Name: _____

Test 1
Chem 121
Spring 2009
Form A

You must complete **PART I** of this test without your calculator. When you are ready to start **PART II** (calculations), put the first page on the floor by your feet. You may not return to **PART I**. Staple and turn in both sections when finished.

PART I: You may **NOT** use a calculator for this section.
1. (3 pts) Circle the correct property

Snow melts when the day warms.	Physical	Chemical
Lithium metal burns in oxygen.	Physical	Chemical
Unprotect metal rusts when it rains.	Physical	Chemical

2. (6 pts) Indicate the number of significant figures (SF) and write the number in scientific notation

	Number of SF	Scientific Notation
a. 0.0530	_____	_____
b. 25000	_____	_____
c. 26.090	_____	_____

3. (5 pts) Fill-in the blank with the appropriate word.
    a. The Greek word "atomos" means _____.

    b. The particles in the nucleus of atoms are referred to as _____.

    c. Elements that have the same number of protons, but different number of neutrons are called

    _____.

    d. Atoms that fall into the A groups of the periodic table are referred to as the _____ Group

    Elements.

    e. _____ are consumed in a chemical reaction.

4. (12 pts, 3 pts each) Fill-in the blanks

Element Name	Symbol	Number of Protons	Number of Neutrons	Mass Number
	Y		50	
iron				57
		36	48	
			119	198

5. (12 pts, 2 pts each) Name the following compounds

   a. $BaSO_4$ _____

   b. N_2S_4 _____

   c. TiO_2 _____

   d. SeI_5 _____

   e. $Co(C_2H_3O_2)_2$ _____

   f. OF_2 _____

6. (12 pts, 2 pts each) Give the chemical formula of the following compounds

   a. zinc(I) nitrate dihydrate _____

   b. bromine monochloride _____

   c. potassium sulfate _____

   d. tetracarbon disulfide _____

   e. sodium dichromate _____

   f. phosphorus tetrachloride _____

7. (10 pts) In 4 – 5 grammatically correct sentences, answer one of the following essay questions.
   a. Explain how a piece of thin metal foil was used in the discovery of the atomic nucleus.
   b. Describe the apparatus that Millikan built to determine the charge on an electron.

PART II: Once you start this section, you may not return to PART I. You may now use you calculator to complete the rest of the exam. **Show all work for credit**.

1. (15 pts) An unknown element has three isotopes of mass and percent abundance listed below. What is the average atomic mass of this element?

        isotope #1: 27.97693 u, 92.23%
        isotope #2: 28.9765 u, 4.683%
        isotope #3: 29.97377 u, 3.087%

        Write the name of this element (not symbol) on the line below. (Hint: use the periodic table)

               _____

2. (15 pts) The density of bone (according to *Physics of the Body*, Second Edition, 1999) is 1.900×10^3 kg/m^3. If the average skeleton weighs 24.5 lb how much volume is this in mL? (1 m^3 = 10^6 mL, 1 lb = 453.59 g)

3. (10 pts) On Saturday, the Lady Mocs take on conference rivals, UNC-Greensboro. The distance between McKenzie Arena and Fleming Gymnasium (in Greensboro, NC) is 398.2 mi. How far will the team have to travel in micrometers? (1 mi = 1.609 km)

4. (10 pts) A can of diet coke has a volume of 355 mL. What is this in liquid oz? (1 gal = 3.785 L, 1 gal = 4 qt, 1 qt = 32 liq. oz)