**Organic Reactions:**

**UPDATED COPY**

1. **Alkanes**: **Combustion** (reaction with O2…..products are CO2 and H2O); **Halogenation** by **SUBSTITUTION** (p.343). One of the two halogen’s will substitute with H. An acid will be formed as one of the products. If the halogen can be substituted in more than 1 place, you need to show all of the products.
2. **Alkenes and Alkynes**: **ADDITION** (**Halogenation, Hydrogenation, Hydration** (use Markovnikov’s rule and add H to the side with the most H’s and add OH to the other C**), HX** (like HCl….use Markovnikov’s rule) p. 363-370
3. **Benzene: Substitution** (like Alkanes) Ch 13
4. **Alcohols**: **Dehydration** **(Elimination**): major product: Remove –OH and take the –H group off of the C that has the most alkyl groups. (See P. 403 and 404) to make alkenes. H2SO4  is the common agent for dehydration. **Oxidation:** (take both H’s off the C that has the –OH and form a carbonyl group). K2Cr2O7 and KMnO4 are common oxidizing agents. A) Oxidation of a 10 alcohol forms an aldehyde. If enough O2 is added, it can form a carboxylic acid; B) Oxidation of a 20 alcohol makes a ketone. C) 30 alcohols cannot be oxidized; D) NOTE: Aldehydes can be oxidized to Carboxylic Acids.
5. **Thiols:** **Oxidized** to disulfides (p. 413)
6. **Aldehydes: Reduction (** Adds H’s to make primary alcohol); **Oxidation:** to make carboxylic acids
7. **Ketones: Reduction (**Adds H’s to make secondary alcohols). \*\*Cannot be oxidized.
8. **Carboxylic Acids: Reduction** (to make aldehydes, which can be further reduced to make primary alcohols)
9. **Esters:** formed by adding an alcohol to a carboxylic acid to make ester and water. Name the part that came from the alcohol first (next to the single bonded O), then name the part that came from the acid and change the ending to –oate.

\*\*\*\*I will not ask any reactions of ethers or amines. Just know how to name a common ether and amine.