**Exercise 11: Facts and mechanistic details about RX syntheses**

**Organic Chem I Alfred State College**

1. What is a step common to both SN1 and SN2 alkyl halide synthesis mechanisms ?

Protonation of alcohol: ROH + H+ ROH2+

1. Which mechanism likes aprotic polar solvents ? \_SN2\_\_\_\_\_\_
2. Give an example of a modern halogenation reaction that use a gas phase reagent

 when reacting with alcohols.





1. In the halohydrin addition, which side does the OH add

 to if we start with the compound on the right:

OH adds Markovnikoff

1. what solvent is common to the CCl4\_\_\_\_\_\_
2. Which mechanism involves a 5-coordinate activated complex ? \_\_\_SN2\_\_\_\_\_\_\_\_
3. Which mechanism inverts the starting alcohol’s `handedness’ ?\_\_\_ SN2\_\_\_\_\_\_\_
4. Which reacts faster to from alkyl halides: 1-butanol or 2- butanol ?
5. Give an example of a modern halogenation reaction that is done in solvents



1. Which mechanism is indifferent to the concentration of HX ? \_\_ SN1\_\_\_\_
2. What is the order of reactivity of alcohols to HX as function of X ?
3. Which mechanism can produce more than one final halide product ?

SN1

1. What is the name of the key intermediate in the SN2 mechanism?

5-coordinated, activated complex

1. What is the term used to describe a scrambling of the initial `handedness’ of a molecule after reaction ? \_\_\_\_\_\_\_\_racemize \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Which mechanism applies in the halogenation of 1-butanol ?

SN2

1. What is the `nucleophilic’ agent in either SN1 or SN2 mechanisms ? \_\_ROH2+\_\_\_\_\_\_

(protonated alcohol)

1. Which reaction below represents a Markovnikoff addition ?

