

Kentucky Class Notes

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859.252.NOTE

CHE 230 Glazer
Fall 2009
Test 1

Thursday, August 27, 2009

- Homework: Read preface and Chapter 1. Work problems 1-35 in chapter 1.
- Structure and Function
 - **ORGANIC CHEMISTRY** - the chemistry of carbon
 - **HETEROATOM**- most common "other" atoms (atoms other than carbon)
 - Hydrogen (H), Nitrogen (N), Oxygen (O), Phosphorus (P), Sulfur (S), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I)
 - **ELECTROSTATICS** – the study of how charges interact with each other. Opposites attract.
 - Electron (-) attracts proton (+), proton attracts electron (-)
 - Anion (-) attracts cation (+), cation attracts anion (-)
- Bonds
 - Bonds form to improve the stability of a molecule
 - **OCTET RULE** – each atom wants to have 8 valence electrons
 - Exceptions: Hydrogen (H) only wants to obtain 2 valence electrons
 - Types of bonds
 - **IONIC** bonds
 - In ionic bonds electrons are transferred from one molecule to another molecule.
 - These bonds are between molecules that come from the extreme ends of the periodic table.
 - Ex. NaCl
 - **COVALENT** bonds
 - In covalent bonds electrons are shared evenly between two molecules.
 - There are two types of covalent bonds: polar covalent, and covalent.
 - If two molecules have equal electronegativities, the bond is covalent. If their electronegativities differ, the bond is polar covalent.
 - See figure 1.16 in textbook for electronegativity trends.
 - Electronegativity increases across the periodic table to the right.
 - Electronegativity also increases up the periodic table.
 - Both polar covalent and covalent bonds are between molecules that are more towards the middle of the periodic table than the molecules in ionic bonds.

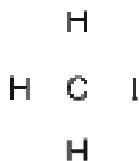
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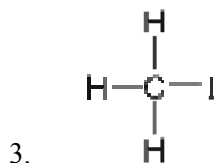
*If the molecule has an overall charge, place the whole molecule in brackets with the charge outside the brackets

- o IH_3C



2. Iodine has 7 valence electrons, Hydrogen has 1 valence electron, Carbon has 4 valence electrons, and there is no overall charge on the molecule, so the total number of electrons is 14.

$$7+3(1)+4=14$$



- o HCN



2. Hydrogen has 1 valence electron, Carbon has 4 valence electrons, Nitrogen has 5 valence electrons, and there is no overall charge on the molecule, so the total number of electrons is 10.

$$1+4+5=10$$

