

19.5

SALTS IN SOLUTION

Section Review

Objectives

- Define when a solution of a salt is acidic or basic
- Demonstrate with equations how buffers resist changes in pH

Vocabulary

- salt hydrolysis
- buffers
- buffer capacity

Part A Completion

Use this completion exercise to check your understanding of the concepts and terms that are introduced in this section. Each blank can be completed with a term, short phrase, or number.

- A 1 forms when an acid is neutralized by a base. Salts **1.** _____
 can be neutral, 2, or 3 in solutions. Salts of strong **2.** _____
 acid–strong base reactions produce 4 solutions with water. **3.** _____
 Salts formed from the neutralization of weak acids or weak bases **4.** _____
5 water. They produce solutions that are acidic or basic. **5.** _____
 For example, the pH of a solution at the equivalence point is **6.** _____
 greater than 7 for a 6 base–7 acid titration. Solutions **7.** _____
 that resist changes in pH are called 8 solutions. The buffer **8.** _____
9 is the amount of acid or base that can be added to a buffer **9.** _____
 without changing the pH greatly.

Part B True-False

Classify each of these statements as always true, AT; sometimes true, ST; or never true, NT.

- _____ 10. An aqueous solution of NH_4Cl is basic.
- _____ 11. HCl-NaCl would be a good buffer system.
- _____ 12. A buffer is a solution of a weak acid and one of its salts.
- _____ 13. A strong acid and a weak base produce an acidic solution.

Part C Matching

Match each description in Column B to the correct term in Column A.

Column A	Column B
_____ 14. salt hydrolysis	a. the cations or anions of a dissociated salt remove hydrogen ions from or donate hydrogen ions to water
_____ 15. buffer	b. the amount of acid or base that can be added to a buffer solution before a significant change in pH can occur
_____ 16. buffer capacity	c. the salt produced by the titration of ammonia with hydrochloric acid.
_____ 17. NH_4Cl	d. a solution in which the pH remains relatively constant when small amounts of acid or base are added

Part D Question

Answer the following in the space provided.

18. Predict whether an aqueous solution of each salt will be acidic, basic, or neutral.
- NH_4Cl
 - Na_2CO_3
 - NH_4NO_3