Chapter 2: Atoms and Elements Extra Credit Name _____

Memorize the name and symbol (for example sodium is Na) for elements with atomic numbers: 1-20, 22, 24 - 38, 46- 48, 50, 53 -56, 78 -80, 82, 86, 88, 92, 94

1. Summarize the results of the work by:

(A) John Dalton

(B) JJ Thompson

(C) Rutherford

(D) Millikan

2. Provide the missing name or symbol for the following elements: (The first row is done for you.)

Symbol for element	Name	Group number and Group name (if group 1,2,7 or 8)	Atomic number	Metal, nonmetal or metalloid?
Na	Sodium	Group 1, alkali metals	11	metal
Cl				
Ba				
Xe				
Ag		(no group name!)		
Pb				
	copper			
	carbon			
	phosphorous			
	arsenic			
	nickel			

3. Explain how this is an example of the Law of Multiple Proportion:
Two different compounds formed from carbon and oxygen have the following mass ratios:
1.33 g O: 1 g C and 2.66 g O: 1 g C.

4. Fill in the Table of neutral elements

Symbol of isotope	Name of element	# of Protons	# of neutrons	# of electrons
^{138}Ba				
		13	12	13
	Silver		60	
			45	35

5. Complete the missing entries in the following table. The first row is filled in for you.

Symbol for isotope	Atomic number	Mass number	Number of neutrons	Number of electrons	Net charge	Name of element	Metal, nonmetal or metalloid
$^{66}Zn^{2+}$	30	66		28	2+	zinc	metal
	53		74		1-		
		208		78		lead	
	15	31			3-		
		1	0	1			

6. Calculate the atomic mass of gallium if gallium has 2 naturally occurring isotopes with the following masses and natural abundances:

Ga-69	68.9256 amu	60.11%
Ga-71	70.9247 amu	39.89%

7. Silver has two naturally isotopes and has an atomic mass of 107.868 amu. One isotope is Ag-109 isotope (108.905 amu) and has a natural abundance of 48.16%. What is the mass in amu of the other isotope?

8. Name the following:

MgS _____ Co_2S_3_____

$FeCl_2$ _____ LiBr _____

LiH _____ Cs_3N _____

9. Write the formulas for the Following

Calcium chloride_____ Zinc sulfide _____

Mercury (II) iodide_____ silver hydride _____

Sodium fluoride _____ Barium selenide _____

10. Fill in the Table.

Formula	Name	Name	Formula
FeO		hydrocyanic acid	
NH_4NO_3		barium sulfate	
$Pb(CO_3)_2$		Potassium acetate	
$HNO_{3\,(aq)}$		Lithium hydride	
Na_2SO_3		potassium dihydrogenphosphate	
N_2O_4		Carbon disulfide	
$Mg(ClO_2)_{\,2}$		Sodium nitride	
K_3P		Magnesium sulfide	
SF_4		cobalt (II) iodide	
$Fe_3(PO_4)_2$		Lead (III) oxide	
$AgHCO_3$		Aluminum sulfate	
CCl_4		Sulfur hexafluoride	
HCl(aq)		Silver sulfide	
$HClO_4$(aq)		Potassium hypochlorite	
Hg_2Br_2		Lithium nitrite	
$Ca(OH)_2$		Carbon disulfide	
NO		Nitrogen trichloride	
IBr_5		Sulfurous acid	
HF(aq)		Acetic acid	