CHEMISTRY 161 and 163

Basic Principles Handout

TR 11:00-12:20

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Basic Principles:

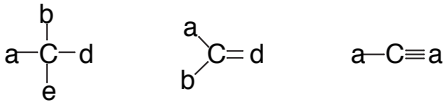
Like charges repel, unlike charges attract

Atoms want to have the electronic configuration of inert gases

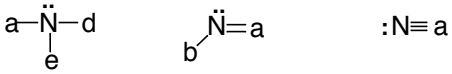
(i.e., 2 e^- around H, 8 e^- in outer shell around C, N, O, F)

Hence in molecules:

1. Stable uncharged carbons will have 4 bonds (each bond is 2 e^-) and no lone pairs of electrons.

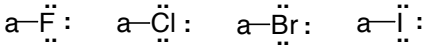


2. Stable uncharged nitrogens will have 3 bonds and one lone pair of electrons.



3. Stable uncharged oxygens will have 2 bonds and 2 lone pairs of electrons.

4. Stable uncharged halogens (F, Cl, Br, I) will have one bond and 3 lone pairs of electrons (remaining outer shell electrons in higher halogens are ignored in this course).



5. Stable uncharged hydrogens will have one bond and no lone pairs of electrons (He electronic configuration).