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## ACIDS, BASES, AND SALTS

## Chapter Test B

## A. Matching

Match each term in Column B with the correct description in Column A. Write the letter of the correct term on the line.

## Column A

- \_\_\_\_\_ 1. a substance that can donate a pair of electrons to form a covalent bond
- \_\_\_\_\_ 2. a compound that produces hydroxide ions when dissolved in water
- \_\_\_\_\_ 3. the particle formed when a weak base gains a hydrogen ion
- \_\_\_\_\_ 4.  $1.0 \times 10^{-14}$  (mol/L)<sup>2</sup>
- \_\_\_\_\_ 5. a substance that can accept a pair of electrons to form a covalent bond
- \_\_\_\_\_ 6. a compound that produces hydrogen ions when dissolved in water
- \_\_\_\_\_ 7. H<sub>2</sub>SO<sub>4</sub>
- \_\_\_\_\_ 8. when the number of moles of hydrogen ions equals the number of moles of hydroxide ions in titration
- \_\_\_\_\_ 9. describes a substance that can act as both an acid and a base
- \_\_\_\_\_ 10. the process of adding a known amount of solution of known concentration to determine the concentration of another solution
- \_\_\_\_\_ 11. reactions in which an acid and a base react in an aqueous solution to produce a salt and water

## Column B

- a. the ion-product constant for water
- b. Lewis base
- c. acid
- d. conjugate acid
- e. neutralization reaction
- f. Lewis acid
- g. base
- h. diprotic acid
- i. amphoteric
- j. titration
- k. equivalence point

## B. Multiple Choice

Choose the best answer and write its letter on the line.

- \_\_\_\_\_ 12. Which of the following is true about acids?
- Acids give foods a bitter taste.
  - Aqueous solutions of acids conduct electricity.
  - Acids have a pH value greater than 7.
  - all of the above





32. If the  $K_{sp}$  for a CuCl solution is  $3.2 \times 10^{-7}$ , what is the concentration of Cu and of Cl ions at equilibrium?

## D. Essay

Write a short essay for the following.

33. Distinguish between the Brønsted-Lowry and Lewis theories of acids and bases.

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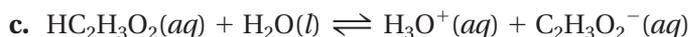
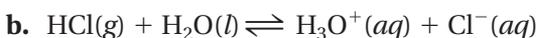
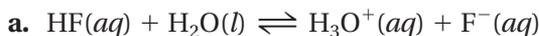
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## E. Additional Problems

Solve the following problems in the space provided. Show your work.

34. Determine the pH of a solution whose  $[H^+] = 3.4 \times 10^{-4}$  mol/L. Is the solution acidic, basic, or neutral?

35. Use the Brønsted-Lowry definitions of acids and bases to identify the acid, base, conjugate acid, and conjugate base in each of the following reactions.



	Acid	Base	Conjugate Acid	Conjugate Base
a.				
b.				
c.				

36. Identify the Lewis acids and bases in the following reactions:

	Lewis Acid	Lewis Base
a. $H^+ + I^- \rightarrow HI$		
b. $NH_3 + BCl_3 \rightarrow Cl_3BNH_3$		

37. A 0.1000M solution of ethanoic acid ( $HC_2H_3O_2$ ) is only partially ionized so that  $[H^+] = 2.25 \times 10^{-3}M$ . What is the acid dissociation constant for this acid?