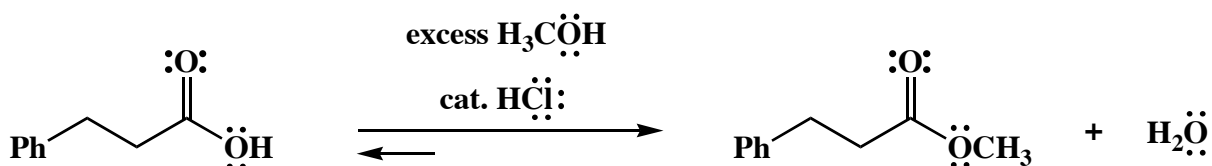


Problem Set 9

1. Draw the mechanism of the following reaction, using the curved-arrow notation to indicate the reorganization of electron density. Denote **all** intermediates, lone pairs, nonzero formal charges, countercharges, and reversibility or nonreversibility. Describe how one can drive the reaction to completion (i.e., instead of obtaining a mixture of the carboxylic acid starting material and the ester product).



2. Draw the mechanism of the following reaction, using the curved-arrow notation to indicate the reorganization of electron density. Denote **all** intermediates, lone pairs, nonzero formal charges, countercharges, and reversibility or nonreversibility. This reaction is run as a two-phase system, with the acid chloride starting material dissolved in a nonpolar organic, not the aqueous phase. What would likely be the major organic product for this reaction if a very polar organic solvent (e.g., DMSO) was used instead of the nonpolar organic solvent? Draw a detailed mechanism to illustrate your reasoning.

