

## Do Now Unit 10 Acids, Bases & Salts

- Which laboratory test result can be used to determine if  $\text{KCl(s)}$  is an electrolyte?
  - pH of  $\text{KCl(aq)}$
  - pH of  $\text{KCl(s)}$
  - electrical conductivity of  $\text{KCl(aq)}$
  - electrical conductivity of  $\text{KCl(s)}$
- According to the Arrhenius theory, a base reacts with an acid to produce
  - ammonia and methane
  - ammonia and a salt
  - water and methane
  - water and a salt
- An aqueous solution of lithium hydroxide contains hydroxide ions as the only negative ion in the solution. Lithium hydroxide is classified as an
  - aldehyde
  - alcohol
  - Arrhenius acid
  - Arrhenius base
- Which substance is an Arrhenius acid?
  - $\text{Ba(OH)}_2$
  - $\text{CH}_3\text{COOCH}_3$
  - $\text{H}_3\text{PO}_4$
  - $\text{NaCl}$
- The pH of an aqueous solution changes from 4 to 3 when the hydrogen ion concentration in the solution is
  - decreased by a factor of  $\frac{3}{4}$
  - decreased by a factor of 10
  - increased by a factor of  $\frac{4}{3}$
  - increased by a factor of 10
- Which statement correctly describes a solution with a pH of 9?
  - It has a higher concentration of  $\text{H}_3\text{O}^+$  than  $\text{OH}^-$  and causes litmus to turn blue.
  - It has a higher concentration of  $\text{OH}^-$  than  $\text{H}_3\text{O}^+$  and causes litmus to turn blue.
  - It has a higher concentration of  $\text{H}_3\text{O}^+$  than  $\text{OH}^-$  and causes methyl orange to turn yellow.
  - It has a higher concentration of  $\text{OH}^-$  than  $\text{H}_3\text{O}^+$  and causes methyl orange to turn red.
- Given the following solutions:

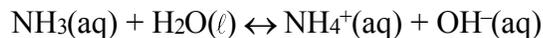
Solution A: pH of 10  
Solution B: pH of 7  
Solution C: pH of 5

Which list has the solutions placed in order of increasing  $\text{H}^+$  concentration?
  - A, B, C
  - B, A, C
  - C, A, B
  - C, B, A
- Which indicator would best distinguish between a solution with a pH of 3.5 and a solution with a pH of 5.5
  - bromthymol blue
  - bromcresol green
  - litmus
  - thymol blue
- According to Reference Table M, what is the color of the indicator methyl orange in a solution that has a pH of 2?
  - blue
  - yellow
  - orange
  - red
- The ability of  $\text{H}_2\text{SO}_4(\text{aq})$  to change blue litmus red is mainly due to the presence of
  - $\text{SO}_2$  molecules
  - $\text{H}_2\text{O}$  molecules
  - $\text{H}_3\text{O}^+(\text{aq})$  ions
  - $\text{SO}_4^{2-}(\text{aq})$  ions
- One alternate acid-base theory states that an acid is an
  - $\text{H}^+$  donor
  - $\text{H}^+$  acceptor
  - $\text{OH}^-$  donor
  - $\text{OH}^-$  acceptor
- Given the balanced equation representing a reaction:
$$\text{NH}_3(\text{g}) + \text{H}_2\text{O}(\ell) \rightarrow \text{NH}_4^+(\text{aq}) + \text{OH}^-(\text{aq})$$
According to one acid-base theory, the  $\text{NH}_3(\text{g})$  molecules act as
  - an acid because they accept  $\text{H}^+$  ions
  - an acid because they donate  $\text{H}^+$  ions
  - a base because they accept  $\text{H}^+$  ions
  - a base because they donate  $\text{H}^+$  ions
- Which species is amphoteric (amphiprotic)?
  - $\text{H}_2$
  - $\text{H}_2\text{SO}_4$
  - $\text{HSO}_4^-$
  - $\text{SO}_4^{2-}$

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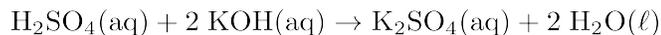
14. Given the equilibrium system:



According to the Brønsted-Lowry theory, the  $\text{H}_2\text{O}(\ell)$  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  $\text{HCl}(\text{aq})$  is neutralized by  $\text{Ca}(\text{OH})_2(\text{aq})$ ?
- A)  $\text{CaCl}_2$
  - B)  $\text{CaH}_2$
  - C)  $\text{HClO}$
  - D)  $\text{HClO}_2$
16. Which word equation represents a neutralization reaction?
- A) base + acid  $\rightarrow$  salt + water
  - B) base + salt  $\rightarrow$  water + acid
  - C) salt + acid  $\rightarrow$  base + water
  - D) salt + water  $\rightarrow$  acid + base
17. Which compound could serve as a reactant in a neutralization reaction?
- A)  $\text{NaCl}$
  - B)  $\text{KOH}$
  - C)  $\text{CH}_3\text{OH}$
  - D)  $\text{CH}_3\text{CHO}$
18. During which process can 10.0 milliliters of a 0.05 M  $\text{HCl}(\text{aq})$  solution be used to determine the unknown concentration of a given volume of  $\text{NaOH}(\text{aq})$  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



### Titration Experiment Results

volume of $\text{H}_2\text{SO}_4(\text{aq})$ used	12.0 mL
concentration of $\text{H}_2\text{SO}_4(\text{aq})$	?
volume of $\text{KOH}(\text{aq})$ used	36.0 mL
concentration of $\text{KOH}(\text{aq})$	0.16 M

Based on the equation and the titration results, what is the concentration of the  $\text{H}_2\text{SO}_4(\text{aq})$ ?

- A) 0.12 M
  - B) 0.16 M
  - C) 0.24 M
  - D) 0.96 M
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20. When 50. milliliters of an  $\text{HNO}_3$  solution is exactly neutralized by 150 milliliters of a 0.50 M solution of KOH, what is the concentration of  $\text{HNO}_3$ ?
- A) 1.0 M                      B) 1.5 M  
C) 3.0 M                      D) 0.5 M