### Part 1. Read the passage given and write 3-4 sentences in this space supporting or denying the claim of this article. Indicate at least 3 reasons why or why not:

### Part 2. IONIC BONDS Lab Purpose: The purpose of this lab is to illustrate that chemical compounds are electrically neutral and to show the ratio in which ions combine to form a chemical compound.

**Pre-Lab: Finish the following statements in your own words:**

1. Compounds are electrically neutral because ……..\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. A cation and an anion will form a compound due to the ……\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. You would expect Na+ to bond with Cl- to form a compound because ……..\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Polyatomic ions are ………\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Observations:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Combining Substance** | **Model** | **Chemical Formula** | **Electron Dot** |
| 1.aluminum & bromine |  |  |  |
| 2.sodium & oxygen |  |  |  |
| 3.potassium & chlorine |  |  |  |
| 4.aluminum & nitrogen |  |  |  |
| 5.calcium & chlorine |  |  |  |
| 6.potassium & sulfur |  |  |  |
| 7.Aluminum & hydroxide |  |  |  |
| 8.Magnesium & phosphate |  |  |  |
| 9.Calcium & Acetate |  |  |  |
| 10.Zinc & sulfate |  |  |  |
| 11. Potassium & carbonate |  |  |  |
| 12. ammonium & hydroxide |  |  |  |
| 13. aluminum & carbonate |  |  |  |
| 14.Magnesium & nitrate |  |  |  |
| 15.Ammonium & phosphate |  |  |  |
| 16. Iron 2+ & carbonate |  |  |  |
| 17. Iron3+ & nitrate |  |  |  |
| 18.Copper (cuprous) & sulfate |  |  |  |
| 19. Copper (cupric) and hydroxide |  |  |  |
| 20.Aluminum & phosphate |  |  |  |

**Conclusion:**

**Name each compound in observation section#1-6. Name the metal first. Then name the nonmetal and change its ending to –ide. Example: sodium chloride**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Name each compound in # 7 -20 using the name of the metal ion first and then the name of the polyatomic ion second.**

**7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**13. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 14. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 15. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**16. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 17. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 18. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**19. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 20. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Define:**

1. A Negative ion is…… 2. A Positive ion is …….. 3. An Ionic bond is ……..

**Post lab:**

4. As I wrote the compounds chemical formulas in today’s lab, I notice that the ion charges \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. The number of atoms of elements that form compounds are in certain ratios because\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part 3. Flip chart naming:**

* 1. Obtain the colored sheets of paper that have boxes of rules for naming various compounds.
  2. Cut these out and place them in a “flip book “ fashion with the heading listed at the bottom of each flip chart to find the rules list needed.
  3. Punch a hole with a one hole puncher in the upper left hand corner and tie a piece of string or fashion a ring with a paper clip to hold it together.
  4. Use these rules throughout the process of us learning to name and write chemical formulas.
  5. This flip chart will not be available for use on tests and quizzes only during practice and class activities.
  6. If you use it now you will not need it by the time the test rolls around!

**Part 4. Create a shape Activity:**

* 1. Obtain the two pages of shapes. One page will have all squares and the other page will have all diamonds. Both shapes will have names and / or chemical formulas written on them.
  2. Cut out all of the shapes and position them to match their corresponding name or formula partner. Ex NaCl / Sodium Chloride.
  3. Once you have determined the one shape that you have created from all of the pieces ( it should be obvious if you did this correctly, it will be a shape you will recognize) glue the pieces down onto a piece of colorful construction paper. ( I have extra in the student center if you need it)
  4. Cut out the edges of the construction paper around the shape. Write your name on the back of the shape on the construction paper.
  5. Decorate the shape appropriately to be displayed in the classroom.
  6. Make sure that your decorations do not cover the words and formulas on the page.

