Common ion effect, Isohydric solutions, Solubility product, Ionic product of water and Salt hydrolysis

61. Hydrolysis of sodium acetate will give
(a) Acidic solution
(b) Basic solution
(c) Neutral solution
(d) Normal solution

62. If the solubility product of $BaSO_4$ is 1.5×10^{-9} in water, its solubility in moles per litre, is
(a) 1.5×10^{-9} (b) 3.9×10^{-5}
(c) 7.5×10^{-5} (d) 1.5×10^{-5}

63. On passing H_2S gas through a highly acidic solution containing Cd^{2+} ions, CdS is not precipitated because
(a) Of common ion effect
(b) The solubility of CdS is low
(c) Cd^{2+} ions do not form complex with H_2S
(d) The solubility product of CdS is low

64. Which of the following will occur if a 0.1 *M* solution of a weak acid is diluted to $0.01M$ at constant temperature
(a) $[H^+]$ will decrease to 0.01 *M*
(b) pH will decrease
(c) Percentage ionization will increase
(d) K_a will increase

65. If solubility of calcium hydroxide is $\sqrt{3}$, then its solubility product will be
(a) 27 (b) 3
(c) 9 (d) $12\sqrt{3}$

66. When NH_4Cl is added to NH_4OH solution, the dissociation of ammonium hydroxide is reduced. It is due to
(a) Common ion effect
(b) Hydrolysis
(c) Oxidation
(d) Reduction

67. At 298 *K*, the solubility of $PbCl_2$ is $2 \times 10^{-2} mol \rightleftarrows lit$, then $k_{sp} =$
(a) 1×10^{-7} (b) 3.2×10^{-7}
(c) 1×10^{-5} (d) 3.2×10^{-5}

68. The solubility product of silver sulphide is 3.2×10^{-11}. Its solubility at the experimental temperature is
(a) 2×10^{-4} *moles per litre*
(b) 6×10^{-6} *moles per litre*
(c) 1.2×10^{-5} *moles per litre*
(d) 8×10^{-4} *moles per litre*

69. The solubility of $CaCO_3$ in water is $3.05 \times 10^{-4} moles/litre$. Its solubility product will be

(a) 3.05×10^{-4} (b) 10
(c) 6.1×10^{-4} (d) 9.3×10^{-8}

70. Solubility of BaF_2 in a solution $Ba(NO_3)_2$ will be represents by the concentration term
(a) $[Ba^{++}]$ (b) $[F^-]$
(c) $\frac{1}{2}[F^-]$ (d) $2[NO_3^-]$

71. The solubility of $PbCl_2$ at 25^oC is 6.3×10^{-3} *mole/litre*. Its solubility product at that temperature is
(a) $(6.3 \times 10^{-3}) \times (6.3 \times 10^{-3})$
(b) $(6.3 \times 10^{-3}) \times (12.6 \times 10^{-3})$
(c) $(6.3 \times 10^{-3}) \times (12.6 \times 10^{-3})^2$
(d) $(12.6 \times 10^{-3}) \times (12.6 \times 10^{-3})$

72. Which of the following cannot be hydrolysed
(a) A salt of weak acid and strong base
(b) A salt of strong acid and weak base
(c) A salt of weak acid and weak base
(d) A salt of strong acid and strong base

73. pH of water is 7. When a substance Y is dissolved in water, the pH becomes 13. The substance Y is a salt of
(a) Strong acid and strong base
(b) Weak acid and weak base
(c) Strong acid and weak base
(d) Weak acid and strong base

74. Which is a basic salt
(a) PbS
(b) $PbCO_3$
(c) $PbSO_4$
(d) $2PbCO_3.Pb(OH)_2$

75. The saturated solution of Ag_2SO_4 is $2.5 \times 10^{-2}M$. Its solubility product (K_{sp}) is
(a) 62.5×10^{-6}
(b) 6.25×10^{-4}
(c) 15.625×10^{-6}
(d) 3.125×10^{-6}

76. K_{sp} for sodium chloride is $36 mol^2/litre^2$. The solubility of sodium chloride is
(a) $\frac{1}{36}$ (b) $\frac{1}{6}$
(c) 6 (d) 3600

77. Sodium chloride is purified by passing hydrogen chloride gas in an impure solution of sodium chloride. It is based on
(a) Buffer action
(b) Common ion effect
(c) Association of salt
(d) Hydrolysis of salt

78. If the concentration of lead iodide in its saturated solution at 25^oC be 2×10^{-3} moles per litre, then its solubility product is
(a) 4×10^{-6} (b) 8×10^{-12}
(c) 6×10^{-9} (d) 32×10^{-9}

79. The precipitate of $CaF_2 (K_{sp} = 1.7 \times 10^{-10})$ is obtained when equal volumes of the following are mixed
(a) $10^{-4} M Ca^{2+} + 10^{-4} M F^-$
(b) $10^{-2} M Ca^{2+} + 10^{-3} M F^-$
(c) Both
(d) None of these

80. In the reaction: $H_2S \rightleftarrows 2H^+ + S^{--}$, when NH_4OH is added, then
(a) S^{--} is precipitate
(b) No action takes places
(c) Concentration of S^{--} decreases
(d) Concentration of S—increases