NO CELL PHONES **USE MY CALCULATOR**

CHM 1025C **Prof George W.J. Kenney, Jr** **FINAL EXAM** **08-Dec-08**

NO CREDIT IF YOU: Fail to put in the Units & Properly Round, Fail to show ALL math work,

PRINT YOUR NAME on the line: _____

(1pt) Your start time on this test _____

(1pt) Your finish time on this test: _____

(1pt) Time it took you to do this test: _____

1. (52 pts, 2 pts ea) Fill in the blanks / Answer the following Questions

1.1 Name 3 properties of electromagnetic radiation

1.2 Light travels in packets of energy called:

1.3 Explain how Li turns a flame red, Cu green and Na yellow:

1.4 One of the words you should have used in 1.3 above has to do with the emission of energy from an excited electron in a sequence of energy steps. This word describing an energy step is:

1.5 Two electrons CAN or CANNOT [circle your answer] have the same spin in an atomic orbital. This is called the:

1.6 Chemical elements are grouped together because they behave similarly. Name the elements in one such group:

1.7 What is a diprotic acid? Give an example.

1.8 What is Scientific Notation?

1.9 What temperature scale is used in most Chem 1025 labs?

NO CELL PHONES **USE MY CALCULATOR**

1.10 What is the molecular weight of Hydrochloric Acid?

Name 2 crucial trace elements in the human body and what they are responsible for:

1.11 Element_____ **Use**_____

1.12 Element_____ **Use**_____

1.13 Rutherford shot a _____ **at an gold foil.**
This particle has a _____ **charge.**

1.14 The Cation has a _____ **charge.**

An atom consists of three particles [from a Chemist point of view]. List these particles and charge in order of increasing size [smallest first]:

1.15 Particle 1. _____ **Charge:** _____

1.16 2. _____ **Charge:** _____

1.17 3. _____ **Charge:** _____

Fill in the Blanks and circle if it is soluble or insoluble in water.

1.18	**HNO_3**	_____	**(Name)**
1.19	_____	**Lithium Nitrate**	**Soluble –or- InSoluble**
1.20	**Cs Br**	_____	**Soluble –or- InSoluble**
1.21	_____	**Calcium Phosphate**	**Soluble –or- InSoluble**
1.22	**$Fe(OH)_3$**	_____	**Soluble –or- InSoluble**
1.23	**$CuCl_2$**	_____	**Soluble –or- InSoluble**
1.24	**$Pb Br_2$**	_____	**Soluble –or- InSoluble**
1.25	_____	**Ammonium Perchlorate**	**Soluble –or- InSoluble**
1.26	**Ag Cl**	_____	**Soluble –or- InSoluble**

NO CELL PHONES **USE MY CALCULATOR**

2. (50 pts) Solve the following:

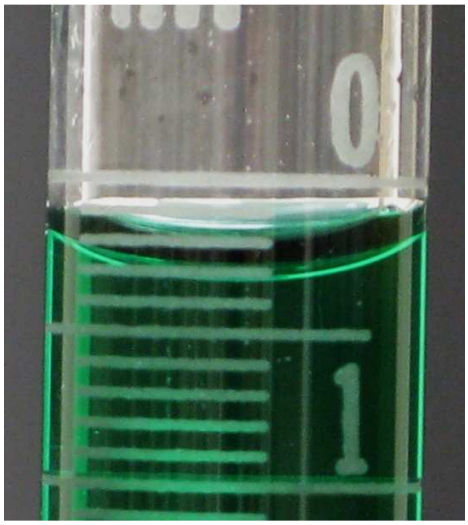
2.1 (10 pts) How would you prepare 500 ml of 12.0 M KOH solution?

2.2 (5 pts) Convert -42^{o} F to K.

2.3 (5 pts) Convert 2.5 Tons of Ammonium Nitrate to Moles.

NO CELL PHONES **USE MY CALCULATOR**

2.4 (10 pts) Read the following burettes:



_____ _____

2.6 (10 pts) An organic compound was found by CHN analysis to have 56.95 % Carbon and 4.85 % Hydrogen. The molecular weight was somewhere between 80 and 90.