**Part 5. Writing Chemical Formulas Form the following compounds**

|  |  |  |
| --- | --- | --- |
| Elements | Ions & Valence # | Final Formula |
| K and Br | K Br | KBr |
| Ca and P |  |  |
| Al and F |  |  |
| Mg and OH |  |  |
| Ba and O |  |  |
| Li and S |  |  |
| Li and F |  |  |
| Na and Cl |  |  |
| Ba and PO4 |  |  |
| Be and I |  |  |
| Potassium and nitrogen |  |  |
| Aluminum and chlorate |  |  |
| Zinc and sulfate |  |  |
| Aluminum and hydroxide |  |  |
| Zinc and sulfite |  |  |
| Sodium and chlorine |  |  |
| Strontium and bromine |  |  |
| Potassium and iodine |  |  |
| Lithium and carbonate |  |  |
| Magnesium and phosphorus |  |  |

**Part 6. Polyatomic Compounds Name these Polyatomic ions:**

|  |  |
| --- | --- |
| Ion with charge | Name |
| (OH) –1 |  |
| (SO4) –2 |  |
| (SO3) –2 |  |
| (PO4) –3 |  |
| (NO3) –1 |  |
| (NO2) –1 |  |
| (CO3) –2 |  |
| (C2H3O2) -1 |  |
| (ClO3) –1 |  |
| (NH4) -1 |  |

**Fill in the blanks / Identify.**

1. A variable valenced element has greater than \_\_\_\_\_\_\_\_\_(amount) possible valences listed across from it on the back of our periodic tables.
2. A nonvariable valenced element always acts with only \_\_\_\_\_(amount) possible valence number.

3. Identify the following as variable (V) or nonvariable (NV) elements:

Aluminum \_\_\_\_\_\_\_\_\_ Tin \_\_\_\_\_\_\_\_\_ Nickel\_\_\_\_\_\_\_\_\_ Cobalt \_\_\_\_\_\_\_\_\_ Magnesium \_\_\_\_\_\_\_\_\_

Manganese \_\_\_\_\_\_\_\_\_ Gold \_\_\_\_\_\_\_\_\_ Iron \_\_\_\_\_\_\_\_\_

4. A binary compound consists of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ elements and has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_capital letters.

1. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_compound consists of three or more different kinds of elements and has at least \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_capital letters.
2. Identify the following as binary (B) or polyatomic (P) compounds

1. KBr 2. Fe3P2 3. Ki2S 4. SnF2

5. SnF2 6. LiF 7. Mg(OH)2 8. Ba3(PO4)2

**7.** . A chemical formula which elements are present in a compound with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. It shows how many atoms of each element is present with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**8.** A subscript number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is never written in the chemical formula.

9.The number of atoms of each element inside the parenthesis is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by the number outside the parenthesis to find out how many atoms of each atom is in a formula.

10. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(metal) ion is always written first.

11. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(nonmetal) ion is always written last.

**12. Circle which one of the following elements comes first in a compound:**

hydrogen, chlorine manganese, nitrate sodium, oxygen lithium, hydroxide bromine, calcium

hydroxide, ammonium barium, carbonate sulfate, iron

**Part 7: Naming and Formula Writing for Binary Ionic Compounds:** Give **correct names** for these binary ionic compounds

Formula Name Formula Name

|  |  |  |  |
| --- | --- | --- | --- |
| KCl |  | MgO |  |
| K2O |  | AlCl3 |  |
| CaO |  | BaS |  |
| MgCl2 |  | Al2S3 |  |
| NaH |  | SrF2 |  |
| ZnS |  | MgI2 |  |
| RbBr |  | CaSe |  |
| Al2O3 |  | BaBr2 |  |
| Na3N |  | CsCl |  |
| Ca2C |  | Mg3P2 |  |
| KI |  | CaCl2 |  |

**Part 8 Give correct formulas for these binary ionic compounds**

Name Ions Formula Name Ions Formula

|  |  |  |  |
| --- | --- | --- | --- |
| Calcium iodide |  | Magnesium phosphide |  |
| Calcium hydride |  | Sodium chloride |  |
| Magnesium fluoride |  | Barium oxide |  |
| Cadmium bromide |  | Aluminum arsenide |  |
| Sodium nitride |  | Calcium sulfide |  |
| Rubidium oxide |  | Potassium selenide |  |
| Barium nitride |  | Sodium iodide |  |
| Lithium chloride |  | Lithium sulfide |  |
| Silver sulfide |  | Calcium carbide |  |
| Aluminum nitride |  | Sodium hydride |  |
| Cesium fluoride |  | Magnesium nitride |  |

