

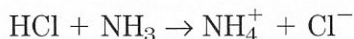
Assessment

Acids and Bases**Section Quiz: Acid-Base Theories**

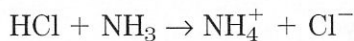
In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- _____ 1. All Brønsted-Lowry acids
- are aqueous solutions.
 - can act as Arrhenius acids.
 - donate protons.
 - All of the above
- _____ 2. Which of the following substances is both a Brønsted-Lowry base and an Arrhenius base?
- $\text{NH}_3(s)$
 - $\text{NH}_3(aq)$
 - $\text{HCl}(g)$
 - $\text{HCl}(aq)$

- _____ 3. In the following reaction, which substance acts as a Brønsted-Lowry acid?



- HCl
 - NH_3
 - NH_4^+
 - Cl^-
- _____ 4. In the following reaction, which substance acts as a Brønsted-Lowry base?



- HCl
 - NH_3
 - NH_4^+
 - Cl^-
- _____ 5. Which of the following is a polyprotic acid?
- HCl
 - H_2SO_4
 - HNO_3
 - HF

Section Quiz, continued

- _____ 6. Which stage of ionization of H_3PO_4 produces the most ions in solution?
- $\text{H}_3\text{PO}_4(aq) + \text{H}_2\text{O}(l) \rightleftharpoons \text{H}_3\text{O}^+(aq) + \text{H}_2\text{PO}_4^-(aq)$
 - $\text{H}_2\text{PO}_4^-(aq) + \text{H}_2\text{O}(l) \rightleftharpoons \text{H}_3\text{O}^+(aq) + \text{HPO}_4^{2-}(aq)$
 - $\text{HPO}_4^{2-}(aq) + \text{H}_2\text{O}(l) \rightleftharpoons \text{H}_3\text{O}^+(aq) + \text{PO}_4^{3-}(aq)$
 - All stages produce the same number of ions in solution.
- _____ 7. Which of the following can act as a Lewis acid?
- $\text{NH}_3(aq)$
 - $\text{Cl}^-(aq)$
 - $\text{BF}_4^-(aq)$
 - $\text{Ag}^+(aq)$
- _____ 8. A Lewis acid
- is an anion.
 - donates an electron pair to form a covalent bond.
 - can be a substance that does not contain a hydrogen atom.
 - All of the above
- _____ 9. Which of the following substances can act as an Arrhenius base, a Brønsted-Lowry base, and a Lewis base?
- $\text{F}^-(aq)$
 - $\text{NH}_3(aq)$
 - $\text{H}^+(aq)$
 - $\text{NaOH}(aq)$
- _____ 10. Which of the following will be present in an aqueous solution of H_2SO_4 ?
- $\text{H}_3\text{O}^+(aq)$
 - $\text{HSO}_4^-(aq)$
 - $\text{SO}_4^{2-}(aq)$
 - All of the above