BUFFERS
Exit Ticket 12

1. Which of the following can be classified as a buffer solution? Give an explanation.

   a) 0.25 M HBr + 0.25 M HOBr
      Yes   No

   b) 0.50 M HOC1 + 0.35 M KOCl
      Yes   No

   c) 0.70 M KOH + 0.70 M HONH2
      Yes   No

   d) 0.85 M H2NNH2 + 0.60 M H2NNH3NO3
      Yes   No

2. Calculate the pH of each of the following solutions:

   a) 0.100 M propanoic acid (HC3H5O3; K_a = 1.3x10^-5)

   b) 0.100 M sodium propanoate (NaC3H5O3)

   c) A mixture containing 0.100 M HC3H5O3 and 0.100 M NaC3H5O3
3. Which of the following mixtures would result in buffered solution when 1.0 L of each of the two solutions are mixed? Explain your reasoning.

   a) 0.1 M KOH and 0.1 M CH₃NH₃Cl
   
   b) 0.1 M KOH and 0.2 M CH₃NH₂
   
   c) 0.2 M KOH and 0.1 M CH₃NH₃Cl
   
   d) 0.1 M KOH and 0.2 M CH₃NH₃Cl

4. Calculate the pH of a buffered solution prepared by dissolving 21.5 g of benzoic acid (HC₇H₅O₂) and 37.7 g of sodium benzoate to 200.0 mL of solution. (Kₐ for benzoic acid = 6.4x10⁻⁵)

5. Calculate the mass of sodium acetate that must be added to 500.0 mL of 0.200 M acetic acid (Kₐ = 1.8x10⁻⁵) to form a pH 5.00 buffer solution.