**Dougherty Valley HS AP Chemistry**

**S-83**

**Acid Base Reactions Review**

**Quick Check #8**

**Name: Date: Period: Seat #:**

1. Which statement is a logical consequence of the fact that a 0.10 molar solution of potassium acetate, KC2H3O2, is less basic than a 0.10 molar solution of potassium cyanide, KCN?
   1. Hydrocyanic acid (HCN) is a weaker acid than acetic acid.
   2. Hydrocyanic acid is less soluble in water than acetic acid.
   3. Cyanides are less soluble than acetates.
   4. Acetic acid is a weaker acid than hydrocyanic acid.
2. Which solution would show the least change in pH upon addition of 3.0 mL of 1.0 M KOH? (Assume equal volumes of each solution are used. Ka for HC2H3O2 = 1.8 x10-5)
   1. A solution that is 0.50 M acetic acid and 0.50 M sodium acetate.
   2. A solution that is 0.10 M acetic acid and 0.10 M sodium acetate.
   3. A solution that is 1.0 M acetic acid.
   4. A solution that is 0.50 M sodium acetate.
3. A strong monoprotic acid is being titrated with a 0.500 M NaOH solution. Which statement is true for this titration?

(A) The pH at the equivalence point cannot be determined without knowing the identity of the acid.

(B) The pH at the equivalence point cannot be determined unless the concentration of the acid is known.

(C) The pH at the equivalence point depends on neither the identity of the acid nor the concentration of the acid.

1. Which of the following would not make a good buffering system?

|  |  |
| --- | --- |
| (A) SO42– and H2SO4 | (B) HCO3– and H2CO3 |
| (C) NH3 and NH4+ | (D) CH3COO– and CH3COOH |

1. The amount (in grams) of sodium acetate (MW = 82.0) to be added to 500.0 mL of 0.200 molar acetic acid (Ka = 1.80 x 10-5) in order to make a buffer with pH = 5.000 is

(A) 69 (B) 0.180 (C) 14.9 (D) 29.5 (E) None of these

1. Determine the pH of a solution in which 1.00 mol H2CO3 (Ka = 4.2 x 10-7) and 1.00 mole NaHCO3 are dissolved in enough water to form 1.00 L of solution.
2. How many grams of Mg(OH)2 are required to neutralize 50.0 ml of a 3.00 M HCl solution?
3. A sample of 20.0 mL of a 0.100-molar HCN solution is titrated with a 0.150-molar NaOH solution. (Ka HCN = 6.2 x 10-10)
   1. What volume of NaOH is used in the titration in order to reach the equivalence point?
   2. What is the molar concentration of CN- at the equivalence point?
   3. What is the pH of the solution at the equivalence point?

**ANSWERS**: A/A/C/A/C/6.4/4.37/a. 0.0133L/b. 0.060M/c. 11.0