

**AP MULTIPLE CHOICE QUESTIONS
CH. 17, SET 1**

1999

Questions 9 – 12 refer to aqueous solutions containing 1:1 mole ratios of the following pairs of substances. Assume all concentrations are 1 M.

- (A) NH₃ and NH₄Cl (C) HCl and NaCl (E) NH₃ and HC₂H₃O₂
(B) H₃PO₄ and NaH₂PO₄ (D) NaOH and NH₃ (acetic acid)
9. The solution with the lowest pH.
10. The most nearly neutral solution.
11. A buffer at a pH > 8.
12. A buffer at a pH < 6.
67. What is the molar solubility in water of Ag₂CrO₄? (The K_{sp} for Ag₂CrO₄ is 8×10^{-12})
(A) 8×10^{-12} M (C) $\sqrt[4]{4} \times 10^{-12}$ M (E) $\sqrt[3]{2} \times 10^{-12}$ M
(B) 2×10^{-12} M (D) $\sqrt[3]{4} \times 10^{-12}$ M
69. What is the final concentration of barium ions, [Ba²⁺], in solution when 100. mL of 0.10 M BaCl₂ (aq) is mixed with 100. mL of 0.050 M H₂SO₄ (aq)?
(A) 0.00 M (C) 0.025 M (E) 0.10 M
(B) 0.012 M (D) 0.075 M
71. In a qualitative analysis for the presence of Pb²⁺, Fe²⁺, and Cu²⁺ ions in aqueous solution, which of the following will allow the separation of Pb²⁺ from the other ions at room temperature?
(A) Adding dilute Na₂S (aq) solution. (D) Adding dilute NH₃ (aq) solution.
(B) Adding dilute HCl (aq) solution. (E) Adding dilute HNO₃ (aq) solution.
(C) Adding dilute NaOH (aq) solution.
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24. A sample of 0.0100 mole of oxygen gas is confined at 37°C and 0.216 atmosphere. What would be the pressure of this sample at 15°C and the same volume?
(A) 0.0876 atm (C) 0.201 atm (E) 0.533 atm
(B) 0.175 atm (D) 0.233 atm
38. Concentrations of colored substances are commonly measured by means of a spectrophotometer. Which of the following would ensure that correct values are obtained for the measured absorbance?
I. There must be enough sample in the tube to cover the entire light path.
II. The instrument must be periodically reset using a standard.
III. The solution must be saturated.
(A) I only (C) I and II only (E) I, II and III
(B) II only (D) II and III only
52. When dilute nitric acid was added to a solution of one of the following chemicals, a gas was evolved. This gas turned a drop of limewater, Ca(OH)₂, cloudy, due to the formation of a white precipitate. The chemical was
(A) household ammonia, NH₃ (C) table salt, NaCl (E) bleach, 5% NaOCl
(B) baking soda, NaHCO₃ (D) Epsom salts, MgSO₄ 7H₂O