What is the Empirical Formulae? **What is the Molecular Formulae?**

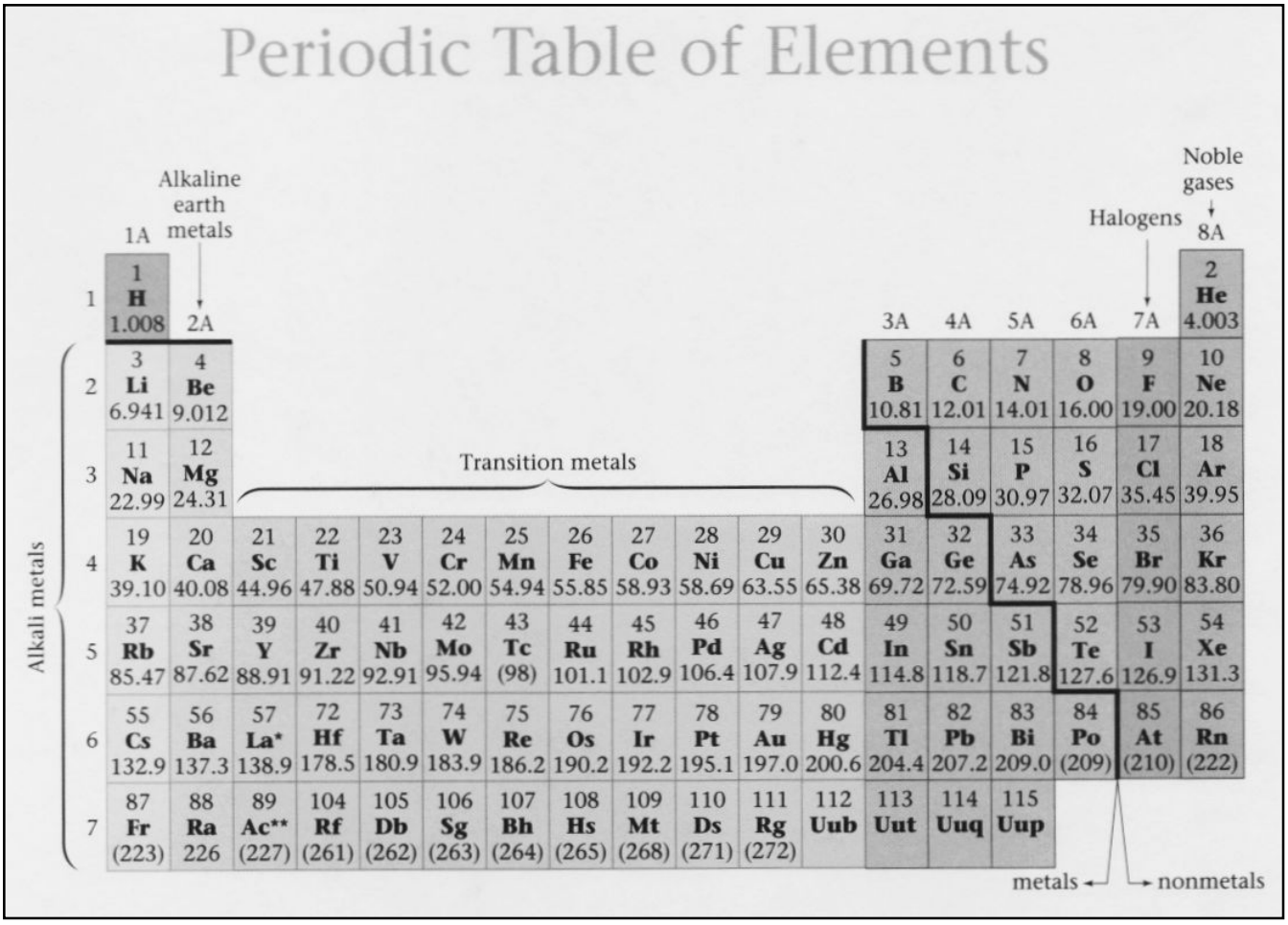
NO CELL PHONES **USE MY CALCULATOR**

2.7 (10 pts) Baking Soda [Sodium Bicarbonate] is slightly basic and will react with Hydrochloric Acid. If 1.00 g of Baking Soda is reacted with 1.00 g of Hydrochloric Acid, how much of one product is produced?

How do you rate this test from 1 to 10 _____

1 = Very Easy, can do it with my eyes closed, 10= Very Very Difficult, could not do any of the problems

Periodic Table of Elements



	1A	2A											3A	4A	5A	6A	7A	8A
1	1 **H** 1.008																	2 **He** 4.003
2	3 **Li** 6.941	4 **Be** 9.012											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											13 **Al** 26.98	14 **Si** 28.09	15 **P** 30.97	16 **S** 32.07	17 **Cl** 35.45	18 **Ar** 39.95
4	19 **K** 39.10	20 **Ca** 40.08	21 **Sc** 44.96	22 **Ti** 47.88	23 **V** 50.94	24 **Cr** 52.00	25 **Mn** 54.94	26 **Fe** 55.85	27 **Co** 58.93	28 **Ni** 58.69	29 **Cu** 63.55	30 **Zn** 65.38	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** 112.4	49 **In** 114.8	50 **Sn** 118.7	51 **Sb** 121.8	52 **Te** 127.6	53 **I** 126.9	54 **Xe** 131.3
6	55 **Cs** 132.9	56 **Ba** 137.3	57 **La*** 138.9	72 **Hf** 178.5	73 **Ta** 180.9	74 **W** 183.9	75 **Re** 186.2	76 **Os** 190.2	77 **Ir** 192.2	78 **Pt** 195.1	79 **Au** 197.0	80 **Hg** 200.6	81 **Tl** 204.4	82 **Pb** 207.2	83 **Bi** 209.0	84 **Po** (209)	85 **At** (210)	86 **Rn** (222)
7	87 **Fr** (223)	88 **Ra** 226	89 **Ac**** (227)	104 **Rf** (261)	105 **Db** (262)	106 **Sg** (263)	107 **Bh** (264)	108 **Hs** (265)	109 **Mt** (268)	110 **Ds** (271)	111 **Rg** (272)	112 **Uub**	113 **Uut**	114 **Uuq**	115 **Uup**			