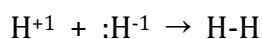
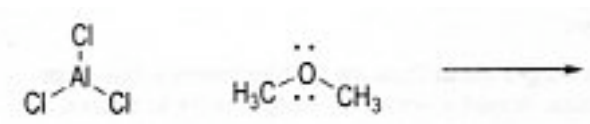


ORGO/BIO CHAPTER 4 HW

1. What are the Brønsted/Lowry definitions for an acid and a base?
2. Use Lewis structures and arrow-pushing to illustrate the mechanism of hydroxide ion, OH^- , acting as a base in the presence of hydrochloric acid, HCl . Then label the conjugate base and the conjugate acid.
3. Use Lewis structures and arrow-pushing to illustrate the mechanism of water acting as a base in the presence of carbonic acid, H_2CO_3 . Note: under normal conditions, the acid donates only one proton in water. Then label the conjugate base and the conjugate acid.
4. What are the Lewis definitions for an acid and a base?
5. Label the Lewis acid and Lewis base in the following reaction. Then rewrite the reaction, showing the mechanism of the acid-base reaction using arrow-pushing.



6. Consider the two molecules below. Label the Lewis acid and Lewis base. Predict the products of a reaction between these two molecules, and then show the mechanism of the acid-base reaction using arrow-pushing.



7. What behavior distinguishes a strong acid from a weak acid? A strong base from a weak base?
8. The molecule phenol is shown below.
 - a. Can it behave as a Brønsted acid? If so, show the conjugate base.
 - b. Can it behave as a Brønsted base? If so, show the conjugate acid.
 - c. Can it behave as a Lewis acid?
 - d. Can it behave as a Lewis base?

