

CLASS XI CHE CH: 6

SET 3 –

- Solubility product (K_{sp}) is defined as –
 - Product of ionic concentrations at equilibrium
 - Sum of ionic concentrations
 - Ratio of ionic concentrations
 - None
- Solubility product applies to –
 - Sparingly soluble salts
 - Soluble salts
 - Insoluble solids only
 - None
- For $\text{AgCl} \rightleftharpoons \text{Ag}^+ + \text{Cl}^-$, the K_{sp} expression is –
 - $[\text{Ag}^+][\text{Cl}^-]$
 - $[\text{Ag}^+]/[\text{Cl}^-]$
 - $[\text{Cl}^-]/[\text{Ag}^+]$
 - $[\text{Ag}^+]^2$
- For $\text{BaSO}_4 \rightleftharpoons \text{Ba}^{2+} + \text{SO}_4^{2-}$, $K_{sp} =$
 - $[\text{Ba}^{2+}][\text{SO}_4^{2-}]$
 - $[\text{Ba}^{2+}]^2[\text{SO}_4^{2-}]$
 - $[\text{Ba}^{2+}][\text{SO}_4^{2-}]^2$
 - $[\text{Ba}^{2+}]/[\text{SO}_4^{2-}]$
- If solubility of AgCl is $s \text{ mol L}^{-1}$, then $K_{sp} =$
 - s^2
 - s
 - $2s$
 - $4s^2$
- If solubility of $\text{BaSO}_4 = s \text{ mol L}^{-1}$, then $K_{sp} =$
 - s^2
 - s^3
 - $2s^2$
 - s^4
- For $\text{PbCl}_2 \rightleftharpoons \text{Pb}^{2+} + 2\text{Cl}^-$, $K_{sp} =$
 - $4s^3$
 - s^2
 - $2s^3$
 - s^3
- If solubility of $\text{CaF}_2 = s$, then $K_{sp} =$
 - $4s^3$
 - s^3
 - $2s^2$
 - s^2
- The unit of K_{sp} depends on –
 - Number of ions produced

CLASS XI CHE CH: 6

- b) Molecular mass
 - c) Temperature
 - d) None
10. For a salt $AB_2 \rightleftharpoons A^{2+} + 2B^{-}$, number of ions =
- a) 3
 - b) 2
 - c) 1
 - d) 4
11. Greater the K_{sp} , –
- a) Greater the solubility
 - b) Lesser the solubility
 - c) Solubility unaffected
 - d) None
12. Common ion effect decreases –
- a) Solubility
 - b) K_{sp}
 - c) pH
 - d) Temperature
13. Common ion effect acts due to –
- a) Shift of equilibrium backward
 - b) Shift forward
 - c) Change in K_{sp}
 - d) None
14. Addition of NaCl decreases solubility of –
- a) AgCl
 - b) $BaSO_4$
 - c) $CaCO_3$
 - d) NH_4Cl
15. Addition of HCl decreases solubility of –
- a) $PbCl_2$
 - b) NaCl
 - c) NH_4Cl
 - d) KCl
16. Solubility of $BaSO_4$ increases in presence of –
- a) Dilute acid
 - b) Na_2SO_4
 - c) H_2SO_4
 - d) None
17. Solubility of AgCl increases in presence of –
- a) NH_3
 - b) HCl
 - c) NaCl
 - d) KCl
18. Formation of complex ions –
- a) Increases solubility

CLASS XI CHE CH: 6

- b) Decreases solubility
 - c) No effect
 - d) None
19. Example of complex ion formation increasing solubility –
- a) $\text{AgCl} + 2\text{NH}_3 \rightarrow [\text{Ag}(\text{NH}_3)_2]^+ + \text{Cl}^-$
 - b) $\text{AgCl} \rightarrow \text{Ag}^+ + \text{Cl}^-$
 - c) $\text{AgCl} + \text{NaCl} \rightarrow \text{Na}[\text{AgCl}_2]$
 - d) None
20. Solubility of $\text{Al}(\text{OH})_3$ increases in acid due to –
- a) Formation of Al^{3+}
 - b) Formation of complex
 - c) Common ion
 - d) None
21. Solubility of $\text{Mg}(\text{OH})_2$ increases in –
- a) Acidic solution
 - b) Basic solution
 - c) Neutral solution
 - d) None
22. Solubility of salts with basic anions increases in –
- a) Acidic medium
 - b) Basic medium
 - c) Neutral medium
 - d) None
23. The pH at which solubility of amphoteric hydroxide is minimum is called –
- a) pH of minimum solubility
 - b) Isoelectric pH
 - c) Neutral pH
 - d) None
24. For amphoteric hydroxides, solubility increases in –
- a) Both acid and base
 - b) Only acid
 - c) Only base
 - d) None
25. Solubility of $\text{Zn}(\text{OH})_2$ increases in –
- a) Both acid and base
 - b) Only acid
 - c) Only base
 - d) None
26. For the dissolution of salt MX in water, the equilibrium constant is –
- a) $K_{sp} = [\text{M}^+][\text{X}^-]$
 - b) $K_{sp} = [\text{M}^+]/[\text{X}^-]$
 - c) $K_{sp} = [\text{M}^+]^2[\text{X}^-]^2$
 - d) None
27. Solubility product expression depends on –
- a) Stoichiometry of salt

