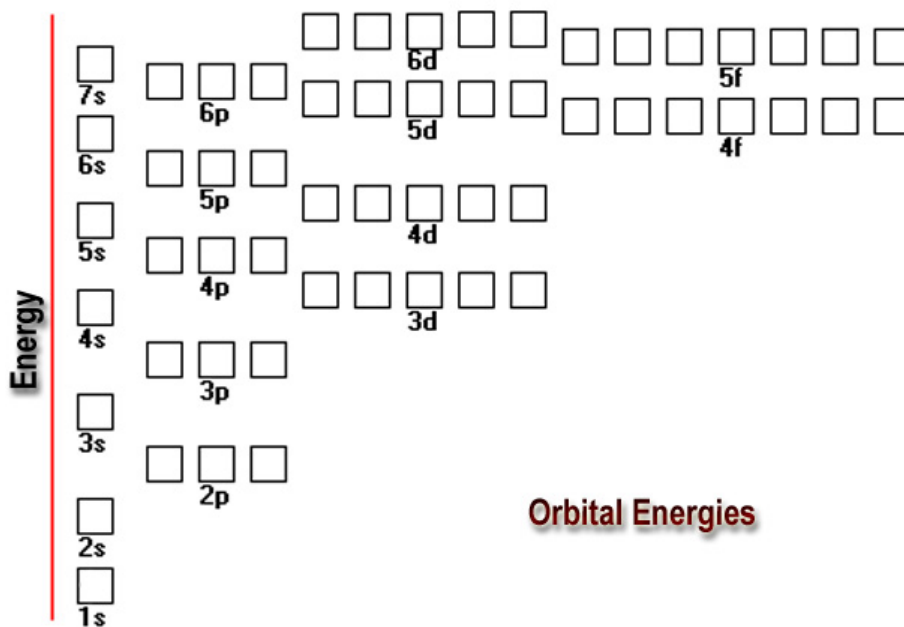


The Periodic Table

										<i>VIIIA</i>							
<i>IA</i> H 1 1.01											<i>VIIIA</i> He 2 4.00						
												<i>IIIA</i> <i>IVA</i> <i>VA</i> <i>VIA</i> <i>VIIA</i>					
<i>IIA</i> Li 3 6.94	Be 4 9.01											B 5 10.81	C 6 12.01	N 7 14.01	O 8 16.00	F 9 19.00	Ne 10 20.18
Na 11 22.99	Mg 12 24.31											Al 13 26.98	Si 14 28.09	P 15 30.97	S 16 32.07	Cl 17 35.45	Ar 18 39.95
<i>IIIB</i>	<i>IVB</i>	<i>VB</i>	<i>VIB</i>	<i>VII B</i>	<i>VIII B</i>	<i>VIII B</i>	<i>VIII B</i>	<i>IB</i>	<i>IIB</i>								
K 19 39.10	Ca 20 40.08	Sc 21 44.96	Ti 22 47.88	V 23 50.94	Cr 24 52.00	Mn 25 54.94	Fe 26 55.85	Co 27 58.93	Ni 28 58.69	Cu 29 63.55	Zn 30 65.39	Ga 31 69.72	Ge 32 72.61	As 33 74.92	Se 34 78.96	Br 35 79.90	Kr 36 83.80
Rb 37 85.47	Sr 38 87.62	Y 39 88.91	Zr 40 91.22	Nb 41 92.91	Mo 42 95.94	Tc 43 (97.9)	Ru 44 101.07	Rh 45 102.91	Pd 46 106.42	Ag 47 107.87	Cd 48 112.41	In 49 114.82	Sn 50 118.71	Sb 51 121.76	Te 52 127.60	I 53 126.90	Xe 54 131.29
Cs 55 132.91	Ba 56 137.33	La 57 138.91	Hf 72 178.49	Ta 73 180.95	W 74 183.85	Re 75 186.21	Os 76 190.2	Ir 77 192.22	Pt 78 195.08	Au 79 197.97	Hg 80 200.59	Tl 81 204.38	Pb 82 207.2	Bi 83 208.98	Po 84 (209)	At 85 (210)	Rn 86 (222)
Fr 87 223.02	Ra 88 226.03	Ac 89 227.03	Rf 104 (261)	Db 105 (262)	Sg 106 (263)	Bh 107 (262)	Hs 108 (265)	Mt 109 (266)									

Ce 58 140.12	Pr 59 140.91	Nd 60 144.24	Pm 61 (145)	Sm 62 150.36	Eu 63 152.97	Gd 64 157.25	Tb 65 158.93	Dy 66 162.50	Ho 67 164.93	Er 68 167.26	Tm 69 168.93	Yb 70 173.04	Lu 71 174.97
Th 90 232.04	Pa 91 231.04	U 92 238.03	Np 93 237.05	Pu 94 (240)	Am 95 243.06	Cm 96 (247)	Bk 97 (248)	Cf 98 (251)	Es 99 252.08	Fm 100 257.10	Md 101 (257)	No 102 259.10	Lr 103 262.11



Name: _____

Student ID: _____

Question 1 A nucleus has 28 protons and 36 neutrons. Fill in the three blanks to complete the atomic symbol. _____
3 Points _____

Question 2 What is the charge of the ions formed from the following atoms?

