Chemistry 121
Fall 2005
Test 1, **FORM A**

Instructions: You have 50 minutes to complete this 100-point exam. Indicate the test form on the blue Test Answer Sheet. All answers must be written on the blue Test Answer Sheet. You may use a simple scientific calculator. No programmable calculators allowed.

I. Multiple Choice (10 pts) Carefully and clearly circle the best answer on the Test Answer Sheet.

1. Which of the following is NOT an intensive property?
   a. Color
   b. Melting Point
   c. Mass
   d. Density
2. Which of the following elements is in the 4^{th} period of the periodic table?
   a. Be
   b. Mg
   c. He
   d. Ca
3. Which of the following elements is a halogen?
   a. N
   b. O
   c. F
   d. Ne
4. Elements that lose electrons are called:
   a. Anions
   b. Cations
   c. Nonmetals
   d. None of the above
5. In a chemical reaction, _____ are consumed.
   a. Products
   b. Reactants
   c. Metalloids
   d. None of the above

II. Chemical Formulas, Naming, Atomic Notation and Significant Figures

6. (20 pts) Give the chemical formulas for the following:

   a. Manganese(II) nitrate
   b. Phosphorous pentaoxide
   c. Bromine dichloride
   d. Calcium hydrogen sulfate
   e. Iron(III) chloride
   f. Arsenic trioxide
   g. Aluminum fluoride
   h. Magnesium nitride
   i. Silicon dioxide
   j. Sulfur tetraiodide

7. (20 pts) Name the following:

   a. Na_2S
   b. P_2O_4
   c. CoO
   d. Be_3P_2
   e. $SeCl_2$
   f. K_2CrO_4
   g. $Ni(NO_2)_2$
   h. $(NH_4)_2SO_3$
   i. OF_2
   j. N_2S

8. (6 pts) Fill in the blanks:

Symbol	Name	# of protons	# of neutrons	Mass Number
8a	**Potassium**	8b	8c	**40**
8d	8e	8f	**40**	**72**

9. (4 pts) Indicate the number of significant figures in the following measurements.

   a. 5.050 L b. 0.00940 g c. 1800 s d. 0.760 cm^3

III. Calculations: Show all work on the blue Test Answer Sheet. Partial credit will be given for correct work. If I cannot read the work, it will not be graded.

10. (10 pts) Convert 1.590 gal to mL. (1 gal = 3.784 L)

11. (15 pts) Convert 890 in/s to m/hr. (1 in = 2.54 cm)

12. (15 pts) The density of gold at room temperature is 19.2 g/mL. What is the volume in mL of a gold bracelet that has a mass of 1.50 cg.

IV. BONUS QUESTION (worth 10 pts): In 4 – 6 complete sentences, describe the discovery of the atomic nucleus.

	IA												IIIA	IVA	VA	VIA	VIIA	VIIIA
1	1 **H** 1.008	IIA																2 **He** 4.00
2	3 **Li** 6.94	4 **Be** 9.01											5 **B** 10.81	6 **C** 12.01	7 **N** 14.01	8 **O** 16.00	9 **F** 19.00	10 **Ne** 20.18
3	11 **Na** 22.99	12 **Mg** 24.31	IIIB	IVB	VB	VIB	VIIB	VIIIB			IB	IIB	13 **Al** 26.98	14 **Si** 28.09	15 **P** 30.97	16 **S** 32.06	17 **Cl** 35.45	18 **Ar** 39.95
4	19 **K** 39.10	20 **Ca** 40.08	21 **Sc** 44.96	22 **Ti** 47.90	23 **V** 50.94	24 **Cr** 52.00	25 **Mn** 54.94	26 **Fe** 55.85	27 **Co** 58.93	28 **Ni** 58.71	29 **Cu** 63.55	30 **Zn** 65.37	31 **Ga** 69.72	32 **Ge** 72.59	33 **As** 74.92	34 **Se** 78.96	35 **Br** 79.90	36 **Kr** 83.80
5	37 **Rb** 85.47	38 **Sr** 87.62	39 **Y** 88.91	40 **Zr** 91.22	41 **Nb** 92.91	42 **Mo** 95.94	43 **Tc** [98]	44 **Ru** 101.1	45 **Rh** 102.9	46 **Pd** 106.4	47 **Ag** 107.9	48 **Cd** 112.40	49 **In** 114.8	50 **Sn** 118.7	51 **Sb** 121.8	52 **Te** 127.60	53 **I** 126.90	54 **Xe** 131.30
6	55 **Cs** 132.9	56 **Ba** 137.3	71 **Lu** 175	72 **Hf** 178.5	73 **Ta** 181	74 **W** 183.9	75 **Re** 186.2	76 **Os** 190.2	77 **Ir** 192.2	78 **Pt** 195.1	79 **Au** 197	80 **Hg** 200.59	81 **Tl** 204.4	82 **Pb** 207.2	83 **Bi** 209	84 **Po** [209]	85 **At** [210]	86 **Rn** [222]
7	87 **Fr** [223]	88 **Ra** [226]	103 **Lr** [262]	104 [261]	105 [262]	106 [263]												

57 **La** 138.9	58 **Ce** 140.1	59 **Pr** 140.9	60 **Nd** 144.2	61 **Pm** [145]	62 **Sm** 150.4	63 **Eu** 152	64 **Gd** 157.3	65 **Tb** 158.9	66 **Dy** 162.5	67 **Ho** 164.93	68 **Er** 167.3	69 **Tm** 168.9	70 **Yb** 173
89 **Ac** [227]	90 **Th** 232	91 **Pa** [231]	92 **U** 238	93 **Np** [237]	94 **Pu** [244]	95 **Am** [243]	96 **Cm** [247]	97 **Bk** [247]	98 **Cf** [251]	99 **Es** [252]	100 **Fm** [257]	101 **Md** [258]	102 **No** [259]