Date Planned : __ / __ / __	Daily Tutorial Sheet-15	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-3	Exact Duration :_____

159. A certain volume of a monobasic weak acid was titrated against 0.1M NaOH solution. The end point reached upon addition of 30 ml of alkali. The pH of the solution upon the addition of 20 ml of alkali was 6.3. Find K_a for the weak acid.

160. Calculate the pH of $0.1\,M\ K_3PO_4$ solution. K_1, K_2 and K_3 of H_3PO_4 are 5.0×10^{3}, 2.5×10^{-8} and $K_3 = 1.0\times10^{-12}$.

161. 25 mL of a weak base BOH was titrated with 0.5 M HCl. The pH of solution upon addition of 10 mL acid was 8.6 and that upon addition of 25 mL acid was 8. Calculate pH of the solution when 0 mL acid has been added. Also calculate the pH at the end point.

162. The K_{sp} of $Mg(OH)_2$ is 8.9×10^{-12} at 25°C. If the pH of solution is adjusted to 9.0. How much Mg^{2+} ion will be precipitated as $Mg(OH)_2$ from a $0.1\ M\ MgCl_2$ solution at 25°C? Assume that $MgCl_2$ is completely dissociated.

163. An aqueous solution contains 10% ammonia by mass and has density of $0.99\,gm\ cm^{-3}$. Calculate hydroxyl and hydrogen ion concentration in this solution. K_a for $NH_4^+ = 5\times10^{-10}M$.

164. A solution of $0.010\ M\ CdCl_2$ contains $0.010\ M\ NH_3$. What conc. of NH_4^+ ion from NH_4Cl is necessary to prevent the precipitation of $Cd(OH)_2$? ($K_{sp} = 2\times10^{-14}$ and $K_b = 1.8\times10^{-5}$)