**Homework #2: Chemistry 1013 Spring 2014**

**Due Wednesday 5 February 23 pts**

**answers**

**0. A regulation basketball is 9 inches in radius. If we define it to be the nucleus,**

**compute the number of miles away the edge of the electron cloud should be (to the nearest mile). Note that: 1 foot= 12 inches; 5280 feet= 1 mile [2 pts]**

**r(electron)/r(nucleus) =100,000 = r(electron)/r(basketball)= r(electron)/9 inches**

**100,000\* 9 inches = r(electron) = 900,000 inches**

**= 900,000/12 feet =75,000 feet**

**=75,000/5280 miles=14.2 miles (from here to about Howard, NY)**

**1. I am an isotope with 12 neutrons and a mass number (sum of protons and neutrons)**

**of 23. I am found in great abundance in the ocean and in Fritos corn chips.**

**23-12=11 protons=> Na=sodium**

**a) how many protons do I own per atom ? 11**

**b) who am I (name and symbol) ? sodium=Na**

**2. Use Figure 1.20 to classify the materials below**

1. **A cup of green tea (no leaves) b) Baking soda c) fresh cow’s milk**

**Homogeneous mixture pure compound heterogeneous mixture**

**3. Given the elements and atom counts below, write the conventionally accepted compound formula for the combinations given:**

**a)1 N + 2 O NO2**

**b) 1 Si + 6 O + 2 C SiC2O6**

**c) 4 O + 1 P + 1 Fe FePO4**

**d) 2 C + 6H + 1 O H6C2O**

**4. Given the unbalanced reaction shown here: 2C4H10 + 13\_\_\_ O2 🡪 8CO2 + 10H2O**

1. **Supply the correct coefficient for O2 to balance the reaction 13**
2. **How many H atoms are involved in the balanced reaction ? 20**

**5. Decide whether the bonding between the elements below will be ionic or covalent.**

**(refer to Figure 2.9 ) a)N + O b) H + F c) Cs + Cl d) P + S**

**ΔEN 0.5 1.9 2.3 0.4**

**Cov Cov-polar Ionic Cov**

**6. Write down in correct compound format the most likely formula for a compound composed of: a)Ca + F b) K + P c) Sc + O d) Mg + N e) Na + S**

**CaF2  K3P Sc2O3  Mg3N2 Na2S**