

Quiz: Ionic Equilibrium 1

Q1: For a weak acid HA, the dissociation constant K_a is related to degree of dissociation alpha and initial concentration C by:

- A) $K_a = \text{C}\alpha$
- B) $K_a = \text{C}\alpha^2$
- C) $K_a = \frac{\text{C}\alpha^2}{1-\alpha}$
- D) $K_a = \frac{\alpha}{\text{C}(1-\alpha)}$

Q2: The pH of a 0.01 M strong acid solution is:

- A) 1
- B) 2
- C) 3
- D) 4

Q3: Which of the following is a conjugate base?

- A) HCl
- B) NH₄⁺
- C) CH₃COO⁻
- D) H₂SO₄

Q4: The pH of pure water at 25 degC is 7 because:

- A) $[\text{H}^+] = 1$
- B) $K_w = 1$
- C) $[\text{H}^+] = 10^{-7}$
- D) $K_a = K_b$

Q5: For a weak acid, dilution will:

- A) Decrease degree of dissociation
- B) Increase degree of dissociation
- C) Not affect dissociation
- D) Stop dissociation

Q6: Which salt will give acidic solution in water?

- A) NaCl
- B) NH₄Cl
- C) CH₃COONa
- D) KCl

Q7: The pH of a 0.1 M NaOH solution is:

- A) 1
- B) 7
- C) 13
- D) 14

Q8: Which of the following is the strongest acid?

- A) CH₃COOH
- B) H₂CO₃
- C) HCl
- D) HF

Q9: The ionization constant of water K_w at 25 degC is:

- A) 10⁻⁷
- B) 10⁻¹⁴
- C) 10⁻²¹
- D) 10⁻¹

Q10: Which of the following solutions will have pH > 7?

- A) NH₄Cl
- B) CH₃COONa
- C) NaCl
- D) HCl

Q11: For a weak base BOH, the relation between K_b, degree of dissociation alpha and concentration C is:

- A) K_b=C α
- B) K_b=\frac{C\alpha^2}{1-\alpha}
- C) K_b=\frac{\alpha}{C}
- D) K_b=\alpha^2

Q12: The pH of a solution with [H⁺]=3.16x10⁻⁵ M is approximately:

- A) 3
- B) 4
- C) 5
- D) 6

Q13: Which salt undergoes basic hydrolysis?

- A) NaCl
- B) KNO₃
- C) NH₄Cl
- D) CH₃COONa

Q14: For a buffer solution, addition of small amount of acid will:

- A) Change pH drastically
- B) Increase pH
- C) Decrease pH slightly
- D) Not change pH at all

Q15: Which of the following is a buffer solution?

- A) HCl + NaCl
- B) CH₃COOH + CH₃COONa
- C) NaOH + NaCl
- D) HCl + NaOH

Q16: The Henderson-Hasselbalch equation is:

- A) $\text{pH} = \text{pK}_a + \log \frac{[\text{salt}]}{[\text{acid}]}$
- B) $\text{pH} = \text{pK}_b + \log \frac{[\text{acid}]}{[\text{salt}]}$
- C) $\text{pH} = 14 - \text{pOH}$
- D) $\text{pH} = -\log K_a$

Q17: The pH of a buffer is equal to pKa when:

- A) $[\text{acid}] = [\text{salt}]$
- B) $[\text{acid}] > [\text{salt}]$
- C) $[\text{acid}] < [\text{salt}]$
- D) $K_a = K_b$

Q18: Which of the following has maximum acidic strength?

- A) HF
- B) HCl
- C) HBr
- D) HI

Q19: The pH of 0.01 M acetic acid ($K_a = 1.8 \times 10^{-5}$) is approximately:

- A) 2.9
- B) 3.0
- C) 3.4
- D) 4.0

Q20: Which species acts as both acid and base?

- A) HCl
- B) NH₃
- C) H₂O
- D) NaOH

Q21: The common ion effect is suppression of:

- A) Strong electrolyte dissociation
- B) Weak electrolyte dissociation
- C) Hydrolysis
- D) Buffer action

Q22: For salt of weak acid and strong base, the pH depends on:

- A) K_a
- B) K_b
- C) K_w
- D) K_a and concentration

Q23: Which of the following has highest pH?

- A) 0.1 M HCl
- B) 0.1 M NaOH
- C) 0.1 M NH₄Cl
- D) 0.1 M CH₃COOH

Q24: The pOH of a solution with pH = 4 is:

- A) 4
- B) 6
- C) 10
- D) 14

Q25: Which ion undergoes hydrolysis?

- A) Na^+
- B) Cl^-
- C) NH_4^+
- D) K^+

Q26: For a salt of weak base and strong acid, the solution is:

- A) Neutral
- B) Basic
- C) Acidic
- D) Buffer

Q27: The pH of a neutral salt solution at 25 degC is:

- A) 0
- B) 7
- C) 14
- D) Depends on salt

Q28: Which equilibrium constant represents acid strength?

