Chapter 6 – Chemical Bonding

6-1 Introduction to Chemical Bonding

A. – Intro

1. A **chemical bond** is a mutual _____ _____ between the nuclei and _____ electrons of different atoms that binds the atoms together.
2. By bonding with each other, atoms decrease in _____ _____, thereby creating more-_____ arrangements of matter.

B. – Types of Chemical Bonding

1. **Ionic bonding** is chemical bonding that results from the _____ attraction between large numbers of _____ and _____.
   a. In purely ionic bonding, atoms completely _____ _____ electrons to other atoms.
2. **Covalent bonding** results from the _____ of electron _____ between two atoms.
   a. In a purely covalent bond, the shared electrons are "_____" _____ by the two bonded atoms
3. The degree to which bonding between atoms of two elements is _____ or _____ can be estimated by calculating the _____ in the elements' _____
4. A **nonpolar covalent bond** is a covalent bond in which the bonding electrons are _____ _____ by the bonded atoms, resulting in a _____ distribution of electrical charge.
5. A **polar covalent bond** is a covalent bond in which the bonded atoms have an _____ attraction for the shared electrons (and a resulting unbalanced distribution of charge).
6. Complete the following table to summarize this section:

Bond Type	% Ionic Character	Electronegativity difference	Bonding electrons are…
Ionic	Greater than _____%	Greater than _____	Transferred
Polar covalent	As high as _____% As low as _____%	As high as _____ As low as _____	Shared unequally
Nonpolar covalent	As high as _____% As low as _____%	As high as _____ As low as _____	Shared equally

***On a separate piece of paper, answer **Chapter Review Problems** #33& 34 from page 196. Attach your answers to THIS PAGE!

6-2 Covalent Bonding and Molecular Compounds

A. – Intro

1. A **molecule** is a _____ group of atoms that are held together by _____ bonds.
2. A **molecular compound** is a chemical compound whose _____ units are molecules.
3. A **chemical formula** indicates the _____ numbers of atoms of each kind in a chemical compound by using atomic _____ and numerical _____.
   a. A **molecular formula** shows the types and numbers of atoms combined in a _____ molecule of a molecular (covalently bonded) compound.
4. A **diatomic molecule** is a molecule containing only _____ atoms.
5. Turn to page 243 in your book, and look at Table 8-1. Make a list here of the seven elements that occur in nature as diatomic molecules:

Element _____ Symbol _____ Molecular Formula