

1. Which laboratory test result can be used to determine if  $\text{KCl(s)}$  is an electrolyte?
  - A) electrical conductivity of  $\text{KCl(aq)}$
  - B) pH of  $\text{KCl(s)}$
  - C) pH of  $\text{KCl(aq)}$
  - D) electrical conductivity of  $\text{KCl(s)}$
2. Which substance is an electrolyte?
  - A)  $\text{CCl}_4$
  - B)  $\text{HCl}$
  - C)  $\text{H}_2\text{O}$
  - D)  $\text{C}_2\text{H}_6$
3. Which sample of  $\text{HCl(aq)}$  contains the greatest number of moles of solute particles?
  - A) 1.0 L of 2.0 M  $\text{HCl(aq)}$
  - B) 2.0 L of 2.0 M  $\text{HCl(aq)}$
  - C) 3.0 L of 0.50 M  $\text{HCl(aq)}$
  - D) 4.0 L of 0.50 M  $\text{HCl(aq)}$
4. A substance is classified as an electrolyte because
  - A) its aqueous solution conducts an electric current
  - B) it contains covalent bonds
  - C) it has a high melting point
  - D) its aqueous solution has a pH value of 7
5. Water containing dissolved electrolyte conducts electricity because the solution contains mobile
  - A) ions
  - B) atoms
  - C) electrons
  - D) molecules
6. Which sample of  $\text{HCl}$  most readily conducts electricity?
  - A)  $\text{HCl(s)}$
  - B)  $\text{HCl(g)}$
  - C)  $\text{HCl(aq)}$
  - D)  $\text{HCl(l)}$
7. A hydrogen ion,  $\text{H}^+$ , in aqueous solution may also be written as
  - A)  $\text{H}_2\text{O}$
  - B)  $\text{H}_2\text{O}_2$
  - C)  $\text{OH}^-$
  - D)  $\text{H}_3\text{O}^+$
8. Which statement correctly describes a solution with a pH of 9?
  - A) It has a higher concentration of  $\text{H}_3\text{O}^+$  than  $\text{OH}^-$  and causes methyl orange to turn yellow.
  - B) It has a higher concentration of  $\text{H}_3\text{O}^+$  than  $\text{OH}^-$  and causes litmus to turn blue.
  - C) It has a higher concentration of  $\text{OH}^-$  than  $\text{H}_3\text{O}^+$  and causes litmus to turn blue.
  - D) It has a higher concentration of  $\text{OH}^-$  than  $\text{H}_3\text{O}^+$  and causes methyl orange to turn red.
9. Which pH indicates a basic solution?
  - A) 12
  - B) 1
  - C) 7
  - D) 5
10. Which of these pH numbers indicates the highest level of acidity?
  - A) 12
  - B) 5
  - C) 8
  - D) 10
11. Given the following solutions:

Solution A: pH of 10  
Solution B: pH of 7  
Solution C: pH of 5

Which list has the solutions placed in order of increasing  $\text{H}^+$  concentration?
  - A) C, A, B
  - B) B, A, C
  - C) C, B, A
  - D) A, B, C
12. As an aqueous solution becomes more acidic, the hydroxide ion concentration
  - A) decreases
  - B) increases
  - C) remains the same
13. Which of the following pH values indicates the highest concentration of hydronium ions in a solution?
  - A) pH = 1
  - B) pH = 2
  - C) pH = 3
  - D) pH = 4
14. As  $\text{HCl(g)}$  is added to water, the pH of the water solution
  - A) decreases
  - B) increases
  - C) remains the same

## Acid/Base/Salt Characteristics:

On the line on the left, write A if the statement is a property of an acidic solution. Write B if it is a property of a basic solution. Write X if it is a property of both acidic and basic solutions.

- \_\_\_\_\_ 1) Often feels smooth and slippery
- \_\_\_\_\_ 2) Has a sour taste
- \_\_\_\_\_ 3) Stings in open wounds
- \_\_\_\_\_ 4) Typically reacts vigorously with metals
- \_\_\_\_\_ 5) Has a bitter taste
- \_\_\_\_\_ 6) Turns litmus paper from blue to red
- \_\_\_\_\_ 7) Is an electrolyte
- \_\_\_\_\_ 8) Often looks like pure water
- \_\_\_\_\_ 9) Turns litmus paper from red to blue
- \_\_\_\_\_ 10) Typically does not react with metals

11. Compare acids and bases in terms of  $H^+$  and  $OH^-$  concentration.

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12. Explain what it means to be an electrolyte and why acids, bases and salts are electrolytes.

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