4 Point

1. Sulfur _____ 2. Iodine _____
3. Br _____ 4. Al _____

Question 3 Give the correct chemical formula and charge for the following polyatomic ions.

6 Points

1. Ammonium _____ 2. Chlorite _____
3. Nitrate _____ 4. Sulfite _____
5. Chromate _____ 6. Carbonate _____

Question 4

6 Points

1. Alkali Metal
2. Transition Metal
3. Noble Gas
4. Non Metal
5. Halide
6. Alkali Earth Metal
7. Metalloid

Use the numbering scheme on the left to give the best classifications for the following elements.
(i.e. Na, 1)

1. Be _____ 2. Xe _____
3. Cl _____ 4. O _____
5. Fe _____ 6. B _____

Question 5 Give the correct chemical name for the following ionic compounds.

6 Points

1. FeCO_3 _____
2. NH_4NO_2 _____
3. MgF_2 _____

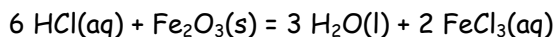
Question 6 Give the correct name for the following covalent compounds.

6 Points

1. NO _____
2. N_2O_4 _____
3. PCl_3 _____

Question 7 The balanced chemical equation for the reaction between hydrochloric acid and iron(III) oxide is

4 Points



We can interpret this to mean that _____ moles of hydrochloric acid and _____ mole of iron(III) oxide react to produce _____ moles of water and _____ moles of iron(III) chloride

Question 8 When the following chemical equations are balanced using the smallest possible integer coefficients, the values of these coefficients are:

6 Points

1. $\text{___ Ca(OH)}_2(\text{aq}) + \text{___ HCl}(\text{aq}) = \text{___ CaCl}_2(\text{aq}) + \text{___ H}_2\text{O}(\text{l})$
2. $\text{___ NO}(\text{g}) + \text{___ O}_2(\text{g}) = \text{___ NO}_2(\text{g})$
3. $\text{___ Fe}_2\text{O}_3(\text{s}) + \text{___ C}(\text{s}) = \text{___ Fe}(\text{s}) + \text{___ CO}_2(\text{g})$

Question 9 A student in a Chem 110 exam was asked to label the atomic orbital depicted. With 2 Points for a correct label and 0 for an incorrect label, grade the students' answers.

6 Points



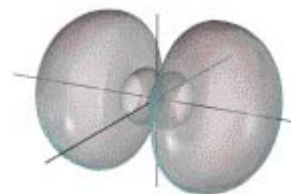
3p

Grade: _____



3d

Grade: _____



2p

Grade: _____

Question 10
8 Points

1. What is the complete electron configuration for the following:
phosphorus atom: _____
oxide ion: _____
2. What is the valence electron configuration for the following:
magnesium atom: _____
sulfide ion: _____
3. A main group element with a valence electron configuration $3s^23p^1$ is in group _____.
4. A main group element with a valence electron configuration $2s^22p^3$ forms a monatomic ion with a charge of _____.

Question 11 From the following list, circle those elements (if any) that are diamagnetic.

4 Points

Li Be B C N O F Ne

Question 12 Circle which if any of the following have the same number of neutrons as electrons:

4 Points

$^{24}\text{Mg}^{2+}$ $^{59}\text{Co}^{2+}$ ^{125}Sn $^{47}\text{Cr}^+$ ^{35}Cl

Question 13 One of the following ionic compounds is not soluble in water. Circle the compound.

3 Points

KBr NaOH CaCO_3 CaCl_2 NH_4NO_3

Name: _____

Student ID: _____

Question 14 Eu has two naturally occurring isotopes:
4 Points

	Exact Mass
$^{151}_{63}\text{Eu}$	150.919860 amu
$^{153}_{63}\text{Eu}$	152.921243 amu

Abundance
47.80%
52.20%

What is the average atomic mass of Eu?
[Show Work]

Average Atomic Mass: _____

Question 15 How many grams of nitrogen are present in 1.39 moles of N_2F_4 ?
6 Points

[Show Work]

Question 16 How many grams of chlorine are present in 4.74 grams of PCl_5 ?
8 Points

Grams of nitrogen: _____

[Show Work]

Question 17 A compound is found to contain:
6 Points
39.99% C 6.727% H
The empirical formula for this compound is?

Grams of Chlorine: _____

53.28% O

Empirical formula: _____

Question 18 If the molecular weight for the compound in Question 17 was later found to be 180.2 g/mol. Then
4 Points the molecular formula for this compound is?

Molecular formula: _____

Question 19 Consider the following elements:
6 Points

Al Si P S Cl

1. Which element would you expect to have the largest atomic radius? _____
2. Which element would you expect to have the greatest metallic character? _____
3. Which element would you expect to have the smallest ionization energy? _____