Acid-Base Equilibria Key

1. The substance H_2SO_3 is considered
(p. 788)

A. a weak Arrhenius acid.
B. a strong Arrhenius acid.
C. a strong Arrhenius base.
D. a neutral compound.
E. a weak Arrhenius base.

Silberberg - 018 Chapter... #1

2. The substance NH_3 is considered
(p. 788)

A. a weak acid.
B. a weak base.
C. a strong acid.
D. a strong base.
E. a neutral compound.

Silberberg - 018 Chapter... #10

3. Select the strongest acid from the following list.
(p. 788)

A. $HBrO_4$
B. $HClO^4$
C. $HBrO_2$
D. $HBrO^2$
E. HIO

Silberberg - 018 Chapter... #15

4. Which of the following aqueous systems has the highest pH?
(p. Sec. 18.2)

A. 0.1 *M* HA, pK_a = 11.89
B. 0.1 *M* HMO, pK_a = 8.23
C. 0.1 *M* HA, pK_a = 4.55
D. 0.1 *M* HBO, pK_a = 2.43
E. pure water

Silberberg - 018 Chapter... #21

5. What is the pH of a 0.20 *M* HCl solution?
(p. 792)

A. < 0
B. 0.70
C. 1.61
D. 12.39
E. 13.30

Silberberg - 018 Chapter... #24

6. What is the pH of a 0.0035 *M* KOH solution?
(p. 792)

A. 2.46
B. 5.65
C. 8.35
D. 11.54
E. None of these choices is correct.

Silberberg - 018 Chapter... #29

7. Butyric acid is responsible for the odor in rancid butter. A solution of 0.25 M butyric acid has a pH of 2.71. What is the K_a for the acid?
(p. 800)

A. 0.36
B. 2.4×10^{-2}
C. 7.8×10^{-3}
D. 1.5×10^{-5}
E. None of these choices is correct.

Silberberg - 018 Chapter... #48

8. Farmers who raise cotton once used arsenic acid, H_3AsO_4, as a defoliant at harvest time. Arsenic acid is a polyprotic acid with $K_1 = 2.5 \times 10^{-4}$, $K_2 = 5.6 \times 10^{-8}$, and $K_3 = 3 \times 10^{-13}$. What is the pH of a 0.500 *M* solution of arsenic acid?
(p. 804)

A. 0.85
B. 1.96
C. 3.90
D. 4.51
E. None of these choices is correct.

Silberberg - 018 Chapter... #56

9. What is the pH of a 0.0100 M sodium benzoate solution? K_b $(C_7H_5O_2^-) = 1.5 \times 10^{-10}$
(p. 809)

A. 0.38
B. 5.91
C. 8.09
D. 9.82
E. 13.62

Silberberg - 018 Chapter... #63

10. Iodine trichloride, ICl_3, will react with a chloride ion to form ICl_4^-. Which species, if any, acts as a Lewis acid in this reaction?
(p. 818)

A. ICl_4^-
B. ICl_3
C. Cl^-
D. the solvent
E. None of the species acts as a Lewis acid in this reaction.

Silberberg - 018 Chapter... #79