

Organic Review:

Regioselective: a reaction where there is a preferred direction of bonding or breaking of bonds. Ex. Markovnikov's Rule / Zaitsev's Rule

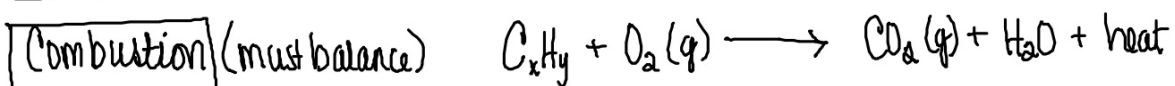
Carbocation: when carbon has a \oplus charge, $1^\circ, 2^\circ, 3^\circ$

Oxonium ion: oxygen bonded to three atoms, resulting in a \oplus charge

Leaving group: generally the anion that is formed at the end of a reaction

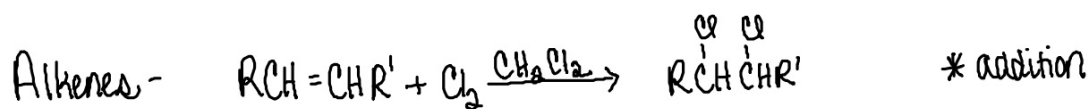
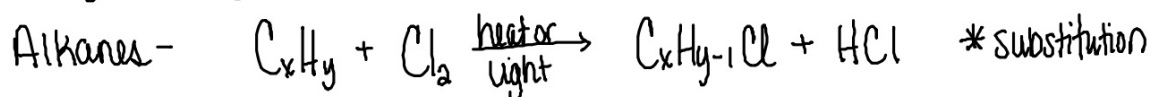
CIP - Cahn Ingold Priority Rules

Reactions

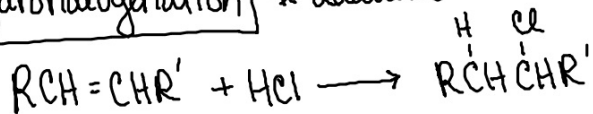


1 mole = molar mass in grams = 6.022×10^{23} atoms _{-or-} molecules = 22.4 L

Halogenation



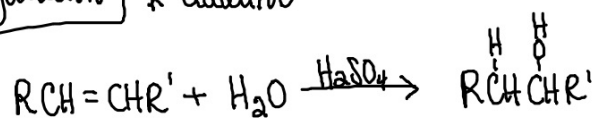
Hydrohalogenation

 * addition

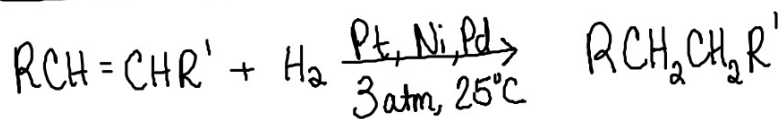
if R & R' are not symmetrical
use Markovnikov's rule

