Date Planned : __ / __ / __	Daily Tutorial Sheet-8	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-2	Exact Duration :_____

96. Solubility product constant $[K_{sp}]$ of salts of types MX, MX_2 and M_3X at temperature 'T' are 4.0×10^{-8}, 3.2×10^{-14} and 2.7×10^{-15} respectively. Which salt has maximum solubility.

(A) MX **(B)** M_3X

(C) MX_2 **(D)** cant be predicted

97. An aqueous solution contains Ni^{2+}, Co^{2+} and Pb^{2+} ions at equal concentrations. The solubility product of NiS, PbS and CoS in water at 25°C are respectively given below. Indicate which of these ions will be precipitated first and last when sulphide concentration is progressively increased from zero ?

(K_{sp} of $NiS = 3\times10^{-19}$, K_{sp} of $CoS = 4\times10^{-21}$, K_{sp} of $PbS = 3\times10^{-28}$)

(A) NiS and PbS **(B)** NiS and CoS

(C) CoS and NiS **(D)** PbS and NiS

98. At 30°C the solubility of $Ag_2CO_3(K_{sp} = 8\times10^{-12})$ would be greatest in 1 L of :

(A) 0.05 M Na_2CO_3 **(B)** 0.05 M $AgNO_3$

(C) pure water **(D)** 0.05 M NH_3

99. Some chemists at ISRO wished to prepare a saturated solution of a silver compound and they wanted it to have the highest concentration of silver ion possible. Which of the following compounds, would they use?

$K_{sp}(AgCl) = 1.8\times10^{-10}$

$K_{sp}(AgBr) = 5.0\times10^{-13}$

$K_{sp}(Ag_2CrO_4) = 2.4\times10^{-12}$

(A) AgCl **(B)** AgBr

(C) Ag_2CrO_4 **(D)** None of these

100. The solubility of $Pb(OH)_2$ in water is 6.7×10^{-6} M. Its solubility in a buffer solution of pH = 8 would be :

(A) 1.2×10^{-2} **(B)** 1.6×10^{-3}

(C) 1.6×10^{-2} **(D)** 1.2×10^{-3}

101. The aqueous solution of $AlCl_3$ is acidic due to :

(A) Cation hydrolysis **(B)** Anion hydrolysis

(C) Hydrolysis of both the ions **(D)** Dissociation

102. The compound whose 0.1 M solution is basic, is :

(A) Ammonium chloride **(B)** Ammonium acetate

(C) Ammonium sulphate **(D)** Sodium acetate

103. The following reaction is known to occur in the human body;

$$CO_2 + H_2O \rightleftharpoons H_2CO_3 \rightleftharpoons H^+ + HCO_3^- .$$

If CO_2 escapes from the system :

(A) pH will decrease

(B) H^+ ion concentration will decrease

(C) H_2CO_3 concentration will be unaltered

(D) The forward reaction will be promoted

104. The most important buffer in the blood consist of :

(A) HCl and Cl^- **(B)** H_2CO_3 and HCO_3^-

(C) H_2CO_3 and Cl^- **(D)** HCl and HCO_3^-

105. If the K_a value in the hydrolysis reaction, $B^+ + H_2O \rightleftharpoons BOH + H^+$ is 1.0×10^{-6}, then the hydrolysis constant of the salt would be :

(A) 1.0×10^{-6} **(B)** 1.0×10^{-7} **(C)** 1×10^{-8} **(D)** 1.0×10^{-9}