**Part 9:. Which 3 transition elements are NOT variable and should NOT use Roman numerals?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part 10. Naming and Formula Writing for Variable and Transition Elements aka STOCK System**

Write the names of each of the following compounds:

Formula Name Formula Name

|  |  |  |  |
| --- | --- | --- | --- |
| CuF |  | CrO3 |  |
| CuF2 |  | AuBr |  |
| Cr2O3 |  | NiO |  |
| PbI2 |  | VI3 |  |
| PbCl4 |  | SnO2 |  |

**Part 11. Write the chemical formula for each of the given names:**

|  |  |  |  |
| --- | --- | --- | --- |
| Manganese (VII) oxide |  | Osmium (III) oxide |  |
| Nobium (V) chloride |  | Iridium (IV) nitride |  |
| Titanium (III) phosphide |  | Cobalt (II) chloride |  |
| Palladium (IV) sulfide |  | Iron (III) sulfide |  |
| Platinum (II) fluoride |  | Gold (III) iodide |  |

**Part 12. Cumulative Practice for Binary Ionic Compounds (Variable and non-variable)**

I determine which compounds need a roman numeral by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Name each of the following compounds….**

|  |  |  |  |
| --- | --- | --- | --- |
| FeCl2 |  | AuP |  |
| Cu2O |  | Mn3P4 |  |
| CrCl6 |  | Bi2O3 |  |
| BiBr3 |  | ZnCl2 |  |
| CoCl2 |  | PbO |  |
| Fe3N2 |  | CrBr3 |  |
| AgCl |  | Au2S3 |  |
| Bi2S3 |  | Sn3P4 |  |
| CrP |  | Fe2S3 |  |
| Co2S3 |  | CoBr3 |  |
| Na2S |  | Al2O3 |  |
| Au3N |  | PbCl4 |  |
| BiBr5 |  | CrF6 |  |
| MgCl2 |  | NaCl |  |
| RbI |  | Fe3P2 |  |
| SnF2 |  | CrCl3 |  |
| BiF5 |  | BN |  |

**Part 13. Naming and Formula Writing for Compounds containing Polyatomic Ions…**

|  |  |  |  |
| --- | --- | --- | --- |
| Al2(SO4)3 |  | Na3PO4 |  |
| CaSO4 |  | Li2SO4 |  |
| Zn3(PO4)2 |  | BaSO3 |  |
| Sr(NO2)2 |  | LiNO2 |  |
| Al(NO3)3 |  | Ag2CO3 |  |
| Ca(OH)2 |  | Zn(NO3)2 |  |
| BeCO3 |  | Sr(OH)2 |  |
| Al(ClO3)3 |  | Be3(PO4)2 |  |
| NaC2H3O2 |  | Ca(OH)2 |  |
| NH4Cl |  | Ni(C2H3O2)2 |  |
| ZnSO4 |  | Ag2CO3 |  |
| Li2CO3 |  | Ca(NO2)2 |  |
| Sr(ClO3)2 |  | Sr(C2H3O2)2 |  |
| Zn(OH)2 |  | Ba3(PO4)2 |  |
| Al(NO3)3 |  | NH4OH |  |
| Be3(PO4)2 |  | AlPO4 |  |

**Part 14 Polyatomic Naming and Formula Writing….**

|  |  |  |  |
| --- | --- | --- | --- |
| Bismuth (III) sulfate |  | Silver carbonate |  |
| Zinc sulfate |  | Mercury (II) nitrite |  |
| Cobalt (III) carbonate |  | Strontium acetate |  |
| Iron (III) chlorate |  | Manganese(IV) hydroxide |  |
| Aluminum nitrate |  | Barium phosphate |  |
| Gold (I) nitrate |  | Gold (I) carbonate |  |
| Beryllium phosphate |  | Sodium phosphate |  |
| Mercury (I) carbonate |  | Chromium (VI) phosphate |  |
| Iron (II) sulfite |  | Lithium nitrite |  |
| Ammonium carbonate |  | Bismuth (V) carbonate |  |
| Mercury (II) nitrate |  | Calcium nitrite |  |
| Aluminum chlorate |  | Barium phosphate |  |
| Cobalt (III) chlorate |  | Copper (I) chlorate |  |
| Calcium hydroxide |  | Lead (II) sulfite |  |
| Sodium acetate |  | Zinc sulfite |  |

