1. What is the pH of a buffer solution made by mixing 100.0 mL of 1.0 M sodium acetate and 100.0 mL of 1.0 M acetic acid?

2. Calculate the pH when 5.00 mL of 1.0 M HCl is added to 1.0 L of buffer solution with an ammonia concentration of 0.100 M and ammonium chloride concentration of 0.100 M. You can assume the change in volume is negligible to simplify.

3. Pick the best choice to make a buffer solution with a pH of 7.20. You will need to look up Ka or Kb values.

CH_3COOH/CH_3COOK
b) $HClO_2/KClO_2$
c) NH_3/NH_4Cl
d) $HClO/KClO$

4. Using your choice from QUESTION 3, calculate the volume of acid and base needed to prepare 1.0 L of a 0.100 M buffer solution with a pH of 7.2. You have available 1.0 M stock solutions of the acid and base in the lab. (For example, 1.0 M HA (generic weak acid) and 1.0 M NaA (sodium salt of the conjugate base).