

Buffers and pH

1. What is the pH of a buffer that is 0.55 M in formic acid, HCOOH , and 0.63 M in sodium formate, NaHCOO ?
2. What is the ratio of hypobromite, BrO^- , to hypobromous acid, HBrO , in a buffer with a pH of 7.88?
3. Human blood contains two buffer systems, one based on phosphate species and one on carbonate species. If blood has a normal pH of 7.4, what are the principle phosphate and carbonate species present? What is the ratio between the two phosphate species? At the temperature of human blood, the K_a values for phosphoric acid are 1.3×10^{-2} , 2.3×10^{-7} , and 6×10^{-12} , respectively. The K_a values for carbonic acid are 8×10^{-7} and 1.6×10^{-10} , respectively.