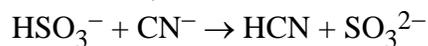


Practice Quiz #37: Concepts of Acids & Bases

1. Identify the Bronsted acids and bases in the following equation (a = Bronsted acid, B = Bronsted base):



- [A] B B A A [B] B A A B
[C] A B B A [D] B A B A
[E] A B A B

2. According to the Bronsted-Lowry definition, a base is

- [A] a substance that can donate an electron pair to the formation of a covalent bond
[B] a substance that can accept a proton from an acid
[C] a substance that increases the hydroxide ion concentration in water
[D] a substance that increases the anion formed by the autoionization of the solvent
[E] none of these

3. Which of the following is a conjugate acid-base pair?

- [A] HCl/OCl^- [B] $\text{H}_2\text{SO}_4/\text{SO}_4^{2-}$ [C] $\text{H}_3\text{O}^+/\text{OH}^-$
[D] $\text{NH}_4^+/\text{NH}_3$ [E] none of these

4. Choose the case that is *not* a conjugate acid-base pair.

- [A] $\text{H}_3\text{PO}_4, \text{HPO}_4^{2-}$ [B] $\text{H}_3\text{O}^+, \text{H}_2\text{O}$ [C] $\text{NH}_2\text{OH}_2^+, \text{NH}_2\text{OH}$
[D] $\text{OH}^-, \text{O}^{2-}$ [E] $\text{HCO}_3^-, \text{CO}_3^{2-}$

5. Choose the case that is not a Bronsted conjugate acid-base pair.

- [A] $\text{NH}_3, \text{NH}_4^+$ [B] $\text{O}^{2-}, \text{OH}^+$ [C] $\text{C}_2\text{O}_4^{2-}, \text{HC}_2\text{O}_4^-$
[D] $\text{HC}_2\text{H}_3\text{O}_2, \text{H}_2\text{C}_2\text{H}_3\text{O}_2^+$ [E] $\text{SO}_3^{2-}, \text{SO}_4^{2-}$

6. Which of the following must be *true* if a solution is to be considered acidic?

- [A] $[\text{H}^+] > [\text{OH}^-]$ [B] $K_w = [\text{H}^+]/[\text{OH}^-]$ [C] $[\text{H}^+] < [\text{OH}^-]$
[D] $[\text{H}^+] = [\text{OH}^-]$ [E] two of these

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7. A substance like water that behaves as an acid or base is said to be amphibasic.

[A] True

[B] False

8. A solution where $[H^+] = 10^{-13} M$ is _____.

[A] acidic

[B] neutral

[C] strongly acidic

[D] basic

[E] two of these

Practice Quiz #37: Concepts of Acids & Bases

[1] [E]

[2] [B]

[3] [D]

[4] [A]

[5] [E]

[6] [A]

[7] [B]

[8] [D]

Prac Quiz 1 Acid Base Concepts

1. If the pH of a solution is 9, the solution is

- (A) acidic, which turns phenolphthalein pink
- (B) acidic, which turns phenolphthalein colorless
- (C) basic, which turns phenolphthalein pink
- (D) basic, which turns phenolphthalein colorless

2. Given the equilibrium constant for water:

$$K_w = [\text{H}^+][\text{OH}^-] = 1 \times 10^{-14} \text{ at } 298 \text{ K}$$

As the $[\text{H}^+]$ increases, the $[\text{OH}^-]$

- (A) decreases
 - (B) increases
 - (C) remains the same
-

Answer Key

1. C
2. A