* regioselective

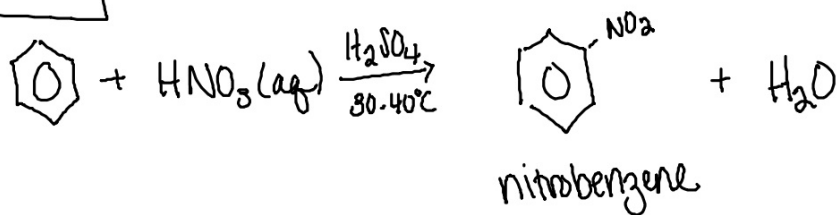
Hydration * additive



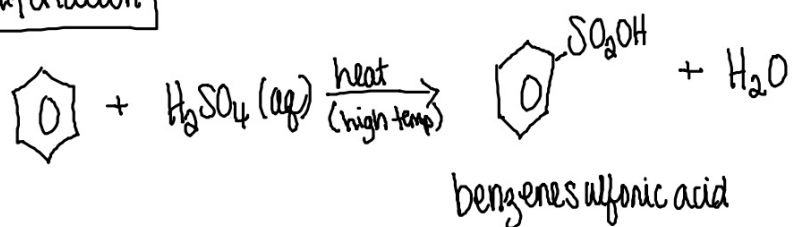
Hydrogenation * reduction



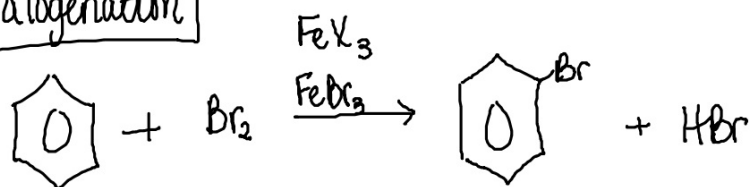
Nitration



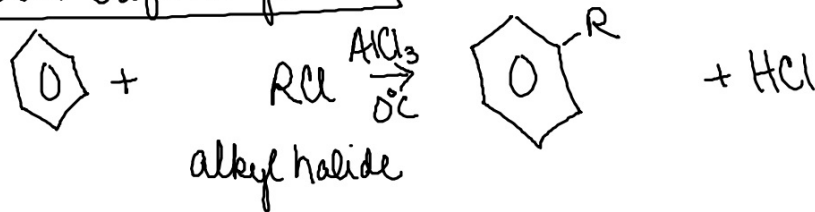
Sulfonation



Halogenation



Friedel-Crafts Alkylation



Benzene - common names



toluene



phenol



anisole



aniline

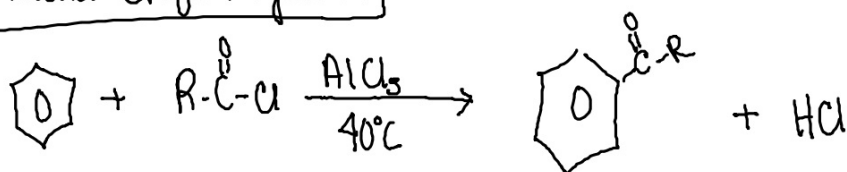


benzoic acid



benzaldehyde

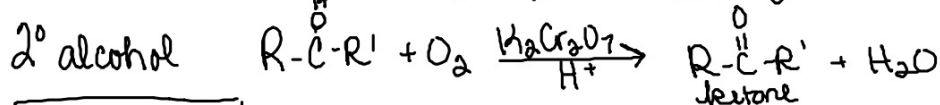
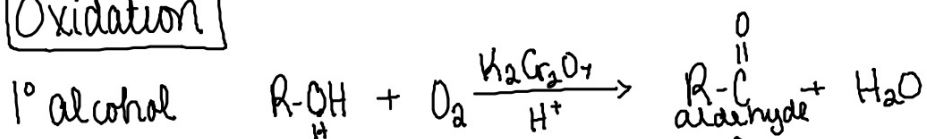
Friedel-Crafts Acylation



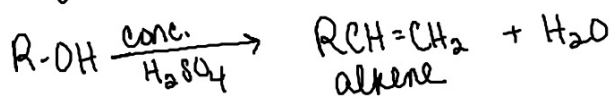
Know common names for:

benzenes, alcohols, thiols, ethers & amines

Oxidation

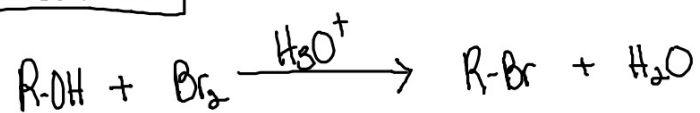


Dehydration

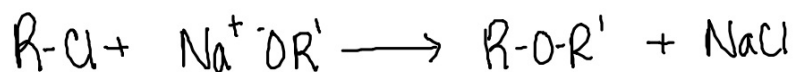


* Zaitsev dbl bond forms from hydroxyl toward closest end.

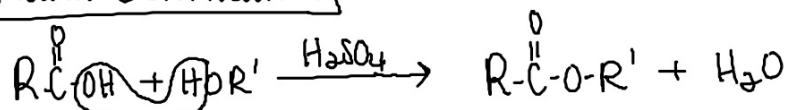
Substitution



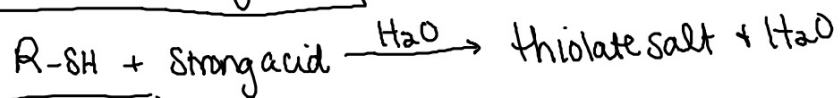
Williamson Ether Synthesis



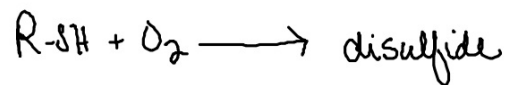
Fischer Esterification



Thiol w/strong Acid



Oxidation



Boiling Pt / Solubility

highest

Amide / Acid / Alcohols / Aldehydes / Ketones / Amines / Esters / Ethers / Thiols / Alkanes

more branches - ↓ boiling + solubility

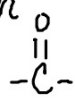
Precedence

least

Halogens

alkyl branch

Carbonyl



Oxy

hydroxyl



hydroxy

amine



amino

most
carboxylic acid
or amide