**Part 15 Formula Writing and Naming for Covalent Compounds**

|  |  |  |  |
| --- | --- | --- | --- |
| SO3 |  | P4S5 |  |
| N2S |  | SeF6 |  |
| PCl3 |  | Si2Br6 |  |
| BF3 |  | SCl4 |  |
| P2Br4 |  | NF3 |  |
| CO |  | Cl2O7 |  |
| SiO2 |  | N2O5 |  |
| SF6 |  | P2Cl3 |  |
| NH3 |  | FI3 |  |
| NO2 |  | CBr2 |  |
| Dinitrogen Tetrahydride |  | Carbon disulfide |  |
| Carbon Tetrachloride |  | Nitrogen monoxide |  |
| Diphosphorus Trioxide |  | Diboron tetrahydride |  |
| Dichlorine Heptoxide |  | Sulfur dibromide |  |
| Carbon dioxide |  | Tetraphsphorus decoxide |  |
| Hexaboron silicide |  | Phosphorus pentachloride |  |
| Chlorine dioxide |  | sulfur trioxide |  |
| Iodine pentafluoride |  | Carbon dioxide |  |
| Dinitrogen trioxide |  | Dinitrogen pentoxide |  |
| Phosphorous triiodide |  | Sulfur hexafluoride |  |

**Part 16. Naming and Formula Writing for Acids…(“what I ate was icky and don’t bite its infectious!”)**

|  |  |  |  |
| --- | --- | --- | --- |
| HCl |  | H2C2O4 |  |
| HNO3 |  | H2CO3 |  |
| H2SO3 |  | H3PO4 |  |
| HClO |  | HC2H3O2 |  |
| HClO2 |  | HBrO3 |  |
| HClO3 |  | H3BO3 |  |
| HClO4 |  | HCN |  |
| HBr |  | H2Cr2O7 |  |
| H2SO4 |  | HF |  |
| HMnO4 |  | H2S |  |
| Nitrous acid |  | Acetic acid |  |
| Chromic acid |  | Hydrlofluoric acid |  |
| Sulfuric acid |  | Nitric acid |  |
| Phosphoric acid |  | Chloric acid |  |
| Hydroiodic acid |  | Chlorous acid |  |
| Carbonic acid |  | Perchloric acid |  |

**Part 17. Cumulative Naming and Formula Writing Review…**

|  |  |  |  |
| --- | --- | --- | --- |
| Al3O2 |  | Be(OH)2 |  |
| Pb(NO3)2 |  | Cu2S |  |
| CaO |  | AgCl |  |
| HBr |  | Pb3(PO4)2 |  |
| CCl4 |  | FeSO4 |  |
| N2O5 |  | SiO2 |  |
| H2SO4 |  | N2S |  |
| NaCl |  | NO2 |  |
| SF6 |  | SO3 |  |
| Li2S |  | KMnO4 |  |
| Carbon monosulfide |  | Tin (IV) sulfide |  |
| Vanadium (II) phosphide |  | Silver nitrate |  |
| Oxygen difluoride |  | Bromic acid |  |
| Hydrochloric acid |  | Titanium (IV) oxide |  |
| Gold (I) phosphate |  | Zinc chloride |  |
| Aluminum carbonate |  | Antimony(V) bromide |  |
| Dinitrogen heptoxide |  | Chlorous acid |  |
| Cobalt (II) acetate |  | Ammonium chloride |  |
| Ammonium cyanide |  | Aluminum nitride |  |
| Triboron tetrahydride |  | Cadmium nitrate |  |

**Part 18. Bubble Gum Loss**

**Objective:** To determine the percent composition of sugar in bubble gum by chewing the gum, using electronic balances and calculations of percentages

**Before Chewing:**

Average mass of gum + wrapper \_\_\_\_\_\_\_\_\_\_\_

Average mass of gum wrapper \_\_\_\_\_\_\_\_\_\_\_\_

Average mass of one piece of bubble gum \_\_\_\_\_\_\_\_\_\_\_\_\_

**After Chewing:**

Total mass of bubble gum and wrapper \_\_\_\_\_\_\_\_\_\_\_\_\_

Average mass of one piece of chewed bubble gum \_\_\_\_\_\_\_\_\_\_

**Analysis:**

Average mass of sweetener in one piece of gum. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Percentage of sweetener and flavoring in gum.

