Date Planned : __ / __ / __	Daily Tutorial Sheet-13	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-3	Exact Duration :_____

***147.** Degree of hydrolysis for a salt of strong acid and weak base is:

(A) independent of dilution

(B) increases with dilution

(C) increases with decrease in K_b of the base

(D) decreases with decrease in temperature

***148.** A solution containing a mixture of 0.05 M NaCl and 0.05 M NaI is taken. (K_{sp} of AgCl $= 10^{-10}$ and K_{sp} of AgI $= 4 \times 10^{-16}$). When $AgNO_3$ is added to such a solution:

(A) the concentration of Ag^+ required to precipitate Cl^- is 2×10^{-9} mol/L

(B) the concentration of Ag^+ required to precipitate I^- is 8×10^{-15} mol/L

(C) AgCl and AgI will precipitate together

(D) first AgI will be precipitated

Paragraph for Question No. 149 – 152

In qualitative analysis, cations of group II as well as group IV are precipitated in the form of sulphides. Due to low value of K_{sp} of group II sulphides, group reagent is H_2S in presence of dil. HCl and due to high value of K_{sp} of group IV sulphides, group reagent is H_2S in presence of NH_4OH and NH_4Cl.

In a 0.1M H_2S solution, Sn^{2+}, Cd^{2+} and Ni^{2+} ions are present in equimolar concentration (0.1M).

Given : $K_{a_1}(H_2S) = 10^{-7}$, $K_{a_2}(H_2S) = 10^{-14}$

$K_{sp}(SnS) = 8 \times 10^{-29}$, $K_{sp}(CdS) = 10^{-28}$

$K_{sp}(NiS) = 3 \times 10^{-21}$

149. If HCl solution is passed slowly then which sulphide will precipitate first :

(A) SnS **(B)** CdS **(C)** NiS **(D)** none of these

150. At what pH, precipitate of NiS will form :

(A) 12.76 **(B)** 7 **(C)** 1.24 **(D)** 4

151. Which of the following sulphide is more soluble in pure water:

(A) CdS **(B)** NiS

(C) SnS **(D)** all have equal solubility

152. If 0.1M HCl is mixed in the solution containing only 0.1 M H_2S and saturated with H_2S, then what will be the concentration of $Cd^{2\oplus}$ ions ?

(A) 10^{-8} **(B)** 10^{-9}

(C) 5.6×10^{-7} **(D)** 5.6×10^{-9}