**SNC 2D CHEMISTRY UNIT REVIEW**

1. What is the health hazard of each of the following diagrams

http://www.ucdsb.on.ca/tiss/stretton/graphics/HHPS_explosive.gif**http://www.ucdsb.on.ca/tiss/stretton/graphics/HHPS_toxic.gif**http://www.ucdsb.on.ca/tiss/stretton/graphics/HHPS_flamable.gif

A B C D

1. Draw the Lewis structure of sulfur and identify how many valence electrons it has.
2. Complete the following chart [Comm]

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Element Name | Element Symbol | Number of protons | Number of electrons | Number of neutrons | Atomic Number | Group name |
| Hydrogen |  | 1 |  |  | 1 |  |
|  | He |  |  | 2 |  |  |
|  |  |  | 10 |  | 12 |  |
|  |  | 17 | 18 | 18 |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

1. When magnesium forms an ion, what charge does it take?

a) Mg+1 b) Mg+2 c) Mg-1  d) Mg-2

1. What is the name of the following polyatomic ion NH4+1

a) Ammonia b) Ammonium

c) Nitride d) Hydroxide

1. Which of the following is a physical change?
   1. Rust forms on a car.
   2. Two colourless liquids combine to form a coloured liquid.
   3. Hydrogen gas is compressed to form a liquid.
   4. Salt dissolves to form Na+ and Cl- ions
2. Draw a Bohr-Rutherford diagram for the following ATOMS: [**Comm]**

a) Beryllium b) Cl-1

1. Draw a Lewis diagram for the following: **[Comm]**

a) Li b) O-2

1. Form compounds from the following atoms. **Show the Lewis diagram of the atoms, and the bonds being formed.** What is the formula of the molecule formed?
2. Mg and Cl
3. N and Br
4. Name or state the formula for the following compounds and identify the kind of chemical:

|  |  |
| --- | --- |
| 1. MgCl2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. Ca(OH)2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. PbO2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. H3PO3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. FeF2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 6. K2O \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 7. H2S \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 8. P2O5\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 9. NO2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 1. Nickel (II) sulfide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   Ionic  Covalent  Polyatomic Ionic  Acid  Base   1. Acetic acid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. Beryllium bromide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. Hydroiodic acid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. Ammonium nitrate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. Potassium hydroxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 6. Copper (II) carbonate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 7. Sulfur trioxide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 8. Carbon tetrachloride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Balance the following equations and state the type of reaction:

1. Na2O => Na + O2

2. H3PO4 + KOH => K3PO4 + H2O

3. K + B2O3 => K2O + B

4. HCl + NaOH => NaCl + H2O

5. Na + NaNO3 => Na2O + N2

6. C + S8 => CS2

7. Na + O2 => Na2O2

8. N2 + O2 => N2O5

9. H3PO4 + Mg(OH)2 => Mg3(PO4)2 + H2O

10. NaOH + H2CO3 => Na2CO3 + H2O

11. C10H22 + O2 => CO2 + H2O

12. Rb3P => Rb + P

1. Predict the products of the following reactions. Write a balanced chemical equation, and identify the type of reaction.
2. Aluminum Hydroxide reacts with calcium sulfate

b) tin reacts with copper(I) carbonate

c) iron (III) chloride reacts with ammonium phosphate

d) you place a piece of calcium into a solution of aluminum chloride

e) hydrogen peroxide decomposes

f) magnesium hydroxide is used to neutralize chlorous acid

1. Rust forms on anything made of iron. Rust forms when **the iron reacts with oxygen in the air to form iron (III) oxide.** Luckily this is a very slow process

a) Write the word, skeletal and balanced equation for the rusting of iron

b) what type of reaction is this reaction?

c) Unfortunately, when water is present, rust can form much faster through a different reaction. Here **iron reacts with water to form iron (III) oxide and a gas** in a single displacement reaction.

d) Write the word, skeletal and balanced equation for the single displacement reaction describe above.

e) what gas has been produced in this reaction? What are the gas tests if you wanted to test for the presence of the gas in a lab?