**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Bonding Review**

**Theory Questions (This accounts for 60% of the exam)**

1. Why do chemical bonds form?
2. What are the only types of electrons involved in chemical bonds?
3. What two things make up a covalent bond?
4. What two things make up an ionic bond?
5. What two things make up a metallic bond?
6. Which type of bond shares electrons?
7. Which types of bond transfers electrons
8. What is the difference between a cation and anion?
9. Which gains electrons: anions or cations?
10. Pick the ternary compound: K2O Na2SO4
11. Pick the monatomic ion: Mg+2 NH4+1
12. Is the cation usually the metal or nonmetal in an ionic bond?
13. Is the anion usually the metal or nonmetal in an ionic bond?
14. Which is stronger: Ionic or Covalent
15. Which is found frequently as ALL states of matter: Ionic or Covalent
16. Which conducts electricity: Ionic or Covalent
17. Which dissolves in water: Ionic or Covalent
18. How many electrons in a single bond?
19. How many total electrons are shared in a triple bond?
20. Why are metallic bonds the best conductors of electricity?
21. Below, Circle the NONPOLAR compound and put a square around the POLAR compound.
22. Put a circle around a hydrogen bond.
23. Are the following Ionic or Covalent:
    1. NaCl \_\_\_\_\_\_\_\_\_\_
    2. MgO \_\_\_\_\_\_\_\_\_\_
    3. CH4 \_\_\_\_\_\_\_\_\_\_
    4. SO3 \_\_\_\_\_\_\_\_\_\_
    5. Al2O3 \_\_\_\_\_\_\_\_

**Lewis Dot Structures & Empirical and Molecular Formulas (40% of the test)**

1. Draw the Lewis Dot Structures for the following UNCHARGED MOLECULES
2. Draw the Lewis Dot Structures for the following CHARGED MOLECULES
3. Reduce the following to the empirical formula:
   1. N4O8 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. C9H21 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Give at least 2 possible molecular formulas for the following:
   1. CH \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. SO2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Empirical Formula Calculation:
   1. Calculate the empirical formula of the compound containing 75% C and 25% H.
   2. Calculate the empirical formula of the compound containing 37.5% C, 12.5% H, and 50% O.
6. Molecular Formula Calculation:
   1. Emprical Formula= S ; Molecular Formula Mass = 256 g/mole
   2. Empirical Formula= NO2 ; Molecular Formula Mass= 46 g/mole