
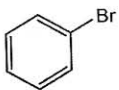

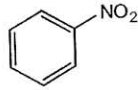

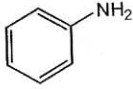
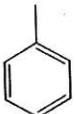
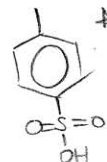
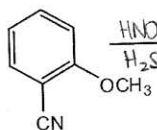
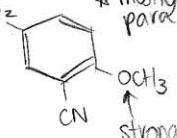
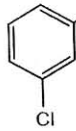

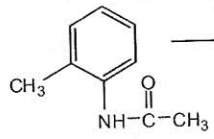
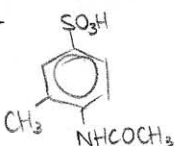
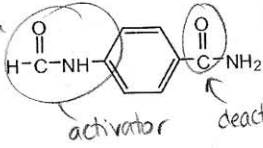
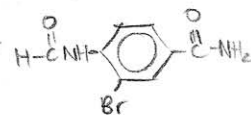


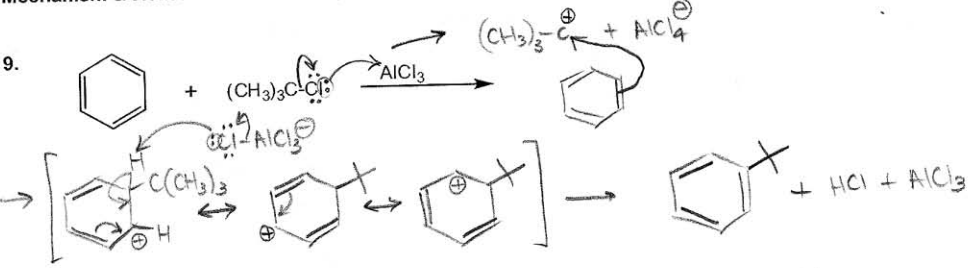

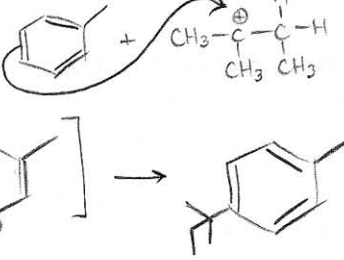
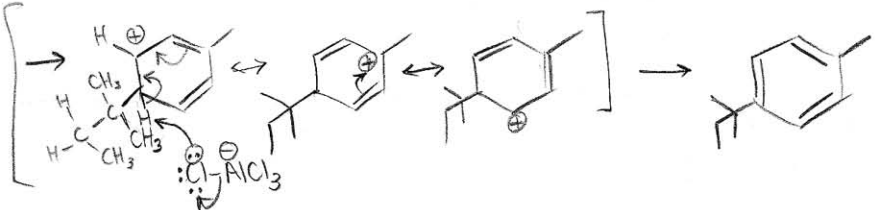


Chapter 17 Worksheet 01

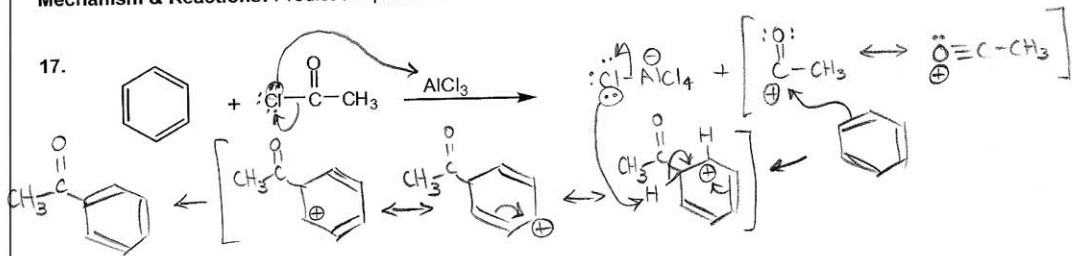
Reactions: Please provide the product excepted from the reaction below, and supply the necessary reagents for all rxns.

1.  $\xrightarrow{\text{Br}_2/\text{FeBr}_3}$ 
2.  $\xrightarrow[\text{H}_2\text{SO}_4]{\text{HNO}_3}$ 
3.  $\xrightarrow[\text{aq. HCl}]{1. \text{HNO}_3/\text{H}_2\text{SO}_4, 2. \text{Zn, Sn, or Fe}}$ 
4.  $\xrightarrow[\text{H}_2\text{SO}_4]{\text{SO}_3}$ mono-sulfonation  ** mostly para, ortho is hindered*
5.  $\xrightarrow[\text{H}_2\text{SO}_4]{\text{HNO}_3}$ mono-nitration  ** mostly para, strong activator therefore it dictates rxn ortho/para*
6.  $\xrightarrow{\text{Br}_2/\text{FeBr}_3}$ mono-bromination  *stronger activator, probably ortho cuz O is smaller than Cl*
7.  $\xrightarrow{\text{mono-sulfonation}}$  *stronger activator*
8.  $\xrightarrow{\text{mono-bromination}}$  *activator, deactivator*

Mechanism & Reactions: Predict the products for the reactions below, and provide a detailed mechanism.

9.  + $(\text{CH}_3)_3\text{C}-\text{Cl}$ $\xrightarrow{\text{AlCl}_3}$  + HCl + AlCl_3
 Mechanism: 
10.  + $(\text{CH}_3)_2\text{C}(\text{CH}_3)-\text{Cl}$ $\xrightarrow{\text{AlCl}_3}$  + HCl + AlCl_3
 Mechanism: 

Mechanism & Reactions: Predict the products for the reaction below, and provide a detailed mechanism.



Reactions: Predict the products for the reactions below.

