**Chemistry Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period\_\_\_\_\_**

**1st Trimester Review Problems**

1. **Metric units and values**
2. What is the numerical value for each of the following metric prefixes?

 a. milli \_\_\_\_\_\_\_ b. centi\_\_\_\_\_\_\_\_

 c. deci \_\_\_\_\_\_\_\_ d. kilo

1. What metric unit would you most likely use for the following measurements?
2. weighing the mass of a test tube filled with water. \_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. determining the volume of water in the test tube. \_\_\_\_\_\_\_\_\_\_\_\_\_
4. the area of your desk top. \_\_\_\_\_\_\_\_\_\_\_\_\_
5. the distance from the door to your desk. \_\_\_\_\_\_\_\_\_\_\_
6. the volume of a box. \_\_\_\_\_\_\_\_\_\_\_\_\_
7. the density of a piece of metal. \_\_\_\_\_\_\_\_\_\_\_\_\_
8. Convert the following metric values.
9. 35.6 mL to Liters

b. 8.5 kilograms to grams

1. 15.8 grams/liter to milligrams /milliliter
2. **Significant digits**
3. How many significant digits in each of the following
4. 14.01
5. 0.0007
6. 14000
7. **Atomic Structure**
8. For each of the following atoms, determine the number of protons, neutrons and electrons (round the atomic mass to the nearest whole number and assume each atom is a neutral atom unless specified differently).

 a. hydrogen b. carbon

 c. zinc d. bromine

1. Electronic structure
2. How many valence electrons does each of the following atoms have? Draw the electron dot for each.

 1. potassium 2. chlorine

 3. aluminum 4. cobalt

 5. phosphorus 6. argon

1. Give the electron configuration for the following:
2. Sulphur b. Neon

4. Isotopes and Radioactivity

a. Natural radioactive decay will result in a different type of element. List the three types of radiations from a radioactive element.

1. A cotton-like piece of fabric from an archeological site in Southern Utah is believed to be from the Fremont Indian culture. The C-14 content in the fabric was found to be ¼ that of living plant tissue today. If the half-life of C-14 is 5,730 years, how old is the piece of fabric?
2. How are isotopes of the same element alike? How do they differ?
3. **Formulas, molar mass, moles**

1. Calculate the number of moles in

 a. 44.3 grams of water

 b. 18.5 grams of ammonium chloride

 2. How much does each of these weigh?

 a. 0.45 moles of sodium hydroxide

 b.25.73 moles of iron (III) hydroxide

|  |  |
| --- | --- |
| 3. | Analysis shows a hydrocarbon to be C8H18  |
|  | 1. What is its Empirical Formula?
 |
| 4. | Asbestos, a known cancer-causing agent, has a typical formula, Ca3Mg5(Si4O11)2(OH)2. How many atoms of each element are given in this formula?  |
|  |  |

1. **Bonding.**

Using the Periodic Table, predict the bond that would be formed between the two atoms indicated.

a. Mg-Cl e. Cr-Ag

b. C-C f. P-S

c. Sr-S g. Se-O

 d. Ag-Au h. Li-S

I.

1. a) .001

 b) .01

 c) .1

 d) 1000

2. a) g

 b) ml

 c) cm²

 d) m

 e) cm³

3. a) .0356

 b) 8500

 c) 15.8mg/ml

III. 1. a) 2.4mol

 b) .35mol

 c) .28mol

1. a) 829.4g

b) 18g

c) 2753.1g

IV. 1. a) 696g NaOH

 b) 9.5gNH3

 c) 70,560g

 d) 36.7