

AP MULTIPLE CHOICE QUESTIONS
CH. 17, SET 2

1994

55. What volume of 0.150-molar HCl is required to neutralize 25.0 mL of 0.120-molar Ba(OH)₂?
 (A) 20.0 mL (D) 60.0 mL
 (B) 30.0 mL (E) 80.0 mL
 (C) 40.0 mL
65. Barium sulfate is LEAST soluble in a 0.01-molar solution of which of the following?
 (A) Al₂(SO₄)₃ (D) NH₃
 (B) (NH₄)₂SO₄ (E) BaCl₂
 (C) Na₂SO₄

1984

63.	Acid	Acid Dissociation Constant, K_a
	H ₃ PO ₄	7×10^{-3}
	H ₂ PO ₄ ⁻	8×10^{-8}
	HPO ₄ ²⁻	5×10^{-13}

On the basis of the information above, a buffer with a pH=9 can best be made by using

- (A) pure NaH₂PO₄
 (B) H₃PO₄ + H₂PO₄⁻
 (C) H₂PO₄⁻ + PO₄³⁻
 (D) H₂PO₄⁻ + HPO₄²⁻
 (E) HPO₄²⁻ + PO₄³⁻
74. How many moles of NaF must be dissolved in 1.00 liter of a saturated solution of PbF₂ at 25°C to reduce the [Pb²⁺] to 1 x 10⁻⁶ molar? (K_{sp} of PbF₂ at 25°C = 4.0 x 10⁻⁸)
 (A) 0.020 mole (D) 0.20 mole
 (B) 0.040 mole (E) 0.40 mole
 (C) 0.10 mole
73. A 27.0-gram sample of an unknown hydrocarbon was burned in excess oxygen to form 88.0 grams of carbon dioxide and 27.0 grams of water. What is a possible molecular formula of the hydrocarbon?
 (A) CH₄ (D) C₄H₆
 (B) C₂H₂ (E) C₄H₁₀
 (C) C₄H₃

1989

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- (A) a solution with a pH less than 7 that is not a buffer solution.
 (B) a buffer solution with a pH between 4 and 7.
 (C) a buffer solution with pH between 7 and 10.
 (D) a solution with a pH greater than 7 that is not a buffer solution.
 (E) a solution with a pH of 7

Ionization Constants:

$$\text{CH}_3\text{COOH} = 1.8 \times 10^{-5}$$

$$\text{NH}_3 = 1.8 \times 10^{-5}$$

$$\text{H}_2\text{CO}_3 \quad K_1 = 4 \times 10^{-7}$$

$$K_2 = 4 \times 10^{-11}$$

8. A solution prepared to be initially 1M in NaCl and 1 M in HCl.
 9. A solution prepared to be initially 1 M in Na₂CO₃ and 1 M in CH₃COONa.
 10. A solution prepared to be initially 0.5 M in CH₃COOH and 1 M in CH₃COONa.