Date Planned : __ / __ / __	Daily Tutorial Sheet-14	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-3	Exact Duration :_____

153. What is the concentration of acetic acid which can be added to 0.5 M HCOOH solution so that dissociation of both is same? ($K_{CH_3COOH} = 1.8 \times 10^{-5}$, $K_{HCOOH} = 2.4 \times 10^{-4}$)

154. A weak base BOH was titrated against a strong acid. The pH at $^1/_4$ th equivalence point was 9.24. Enough strong bases (6 m. eq) was now added to completely convert the salt. The total volume was 50 ml. Find the pH at this point.

155. How many moles of HCl will be required to prepare one litre of a buffer solution containing HCN and NaCN of pH 8.5 using 0.01 mole of NaCN ?

$K_a(HCN) = 4.0 \times 10^{-10}$, anti $\log(-0.887) = 0.1296$

156. Calculate the molar solubility of $Zn(OH)_2$ in 1 M NH_3 solution at room temperature. K_{sp} of $Zn(OH)_2 = 1.8 \times 10^{-17}$. $K_{stability}$ of $\left[Zn(NH_3)_4\right]^{2+} = 1.64 \times 10^{10}$

157. Calculate the solubility of AgCN in a buffer solution of pH 3.00. $K_{sp(AgCN)} = 1.2 \times 10^{-16}$ and $K_{a(HCN)} = 4.8 \times 10^{-10}$

158. After solid $Mg(OH)_2$ was equilibrated in NH_4Cl solution, the ammonium ion concentration was 0.50 M. Calculate Mg^{2+} ion concentration. Given that K_b for $NH_4OH = 1.8 \times 10^{-5}$ and solubility of $Mg(OH)_2$ in pure water is 2×10^{-4} mol L^{-1}.