Name: _____ Class: _____ Date: _____ ID: A

Acids and Bases Practice Multiple Choice

Multiple Choice

Identify the choice that best completes the statement or answers the question.

____ 1. Calculate the hydrogen ion concentration of an aqueous solution, given the concentration of hydroxide ions is 1×10^{-5} M and the ion constant for water is 1×10^{-14}.

a. 1×10^{-5}
c. 1×10^{5}
b. 1×10^{-9}
d. 1×10^{9}

____ 2. A basic solution contains more _____ ions than hydrogen.

a. oxygen
c. hydroxide
b. nitrogen
d. sulfide

____ 3. What is the pH of blood, given the hydrogen ion concentration is 4.0×10^{-8} M?

a. 7.0
c. 7.4
b. 7.2
d. 7.6

____ 4. Which model states that an acid is a substance that contains hydrogen and ionizes to produce hydrogen ions?

a. Arrhenius
c. Lewis
b. Bronsted-Lowry
d. Hydrogen

____ 5. Identify the acid and conjugate base pair in the following equation: $HF + H_2O \rightarrow F^- + H3O^+$

a. HF and H_20
c. HF and F^-
b. HF and H_30
d. H_20 and H_3O^+

____ 6. Calculate the hydrogen ion concentration of an aqueous solution, given the pOH of the solution is 4.50 and the ion product constant for water, K_W, is 1.00×10^{-14}.

a. $3.16 \times 10^{-10}\ M$
c. $3.16 \times 10^{-5}\ M$
b. $3.16 \times 10^{-9}\ M$
d. $3.16 \times 10^{-7}\ M$

____ 7. An aqueous solution has a pH of 2.7 at 298 K. Calculate the pOH of the aqueous solution.

a. 9.3
c. 17
b. 12
d. 11

____ 8. Calculate the pOH of a 0.410 M $Ba(OH)_2$ solution.

a. 8.62×10^{-2}
c. 3.37×10^{-1}
b. 1.78×10^{-1}
d. 5.86×10^{-1}

____ 9. In the reaction $CO_3^{2-} + H_2O \rightleftharpoons HCO_3^- + OH^-$, the carbonate ion is acting as a(n) ____.

a. Arrhenius base
c. Brønsted-Lowry base
b. Arrhenius acid
d. Brønsted-Lowry acid

____ 10. What is the conjugate base of water?

a. OH^-
c. H_2O
b. H^+
d. H_3O^+

____ 11. How many mL of 0.250 M sulfuric acid are needed to neutralize 30.0 mL of .100 M potassium hydroxide?
a. 12.0 mL
b. 24.0 mL
c. 0.0800 mL
d. 6.0 mL

____ 12. What is the purpose of a titration?
a. To make a solution change color
b. To neutralize an acid with a base
c. To use a buret because burets are cool
d. To find the concentration of a solution

____ 13. Pure water is neutral because
a. it contains no hydoxide or hydronium ions.
b. it contains only molecules of H_2O which do not conduct electricity.
c. it contains equal concentrations of hydroxide and hydronium ions.
d. its pH at 25°C is 7.

____ 14. Which of the following is not a strong base?
a. zinc hydroxide
b. strontium hydroxide
c. sodium hydroxide
d. potassium hydroxide

____ 15. What is the pH of a 0.45 M $HC_2H_3O_2$ solution? Assume 5% ionization.
a. 1.6
b. 0.35
c. 3.8
d. 12.4

Acids and Bases Practice Multiple Choice [Answer Strip] **ID: A**

D 11.

D 12.

B 1.

C 13.

C 2.

A 14.

C 3.

A 15.

A 4.

C 5.

A 6.

D 7.

A 8.

C 9.

A 10.