Name _____ Class _____ Date _____

Assessment

Acid-Base Titration and pH

Section Quiz: Aqueous Solutions and the Concept of pH

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

_____ **1.** What is the concentration of hydronium ions in pure water?
- **a.** 1.0×10^{-7} M
- **b.** $\frac{K_w}{[OH^-]}$
- **c.** the same as $[OH^-]$
- **d.** All of the above

_____ **2.** As the $[H_3O^+]$ of a solution increases, the value of
- **a.** log $[H_3O^+]$ increases.
- **b.** $-\log [H_3O^+]$ decreases.
- **c.** the solution's pH decreases.
- **d.** All of the above

_____ **3.** The pH of a solution is defined as
- **a.** log $[H_3O^+]$.
- **b.** $-\log [OH^-]$.
- **c.** $[H_3O^+] \times 10^{-7}$.
- **d.** $-\log [H_3O^+]$.

_____ **4.** Which of the following is *not* a property of an acidic solution?
- **a.** $[H_3O^+]$ greater than 1×10^{-7} M
- **b.** $[HO^-]$ greater than 1×10^{-7} M
- **c.** pH value below 7
- **d.** pOH value greater than 7

_____ **5.** A basic solution
- **a.** has a higher concentration of hydronium ions than hydroxide ions.
- **b.** has the same concentration of hydronium and hydroxide ions.
- **c.** has a lower concentration of hydronium ions than hydroxide ions.
- **d.** does not have hydronium ions.

Name _____ Class _____ Date _____

Section Quiz, *continued*

_____ **6.** If the pH of a solution increases from 2.0 to 4.0, the H_3O^+ ion concentration
- **a.** decreases by a factor of 2.
- **b.** decreases by a factor of 100.
- **c.** increases by a factor of 3.
- **d.** increases by a factor of 1000.

_____ **7.** Which of the following substances is a weak base?
- **a.** NH_3
- **b.** KOH
- **c.** K_2O
- **d.** NaOH

_____ **8.** A solution that has a pH of 13 is a
- **a.** strong acid.
- **b.** strong base.
- **c.** weak acid.
- **d.** weak base.

_____ **9.** What is the pH of household ammonia in which the $[H_3O^+]$ is 1.0×10^{-12} M?
- **a.** 2
- **b.** 7
- **c.** 10
- **d.** 12

_____ **10.** What is the $[OH^-]$ in a sample of lime juice with a pH of 2.0?
- **a.** 1.0×10^{-2} M
- **b.** 1.0×10^{-7} M
- **c.** 1.0×10^{-10} M
- **d.** 1.0×10^{-12} M

12 Solutions

Section: Types of Mixtures

1. a **2.** b
3. c **4.** b
5. d **6.** c
7. a **8.** a
9. b **10.** c

Section: The Solution Process

1. d **2.** a
3. d **4.** c
5. a **6.** c
7. a **8.** d
9. d **10.** d

Section: Concentration of Solutions

1. c **2.** a
3. a **4.** d
5. c **6.** d
7. a **8.** d
9. b **10.** c

13 Ions in Aqueous Solutions and Colligative Properties

Section: Compunds in Aqueous Soutions

1. d **2.** a
3. a **4.** c
5. a **6.** d
7. c **8.** a
9. b **10.** b

Section: Colligative Properties of Solutions

1. b **2.** b
3. d **4.** b
5. c **6.** a
7. c **8.** b
9. c **10.** b

14 Acids and Bases

Section: Properties of Acids and Bases

1. d **2.** c
3. b **4.** a
5. a **6.** a
7. a **8.** c
9. d **10.** b

Section: Acid-Base Theories

1. c **2.** b
3. a **4.** b
5. b **6.** a
7. d **8.** c
9. b **10.** d

Section: Acid-Base Reactions

1. c **2.** c
3. c **4.** d
5. b **6.** c
7. d **8.** c
9. a **10.** a

15 Acid-Base Titration and pH

Section: Aqueous Solutions and the Concept of pH

1. d **2.** d
3. d **4.** b
5. c **6.** b
7. a **8.** b
9. d **10.** d

Section: Determining pH and Titrations

1. d **2.** b
3. c **4.** a
5. c **6.** b
7. b **8.** b
9. c **10.** a

16 Reaction Energy

Section: Thermochemistry

1. d **2.** a
3. b **4.** a
5. c **6.** c
7. c **8.** b
9. c **10.** b

Section: Driving Forces of Reactions

1. b **2.** a
3. d **4.** a
5. b **6.** a
7. a **8.** b
9. c **10.** d