**REVIEW: FALL FINAL 2014/2015**

\*you may need your own paper to work it all out. ;) These are merely EXAMPLES of the types of information you need to know, they are not meant to demonstrate an exactness to what you will see on the actual exam. There may end up being more or less. ☺

1. Using the formula chart write the charges for the following polyatomic ions:
   1. CO32-
   2. Nitrate
   3. Sulfite
   4. Dichromate
2. Which chemical equation is balanced?
3. LiOH + CO2 → Li2 CO3 + H2O
4. 2LiOH + CO2 → Li2 CO3 + H2O
5. LiOH + 3CO2 → 2Li2 CO3 + H2O
6. 4LiOH + CO2 → Li2 CO3 + 2H2O
7. What is the percent by mass of nitrogen in Ca(CN)2?
8. What is the electron configuration for Oxygen?
9. What is the speed of light?
10. Calculate the energy in Joules of a photon of light with a frequency of 6.06 X 1066 Hz. Round to the nearest hundredth.
11. Calculate the wavelength *in meters* of a photon with a frequency of 4.23 X 103 Hz. Round to the nearest hundredth.
12. In an experiment, the student completely reacted 2.62 g of iron with 1.50 g of

sulfur. What is the empirical formula for the compound produced?

1. What is the formula for density?
2. How many moles are in 325 g of (NH4)2 Cr2O7 ?
3. What is the name of the chemical formula 2MgI?
4. Consider this incomplete chemical equation: Ba + CuCl2 →

What are the products of this equation?

1. Rank the following elements by increasing electronegativity: sulfur, oxygen, neon, aluminum
2. Pauli Exclusion Principle
3. Aufbau Principle
4. Hund’s Rule
5. Dalton’s Law
6. Circle the atom in each pair that has the largest atomic radius.
   1. Al or B
   2. Na or Al
   3. S or O
   4. O or F
   5. Br or Cl
   6. Mg or Ca
7. Circle the atom in each pair that has the greater ionization energy.
   1. Li or Be
   2. Ca or Ba
   3. Na or K
   4. P or Ar
   5. Cl or Si
   6. Li or K
8. Define ionic bond
9. Define covalent bond
10. Which compound contains both ionic *and* covalent bonds?
    1. NaCl
    2. NH3
    3. BeO
    4. LiNO3
11. Based on the VSEPR theory, what is the molecular geometry of CO2 ?
12. This balanced equation below represents a chemical reaction:

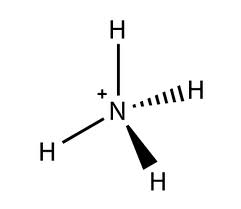
2KClO3 (s) → 2KCl (s) + 3O2(g)

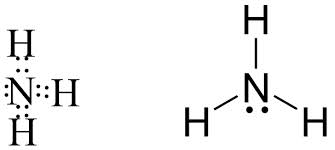
How many moles of KCl are produced when 4.25 moles of KClO3 decompose?

1. Consider this balanced chemical equation:

2Hg (l) + O2 (g) → 2HgO (s)

How many grams of HgO will be produced when 44 g of Hg react with excess O2?

1. How many valence shell electrons exist in Chlorine? \_\_\_\_\_ Arsenic?\_\_\_\_\_\_ Silver (II)? \_\_\_\_\_\_\_
2. How many unpaired electrons should exist for
   1. Oxygen (O2)
   2. Nitrogen (N2)
   3. Methane (CH4)
   4. KCl
3. Which Lewis electron-dot diagram represents Magnesium Sulfide? (assume the X’s are electrons for the cation and dots are electrons for the anion)
4. >
5. >
6. >
7.  What is the electron pair geometry of this structure?



1. What is the molecular geometry of this structure?
2. BCl3 Draw the Lewis dot structure.
3. What is the electron pair geometry?
4. What is the molecular geometry?
5. If element X can form a sulfide that has the formula X2S3, then element X would most likely be located in the same group as
6. Ba
7. Zn
8. Al
9. Na
10. If element X can form a salt that has the formula XCl2, then element X would most likely be located in the same group as
11. Mo
12. Mn
13. Mg
14. Mt
15. What do you need to remember about naming transition metals?
16. What is the correct name for
    1. NH4Cl
    2. FeS
    3. Fe3(PO4)2
    4. KCl
    5. K3PO4
    6. CaO
    7. NaNO3
    8. NH3
    9. FeSO4
    10. KMnO4
    11. H2O
17. Write the formulas for the following compounds
    1. Copper (II) Chloride
    2. Lithium Acetate
    3. Ammonium Nitrate
    4. Chromium Ferricyanide
    5. Lead (IV) Sulfate
    6. Iron (III) Oxide
    7. Barium Sulfate
    8. Hydrogen Peroxide
    9. Sulfuric Acid
    10. Hydrochloric Acid
    11. Sodium Bicarbonate
18. Remember I am evil, I will give you several of these compounds combined into just a few awful questions. Need examples? Refer to your bell ringers.! Good Luck!!