

Mr. Stone

Honors Chemistry I

### Chemical Bonding I Exam Topics

To be adequately prepared for success on this exam you should be able to do the following:

1. Know the general characteristics of an ionic compound (a salt) and those of a covalent compound (or molecule).
2. Know the "driving force" promoting chemical bonding.
3. Know how to compare any element's valency to that of a noble gas and explain the relevance of that comparison to chemical bonding.
4. Know that all bond formation is energy releasing or exergonic.
5. Know that all bonds are based on electrostatic forces of attraction.
6. Differentiate between polar and nonpolar covalent bonds in terms of the degree of sharing of an electron pair.
7. Know what the parts of a Lewis Dot Diagram represent in terms of atomic structure.
8. Be able to use the electronegativity difference between two bonding atoms to make a prediction of what type of bond would form.
9. Know what general type of element is expected to form cations.
10. Know what general type of element is expected to form anions.
11. Know how ions form via electron loss/gain.
12. Be able to define electronegativity.
13. Know how to define the covalent bond and discuss how they form.
14. Know how to define the ionic bond and discuss how they form.
15. Be able to select correct Lewis Dot Diagrams that represent neutral atoms, monatomic cations or anions, molecules, formula units for salts, and polyatomic ions.
16. Be able to recognize and correctly identify binary ionic and binary molecular formulas.
17. Determine what types of covalent bonds are present in a given compound.
18. Know the difference between a coordinate covalent bond and an "ordinary" single covalent bond.
19. Know what benefits atoms gain when forming chemical bonds.
20. Know the general types of elements (metal/nonmetal) involved in ionic/covalent bonding.