**Total mass of sweetener / total mass of gum x 100 = %**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ x 100% = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Part 19 Lab HYDRATE OF A SALT**

**Data**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | label |
|  | crucible and cover | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
|  | crucible, cover, and hydrated salt | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
|  | crucible, cover, and anhydrous salt (lowest) | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
|  | filter paper | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
|  | filter paper and precipitate | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |

**Analysis**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | Label |
| 1. | mass of hydrated salt | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
| 2. | mass of anhydrous salt | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
| 3. | mass of water lost | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
| 4. | moles of water in original sample | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
| 5. | mass of silver (I) chloride precipitated | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
| 6. | moles of silver (I) chloride | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
| 7. | moles of chloride ion present | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
| 8. | mass of chloride ion present | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
| 9. | mass of barium in original sample | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
| 10. | moles of barium in original sample | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_ |
|  |  |  |  |

**Conclusions**   
1. Relative actual number of moles for hydrated salt:    Ba: \_\_\_\_\_\_\_\_   Cl: \_\_\_\_\_\_\_\_   H20: \_\_\_\_\_\_\_\_

2. Lowest whole number ratio for hydrated salt: Ba: \_\_\_\_\_\_\_\_   Cl: \_\_\_\_\_\_\_\_   H20: \_\_\_\_\_\_\_\_:

3. Empirical formula for hydrated salt:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Ba |  | Cl |  | •\_\_\_\_\_\_\_ | H2O | |  | \_\_\_\_\_\_\_ |  | \_\_\_\_\_\_\_ |  |  | |

4. What is the proper name for this compound?

5. The formula mass of this compound is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (Show your work.)

6. There were \_\_\_\_\_\_\_\_\_\_ moles of this compound present when you started. (Show your work.)  
    
**Part 20. Empirical Formula:** Practice:

1. A compound was found to have 63.52 % iron and 36.48 % Sulfur. What is the empirical formula?

2. Find the empirical formula of a compound that has 26.56% potassium, 35.41% chromium, and the remainder Oxygen?

3. Analysis of 20.0 g of a compound containing only calcium and bromine indicates that 4.00 g of calcium are present. What is the empirical formula of the compound?

**Part 21. Molecular Formula: x = molecular formula mass**

**Empirical formula mass**

**(Empirical formula)x = molecular formula**

1. The empirical formula of a compound of phosphorus and oxygen was found to be P2O5. Experimentation shows the molar mass of this compound was 283.89 g / mol. What is the compounds molecular formula?

2. Determine the molecular formula of the compound with an empirical formula of CH and a formula mass of 78.11 g

3. A sample of a compound with a formula mass of 34.00 g is found to consist of 0.44 g of H and 6.92 g O. Find the molecular formula.

**HMK: Page 233 # 1-5(solve these problems in your spiral notebook**

Part 22. MOLE AIRLINES Project

This project was given to me on (date) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and will be due on (date) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

It will be worth 2 daily grades. I ,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_certify that I worked completely independently on this project and did not copy results from any other students. I understand that this project is due on the date listed above at the beginning of the class period. I also understand that a \_\_\_\_\_\_\_\_\_ point deduction will be given if turned in one day late and a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ point deduction will be given if turned in two days late. I also understand that all work must be shown in the format listed below to receive full credit.

