 mol acetic acid/L =0.000839 mol/mL

=> 0.000839 mol\*MW acetic acid(g/mol)/mL

= 0.000839\*60 g acetic acid/mL = 0.0503 g acetic acid/mL

Since d= 1.006 g/mL => % acetic acid (w/w) = 100\*0.0503/1.006=**5.006%**

6)Titration problem 84/p 477 0.1082 g KHP\*1 mol KHP/204.22 g KHP=0.0005298 mol acid

At equivalence: Cb (mol/L)Vb(L) = mol acid

Cb(mol/L)\*0.03467 L = 0.0005298

**Cb(mol/L) = 0.0005298/0.03467=0.0153 M**

7)Redox problem 86g/p 477 **Na2S2O3 Na +1 S +2 O -2**

8) Redox problem 86h/p 477 **Hg2Cl2 Hg +1 Cl -1**

-4 +1 +1 -2 +2-2 0 oxidation # assignments

9)Redox problem 90a/p 478 CH4 + H2O🡪 CO + H2

**-4 +2**

**CH4🡪 CO => C loses e (oxidized or reducing agent)**

**+1 0**

**H2O 🡪 H2=> H gains e (reduced or oxidizing agent)**

+1 +6 -2 6 -2 +1 -2

**10) Redox** problem 90d/p 478 **2H+ + 2CrO42- 🡪 Cr2O72- + H2O(l)**

**Not a redox…no change in oxidation #**