Worksheet 9

1. Give the conjugate acid or base of the following: a) CN\(^-\), b) O\(^2-\), c) HIO\(_3\), d) NH\(_4\)\(^+\)

2. Calculate the pH of the following acid solutions: a) 0.00835 M HNO\(_3\), b) 0.525 g of HClO\(_4\) in 575 mL of solution, c) 0.0842 M Ca(OH)\(_2\) M.

3. A 0.100 M solution of bromoacetic acid (BrCH\(_2\)COOH) is 13.2 % ionized. Using this information calculate [H\(^+\)], [BrCH\(_2\)COO\(^-\)], and [BrCH\(_2\)COOH].
4. The acid-dissociation constant for hypochlorous acid (HClO) is $3.0 \times 10^{-8}$. Calculate the equilibrium concentrations of $H^+$, $ClO^-$, and HClO at equilibrium if the initial concentration of HClO is 0.0075 M.

5. Predict whether aqueous solutions of the following substances are acidic, basic, or neutral: a) CrBr$_3$, b) LiI, c) K$_3$PO$_4$, d) KHSO$_4$.

6. Explain the following observations: a) HCl is a stronger acid than H$_2$S, b) HBrO$_3$ is a stronger acid than HBrO$_2$, c) H$_3$PO$_4$ is a stronger acid than H$_3$AsO$_4$. 