**Homework #11 Chemistry 1114 section 2 (Fong) due Friday 2 April 2018 20 pts (in class)**

**Your name:\_\_\_\_\_\_\_\_\_\_\_answers\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 pt**

**MW(g/mol): 44 32 44 18**

**Given the balanced equation: C3H8 + 5O2 🡪 3CO2 + 4H2O**

**1) How many grams of CO2 are created if 0.18939 mol of O2 and 0.0757 mol of C3H8 are burned ? (3 pts)**

**0.18939 mol O2 \* 3 mol CO2/5 mol O2 = 0.1136 mol CO2 limits**

**0.0757 mol C3H8 \* 3 mol CO2/1 mol C3H8= 0.2271 mol CO2**

**0.1136 mol CO2 \* 44 g/mol CO2=5 g**

**\_\_5\_\_\_ g CO2**

**2) How many grams of H2O are created if 4.1666\*1023 molecules of C3H8 and 22.22 g**

**of O2 are burned ? (3 pts)**

**4.1666\*1023/6.0\*1023 =0.694 mol C3H8 22.22 g O2/32 g mol‑1= 0.6875 mol O2**

**0.694 mol C3H8\*4 mol H2O/1 mol C3H8=2.776 mol H2O**

**0.6875 mol O2 \* 4 mol H2O/5 mol O2=0.55 mol H2O limits**

**0.55 mol H2O \* 18 g/mol = 10 g**

**10 g H2O**

**3) Ethanol, C2H5OH is drinking alcohol. It burns in your body according to the**

**balanced equation below:**

**MW(g/mol): 46 32 44 18**

**C2H5OH + 3O2 🡪 2CO2 + 3H2O**

**Friday night you drink 92 g of ethanol and from that you create 81 grams of water in your urine after an hour. What is the % yield (efficiency) of your body in metabolizing ethanol ? (3 pts)**

**92 g ethanol/46 g mol‑1 = 2 mol ethanol=> 2\*3/1 mol H2O max=6 mol=>6\*18=108 g**

**81 g H2O actual=> 100\*81/108= 75%**

**\_\_\_\_\_75\_\_\_\_\_\_ % efficiency (yield) of body to**

**burn ethanol**

**4)Circle all the Bronsted Bases in the list below. (2 pts)**

**HF NaOH Na2CO3 HNO3**

**5) What kind of reaction is the one written below ?**

**PO43- + H-OH 🡪 HPO42- + OH‑ \_\_hydrolysis\_\_\_\_\_\_\_\_**

**6) Circle all the Arrhenius Bases in the list below.**

**HCl NaOH KF CO3 2- O2**

**7) What is the conjugate acid of NH3 ? \_\_\_NH4+\_\_\_\_\_\_\_\_**

**8) What is the conjugate base of HCO3- ? \_\_\_\_CO32-\_\_\_\_**

**9) Identify the acid(A), base(B) and conjugate base (CB) and**

**conjugate acid (CA) in the reactions below. (2 pts each)**

1. **HPO32- + HSO4- 🡪 PO33- + H2SO4**

**A B CB CA**

1. **HCrO3- + HCO3- 🡪 H2CrO3 + CO32-**

**B A CA CB**