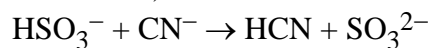


## Practice Quiz #37: Concepts of Acids & Bases

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]  $\text{HCl}/\text{OCl}^-$                       [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

### Practice Quiz #37: Concepts of Acids & Bases

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

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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