CLASS XI CHE CH: 6

- b) Molecular weight
 - c) Lattice energy
 - d) None
28. A saturated solution of sparingly soluble salt is –
- a) In dynamic equilibrium
 - b) In static equilibrium
 - c) Completely solid
 - d) None
29. K_{sp} of AgCl at 25°C is 1.0×10^{-10} , solubility (s) =
- a) $1.0 \times 10^{-5} \text{ M}$
 - b) $1.0 \times 10^{-10} \text{ M}$
 - c) $1.0 \times 10^{-2} \text{ M}$
 - d) $1.0 \times 10^{-7} \text{ M}$
30. K_{sp} of $\text{PbCl}_2 = 1.7 \times 10^{-5}$, solubility (s) =
- a) $(K_{sp}/4)^{(1/3)}$
 - b) $(K_{sp})^{1/2}$
 - c) $(K_{sp}/2)^{1/2}$
 - d) $(4K_{sp})^{1/3}$
31. The solubility of Ag_2SO_4 (s) is related to K_{sp} by –
- a) $K_{sp} = 4s^3$
 - b) $K_{sp} = s^2$
 - c) $K_{sp} = s^3$
 - d) $K_{sp} = 2s^2$
32. When two salts have a common ion, their solubilities –
- a) Decrease
 - b) Increase
 - c) Remain constant
 - d) None
33. K_{sp} of AgI = 1×10^{-16} , and AgCl = 1×10^{-10} , which is more soluble?
- a) AgCl
 - b) AgI
 - c) Both equal
 - d) None
34. Precipitation begins when –
- a) $Q_{sp} > K_{sp}$
 - b) $Q_{sp} < K_{sp}$
 - c) $Q_{sp} = K_{sp}$
 - d) None
35. If $Q_{sp} = K_{sp}$, the system is –
- a) Saturated
 - b) Unsaturated
 - c) Supersaturated
 - d) None
36. If $Q_{sp} < K_{sp}$, the solution is –
- a) Unsaturated

CLASS XI CHE CH: 6

- b) Supersaturated
 - c) Saturated
 - d) None
37. If $Q_{sp} > K_{sp}$, then –
- a) Precipitation occurs
 - b) Dissolution occurs
 - c) No change
 - d) None
38. For which salt will solubility decrease with pH increase?
- a) $Pb(OH)_2$
 - b) NaCl
 - c) KNO_3
 - d) $CaSO_4$
39. When H^+ increases, solubility of basic salt –
- a) Increases
 - b) Decreases
 - c) Constant
 - d) None
40. For acid salts like $CaSO_3$, solubility increases with –
- a) Decrease in pH
 - b) Increase in pH
 - c) Constant pH
 - d) None
41. Solubility product of $CaCO_3 = 3.36 \times 10^{-9}$, solubility (s) =
- a) $\sqrt{K_{sp}} = 1.83 \times 10^{-4} M$
 - b) $K_{sp} = 3.36 \times 10^{-4} M$
 - c) $2 \times 10^{-4} M$
 - d) None
42. The smaller the K_{sp} , the –
- a) Less soluble the salt
 - b) More soluble the salt
 - c) More dissociation
 - d) None
43. In presence of common ion, solubility –
- a) Decreases
 - b) Increases
 - c) Unaffected
 - d) None
44. In precipitation titration, the end point is reached when –
- a) $Q_{sp} = K_{sp}$
 - b) $Q_{sp} > K_{sp}$
 - c) $Q_{sp} < K_{sp}$
 - d) None
45. For a given temperature, K_{sp} –
- a) Constant

CLASS XI CHE CH: 6

- b) Variable
 - c) Changes with concentration
 - d) Changes with pressure
46. Solubility product is a special case of –
- a) Equilibrium constant
 - b) Rate constant
 - c) Reaction quotient
 - d) Ionic product
47. Precipitation occurs when ionic product –
- a) Exceeds K_{sp}
 - b) Is less than K_{sp}
 - c) Equals K_{sp}
 - d) None
48. A solution just saturated with salt contains ions in –
- a) Dynamic equilibrium
 - b) Static state
 - c) Both ions zero
 - d) None
49. Common ion effect is used in –
- a) Salt analysis
 - b) Electrolysis
 - c) Combustion
 - d) Polymerisation
50. The solubility of CaF_2 increases with addition of –
- a) NH_4F
 - b) HCl
 - c) NaF
 - d) NaOH

1-a	2-a	3-a	4-a	5-a	6-a	7-a	8-a	9-a	10-a
11-a	12-a	13-a	14-a	15-a	16-a	17-a	18-a	19-a	20-a
21-a	22-a	23-b	24-a	25-a	26-a	27-a	28-a	29-a	30-a
31-a	32-a	33-a	34-a	35-a	36-a	37-a	38-a	39-a	40-a
41-a	42-a	43-a	44-a	45-a	46-a	47-a	48-a	49-a	50-b