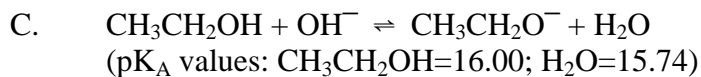
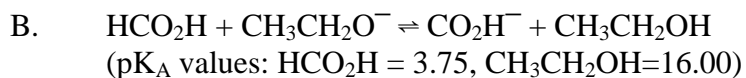
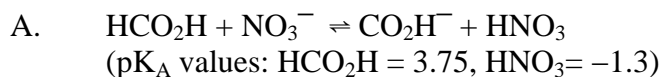


Chem 233: Problem Set #2 (on Chapter 2)

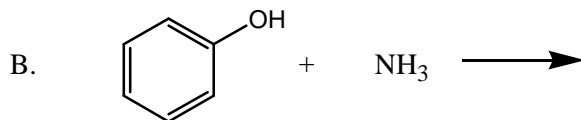
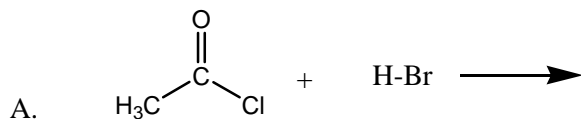
1. Consider the following acid-base reactions. Determine the direction of equilibrium for each. In other words, at equilibrium is [Products] > [Reactants] or is [Reactants] > [Products]?



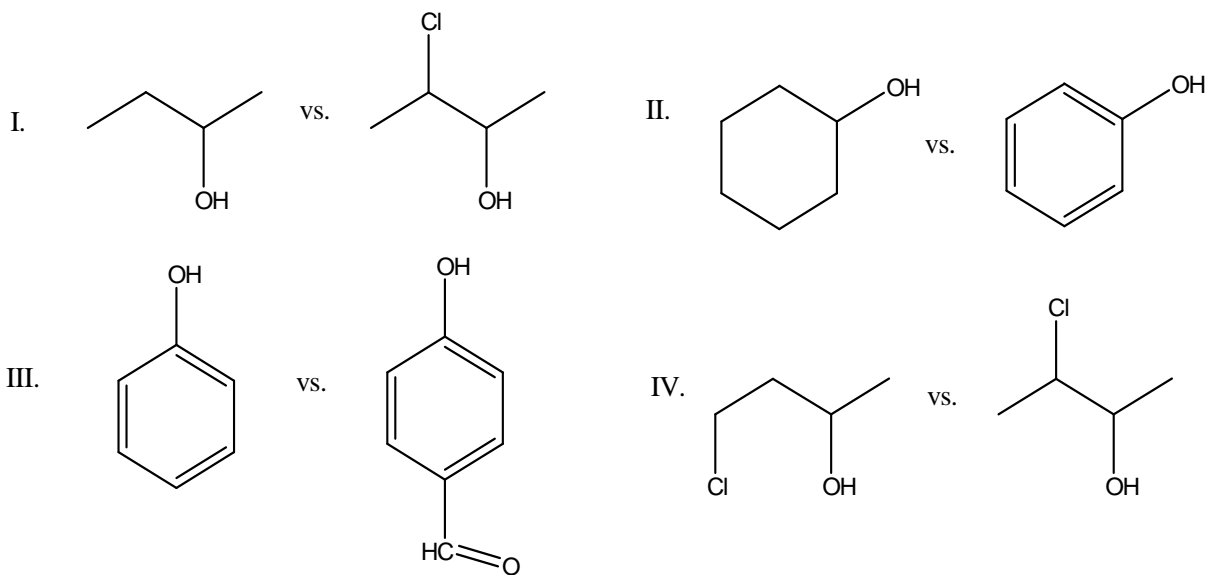
2. Arrange the following acids in order of decreasing acid strength. For each, give the chemical formula of the conjugate base. Arrange the conjugate bases in order of decreasing base strength.

Acid:	$\text{C}_6\text{H}_5\text{NH}_3^+$	CH_3OH	NH_4^+	$\text{C}_6\text{H}_5\text{OH}$	$\text{C}_6\text{H}_5\text{COOH}$
pK_A :	4.60	15.5	9.4	10.00	4.17

3. Predict products and use curved arrows to show the reaction between the Lewis acid-base pairs given below.



4. Alcohols (organics containing -OH functional groups) can act as weak acids. For each of the following pairs of alcohols, circle the stronger acid and fully explain your choice. (Remember: Any factor that stabilizes the conjugate base, strengthens the original acid. First: Consider the nature of the conjugate base and factors that stabilize it.)



5. For each alcohol given in question 4, give the structure of the conjugate base. For each pair, indicate which conjugate base is stronger.