MOLE- Airlines Sample problem: MOLE AIRLINES PROJECT

C= 37.01% H= 2.22% N= 18.5 % O= 42.27%

2.33 x 3 = 7

C = 3.08 = 2.33

1.32

C = 37.01g X 1 mole C = 3.08 moles

12.0111g C

1.67 x 3 = 5

H = 2.20 = 1.67

1.32

H = 2.22g X 1 mole H = 2.20 moles

1.007g H

1.00 x 3 = 3

N = 1.32 = 1.00

1.32

N = 18.5g X 1 mole N = 1.32 moles

14.0167g N

2.00 x 3 = 6

O = 2.64 = 2.00

1.32

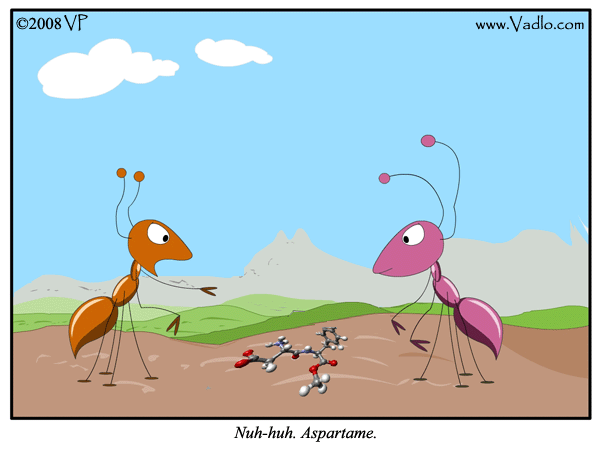
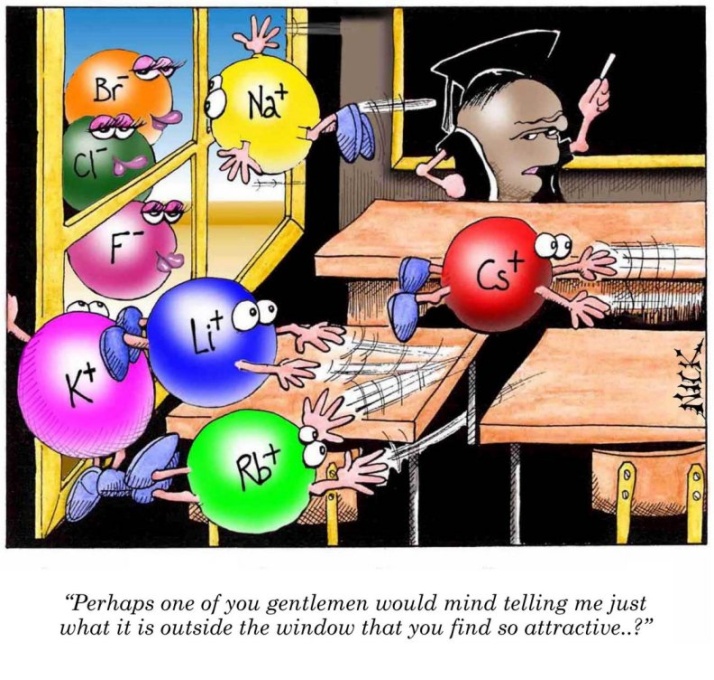
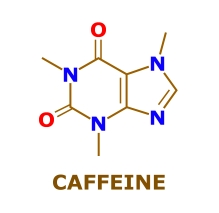
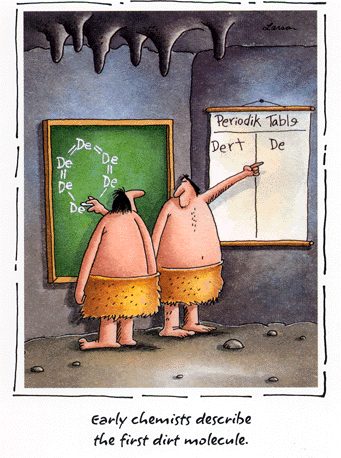
O = 42.27g X 1 mole O = 2.64 moles

15.9980g O

**7 5 3 6**

***Victims Name C7H5N3O6 trinitrotoluene explosive***

**You will receive your Mole Airlines project 1 week before it is due**

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**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Period \_\_\_\_\_\_\_\_\_\_**

**If found please return to J204 Mrs. Paul**

**Chemical Formulas**