Date Planned : __ / __ / __	Daily Tutorial Sheet-3	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-1	Exact Duration :_____

31. The solubility of a sparingly soluble salt AB_2 in water is 1.0×10^{-5} M. Its solubility product will be :

(A) $1.0\times10^{-10}M^3$ **(B)** $4\times10^{-15}M^3$ **(C)** $4\times10^{-10}M^3$ **(D)** $1\times10^{-15}M^3$

32. The K_{sp} for $Cr(OH)_3$ is 1.6×10^{-30}. The molar solubility of this compound in water is :

(A) $\sqrt[2]{1.6\times10^{-30}}$ **(B)** $\sqrt[4]{1.6\times10^{-30}}$ **(C)** $\sqrt[4]{\frac{1.6\times10^{-30}}{27}}$ **(D)** $\frac{1.6\times10^{-30}}{27}$

33. The solubility of $Ca_3(PO_4)_2$ in water is y moles/litre. Its solubility product is :

(A) $6y^4$ **(B)** $36y^4$ **(C)** $64y^5$ **(D)** $108y^5$

34. The molar solubility (in mol L^{-1}) of a sparingly soluble salt MX_4 is 's'. The corresponding solubility product is K_{sp}. Then, 's' is given in terms of K_{sp} by the relation :

(A) $s=\left(\frac{K_{sp}}{128}\right)^{1/4}$ **(B)** $s=\left(128K_{sp}\right)^{1/4}$ **(C)** $s=\left(256K_{sp}\right)^{1/5}$ **(D)** $s=\left(\frac{K_{sp}}{256}\right)^{1/5}$

35. The solubility product of Hg_2I_2 is equal to :

(A) $\left[Hg_2^{2+}\right]\left[I^-\right]$ **(B)** $\left[Hg^{2+}\right]\left[I^-\right]$ **(C)** $\left[Hg_2^{2+}\right]\left[I^-\right]^2$ **(D)** $\left[Hg^{2+}\right]\left[I^-\right]^2$

36. The solubility product of iron (III) hydroxide is 1.6×10^{-19}. If X is the solubility of iron (III) hydroxide, which one of the following expression can be used to calculate X ?

(A) $K_{sp}=X^4$ **(B)** $K_{sp}=9X^4$ **(C)** $K_{sp}=27X^3$ **(D)** $K_{sp}=27X^4$

37. If K_{sp} of Ag_2S is 10^{-17}, the solubility of Ag_2S in 0.1 M solution of Na_2S will be :

(A) 10^{-8} **(B)** 5×10^{-9} **(C)** 10^{-15} **(D)** 10^{-16}

38. Solubility product of $Mg(OH)_2$ at ordinary temperature is 1.96×10^{-11}. pH of a saturated solution of $Mg(OH)_2$ will be :

(A) 10.53 **(B)** 8.47 **(C)** 6.94 **(D)** 3.47

39. Solubility product of a salt AB is $1\times10^{-8}M^2$ in a solution in which the concentration of A^+ ions is 10^{-3}M. The salt will precipitate when the concentration of B^- ions is kept.

(A) Between 10^{-8} to 10^{-7} M **(B)** Between 10^{-7} to 10^{-8} M

(C) $> 10^{-5}$ M **(D)** $< 10^{-8}$ M

40. In a saturated solution of the sparingly soluble strong electrolyte $AgIO_3$ (molecular mass = 283) the equilibrium which sets in is $AgIO_3(s) \rightleftharpoons Ag^+(aq) + IO_3^-(aq)$

If the solubility product constant K_{sp} of $AgIO_3$ at a given temperature is 1.0×10^{-8}, what is the mass of $AgIO_3$ contained in 100 mL of its saturated solution?

(A) 28.3×10^{-2} g **(B)** 2.83×10^{-3} g **(C)** 1.0×10^{-7} g **(D)** 1.0×10^{-4} g

41. The pK_a of a weak acid (HA) is 4.5. The pOH of an aqueous buffer solution of HA in which 50% of the acid ionised is :

(A) 4.5 **(B)** 2.5 **(C)** 9.5 **(D)** 7.0

42. Which one of the following salts give an acidic solution in water ?

(A) CH_3COONa **(B)** NH_4Cl **(C)** NaCl **(D)** CH_3COONH_4

43. A certain buffer solution contains equal concentration of X^- and HX . The K_b for X^- is 10^{-10}. The pH of the buffer is :

(A) 4 **(B)** 7 **(C)** 10 **(D)** 14

44. Degree of hydrolysis (h) of a salt of weak acid and a strong base is given by :

(A) $h = \sqrt{K_h}$ **(B)** $h = \sqrt{\frac{C}{K_h}}$ **(C)** $h = \sqrt{\frac{K_h}{C}}$ **(D)** None of these

45. The hydrolysis of sodium carbonate involves the reaction between :

(A) Sodium ion & water **(B)** Na^+ and OH^-

(C) CO_3^{2-} and water **(D)** CO_3^{2-} and H^+