**Unit 3 Test Review: Matter, Bonding, & Nomenclature**

**- Matter**

**- Physical and Chemical Properties and Changes**

1. Determine if the following are physical properties/changes or chemical properties/changes.
   1. Melting point g. Frying an egg
   2. Ability of rust h. Squeezing oranges for juice
   3. Density i. Mixing salt and water
   4. Transparency j. Cutting the grass
   5. Glass breaking k. Fireworks exploding
   6. A rusting bicycle l. Boiling water

**- Kinetic Molecular Theory and States of Matter**

2. What are the 4 states of matter and how are they different from each other in terms of…

* 1. Particles
  2. Movement
  3. Speed of particles
  4. Kinetic energy

**Bonding**

3. Ionic Bonds

* 1. Occurs between &
  2. When electrons (e-) are
  3. Ionic compound properties
     + 1. .
       2. .
       3. .
  4. Electron Dot Diagrams
     + 1. Ca & F
       2. Li & N
       3. Al & O

1. Covalent Bonds
   1. Occurs between &
   2. When electrons (e-) are
   3. Covalent Compound Properties
      * 1. .
        2. .
        3. .

5. Lewis Structures: Show how valence e- are shared between two atoms.

a. CCl4

1. H2S
2. CO2
3. NF3
4. OF2
5. SO2

6. Use the periodic table with electronegativities on it to determine if the following bonds are ionic (greater than 1.6), polar covalent (between .5 and 1.6), or pure covalent (less than .5).

a. H – C d. O - F

b. Al – O e. Ge - S

c. N – P

1. Intermolecular Forces (IMFs)
   1. What are the 3 types of IMFs? Describe each in terms of what they are and their strength compared to each other.
   2. How are IMFs different than intramolecular bonds, such as ionic and covalent bonds?

**Nomenclature**

How do you know what type of compound it is?

|  |  |  |  |
| --- | --- | --- | --- |
| **Type I Binary**  Regular metal + nonmetal | **Type II Binary** Transition metal + nonmetal Name has Roman Numerals | **Type III** 2 nonmetals Name uses prefixes | **Binary Acid** Hydrogen + anion NO Oxygen Name has hydro------ic acid |
|  |  |  |  |
| **Type I Tertiary** Regular metal + polyatomic ion | **Type II Tertiar**y Regular metal + polyatomic ion Name has Roman Numerals |  | **Oxyacid** Hydrogen + polyatomic ion with Oxygen Name is ------ic acid or ------ous acid |

1. **NOMENCLATURE - MIXED REVIEW**

1. carbon tetrachloride 26. CaCO3

2. mercury(II) oxide 27. Li2S

3. potassium chlorate 28. HI

4. hydrobromic acid 29. Tl(NO3)3

5. sodium hydroxide 30. NH4NO3

6. copper(I) dichromate 31. Cu(ClO4)2

7. boron trifluoride 32. H3PO4

8. phosphorous acid 33. S2O5

9. aluminum sulfate 34. Rb2Cr2O7

10. copper(II) nitrate 35. KMnO4

11. sodium phosphate 36. Cu(NO3)2

12. mercury(II) nitrate 37. Ni(OH)2

13. aluminum hydroxide 38. XeCl2

14. sulfuric acid 39. (NH4)2SO4

15. lead (II) carbonate 40. PbCl2

16. sodium chromate 41. HCN

17. silicon dioxide 42. Fe3(PO4)2

18. barium chloride 43. AgNO3

19. nickel(II) phosphate 44. HClO3

20. copper(I) acetate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 45. N2O5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_

21. chlorous acid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 46. AlCl3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_

22. iodine pentafluoride \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 47. TiCl4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_

23. tin(IV) sulfate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 48. Cr2(SO3)3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24. chromium(II) oxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 49. KOH \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25. lithium iodide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 50. CBr4