# Do Now Unit 10 Acids, Bases & Salts

1. Which laboratory test result can be used to determine if KCl(s) is an electrolyte?

   A) pH of KCl(aq)
   B) pH of KCl(s)
   C) electrical conductivity of KCl(aq)
   D) electrical conductivity of KCl(s)

2. According to the Arrhenius theory, a base reacts with an acid to produce

   A) ammonia and methane
   B) ammonia and a salt
   C) water and methane
   D) water and a salt

3. An aqueous solution of lithium hydroxide contains hydroxide ions as the only negative ion in the solution. Lithium hydroxide is classified as an

   A) aldehyde B) alcohol
   C) Arrhenius acid D) Arrhenius base

4. Which substance is an Arrhenius acid?

   A) $Ba(OH)_2$ B) $CH_3COOCH_3$
   C) $H_3PO_4$ D) NaCl

5. The pH of an aqueous solution changes from 4 to 3 when the hydrogen ion concentration in the solution is

   A) decreased by a factor of $\frac{3}{4}$
   B) decreased by a factor of 10
   C) increased by a factor of $\frac{4}{3}$
   D) increased by a factor of 10

6. Which statement correctly describes a solution with a pH of 9?

   A) It has a higher concentration of $H_3O^+$ than $OH^-$ and causes litmus to turn blue.
   B) It has a higher concentration of $OH^-$ than $H_3O^+$ and causes litmus to turn blue.
   C) It has a higher concentration of $H_3O^+$ than $OH^-$ and causes methyl orange to turn yellow.
   D) It has a higher concentration of $OH^-$ than $H_3O^+$ and causes methyl orange to turn red.

7. 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 $H^+$ concentration?

   A) *A, B, C* B) *B, A, C*
   C) *C, A, B* D) *C, B, A*

8. Which indicator would best distinguish between a solution with a pH of 3.5 and a solution with a pH of 5.5

   A) bromthymol blue B) bromcresol green
   C) litmus D) thymol blue

9. According to Reference Table *M*, what is the color of the indicator methyl orange in a solution that has a pH of 2?

   A) blue B) yellow
   C) orange D) red

10. The ability of $H_2SO_4$(aq) to change blue litmus red is mainly due to the presence of

    A) $SO_2$ molecules B) $H_2O$ molecules
    C) $H_3O^+$(aq) ions D) $SO_4^{2-}$(aq) ions

11. One alternate acid-base theory states that an acid is an

    A) $H^+$ donor B) $H^+$ acceptor
    C) $OH^-$ donor D) $OH^-$ acceptor

12. Given the balanced equation representing a reaction:

    $NH_3(g) + H_2O(\ell) \rightarrow NH_4^+(aq) + OH^-(aq)$
    According to one acid-base theory, the $NH_3(g)$ molecules act as

    A) an acid because they accept $H^+$ ions
    B) an acid because they donate $H^+$ ions
    C) a base because they accept $H^+$ ions
    D) a base because they donate $H^+$ ions

13. Which species is amphoteric (amphiprotic)?

    A) $H_2$ B) $H_2SO_4$
    C) $HSO_4^-$ D) $SO_4^{2-}$

14. Given the equilibrium system:

$$NH_3(aq) + H_2O(\ell) \leftrightarrow NH_4^+(aq) + OH^-(aq)$$

According to the Brönsted-Lowry theory, the $H_2O(\ell)$ acts as

A) a base, by receiving a proton
B) a base, by donating a proton
C) an acid, by receiving a proton
D) an acid, by donating a proton

15. Which compound is produced when HCl(aq) is neutralized by $Ca(OH)_2(aq)$?

A) $CaCl_2$ B) $CaH_2$
C) HClO D) $HClO_2$

16. Which word equation represents a neutralization reaction?

A) base + acid → salt + water
B) base + salt → water + acid
C) salt + acid → base + water
D) salt + water → acid + base

17. Which compound could serve as a reactant in a neutralization reaction?

A) NaCl B) KOH
C) $CH_3OH$ D) $CH_3CHO$

18. During which process can 10.0 milliliters of a 0.05 M HCl(aq) solution be used to determine the unknown concentration of a given volume of NaOH(aq) solution?

A) evaporation B) distillation
C) filtration D) titration

19. Information related to a titration experiment is given in the balanced equation and table below

$$H_2SO_4(aq) + 2\ KOH(aq) \rightarrow K_2SO_4(aq) + 2\ H_2O(\ell)$$

**Titration Experiment Results**

| | |
|---|---|
| volume of $H_2SO_4(aq)$ used | 12.0 mL |
| concentration of $H_2SO_4(aq)$ | ? |
| volume of KOH(aq) used | 36.0 mL |
| concentration of KOH(aq) | 0.16 M |

Based on the equation and the titration results, what is the concentration of the $H_2SO_4(aq)$?

A) 0.12 M B) 0.16 M C) 0.24 M D) 0.96 M

20. When 50. milliliters of an $HNO_3$ solution is exactly neutralized by 150 milliliters of a 0.50 M solution of KOH, what is the concentration of $HNO_3$?

A) 1.0 M B) 1.5 M
C) 3.0 M D) 0.5 M