- A) K_b
- B) K_w
- C) K_a
- D) K_c

Q29: The conjugate acid of NH₃ is:

- A) NH_2^-
- B) NH_4^+
- C) N_3^-
- D) NO_3^-

Q30: Which of the following is not a buffer?

- A) $\text{NH}_3 + \text{NH}_4\text{Cl}$
- B) $\text{CH}_3\text{COOH} + \text{CH}_3\text{COONa}$
- C) $\text{HCl} + \text{NaCl}$
- D) $\text{H}_2\text{CO}_3 + \text{NaHCO}_3$

Q31: The pH of a solution increases on dilution if it is:

- A) Acidic
- B) Basic
- C) Neutral
- D) Buffer

Q32: Which of the following acids is weakest?

- A) HCl
- B) HNO₃
- C) CH₃COOH
- D) H₂SO₄

Q33: For buffer solution, maximum buffering action occurs when:

- A) pH=pK_a
- B) pH>pK_a
- C) pH<pK_a
- D) K_a=K_b

Q34: The pH of 0.1 M NH₄OH (K_b=1.8x10⁻⁵) is approximately:

- A) 9.0
- B) 9.6
- C) 10.0
- D) 11.0

Q35: Which of the following salts will have pH = 7?

- A) NH₄Cl
- B) CH₃COONa
- C) NaCl
- D) Na₂CO₃

Q36: The pH range of acidic buffer is:

- A) Below 7
- B) Above 7
- C) Equal to 7
- D) Any value

Q37: Which of the following increases K_w of water?

- A) Decrease temperature
- B) Increase temperature
- C) Add acid
- D) Add base

Q38: Which expression represents hydrolysis constant K_h for salt of weak acid and strong base?

- A) K_h=\frac{K_w}{K_a}
- B) K_h=\frac{K_w}{K_b}
- C) K_h=K_aK_b
- D) K_h=K_w

Q39: Which solution will have lowest pH?

- A) 0.1 M HCl
- B) 0.1 M CH₃COOH
- C) 0.1 M NH₄Cl
- D) 0.1 M NaCl

Q40: The conjugate base of H₂SO₄ is:

- A) SO₄²⁻
- B) HSO₄⁻
- C) H₃SO₄⁺
- D) S²⁻

Q41: The pH of a 0.001 M solution of a strong monoprotic acid is:

- A) 1
- B) 2
- C) 3
- D) 4

Q42: For a weak acid HA, if K_a = 10⁻⁵, the value of pK_a is:

- A) 2
- B) 3
- C) 5
- D) 7

Q43: Which of the following pairs forms a basic buffer?

- A) NH₄Cl + NH₄OH
- B) CH₃COOH + CH₃COONa
- C) HCl + NaCl
- D) H₂SO₄ + Na₂SO₄

Q44: The pH of a solution increases on dilution if the solution is initially:

- A) Strongly acidic
- B) Weakly acidic
- C) Strongly basic
- D) Neutral

Q45: For the salt NH₄Cl, the hydrolysis constant K_h is related to:

- A) K_w/K_b
- B) K_w/K_a
- C) K_a/K_w
- D) K_b/K_w

Q46: The pH of 0.01 M HCl solution after adding equal volume of water will be:

- A) 1
- B) 1.5
- C) 2
- D) 3

Q47: Which of the following acids has highest K_a value?

- A) HF
- B) HNO₃
- C) CH₃COOH
- D) H₂CO₃

Q48: The pH of a buffer solution does NOT change appreciably on addition of small amount of:

- A) Strong acid
- B) Strong base
- C) Water
- D) All of these

Q49: For a weak base, degree of ionization increases on:

- A) Increase in concentration
- B) Dilution
- C) Addition of common ion
- D) Decrease in temperature

Q50: Which ion does NOT undergo hydrolysis in water?

- A) Al³⁺
- B) NH⁴⁺
- C) Cl⁻
- D) CO₃²⁻

Q51: The pH of a 0.01 M Na₂CO₃ solution will be:

- A) <7
- B) =7
- C) >7
- D) ~=7

Q52: For a weak acid buffer, the pH is given by:

- A) $pH = pK_b + \log \frac{[salt]}{[base]}$
- B) $pH = pK_a + \log \frac{[salt]}{[acid]}$
- C) pH=7
- D) pH=-log K_a

Q53: Which of the following will increase the pH of an acidic buffer?

- A) Adding acid
- B) Adding salt
- C) Adding base
- D) Adding water

Q54: For salt of weak acid and weak base, pH depends on:

- A) K_a only
- B) K_b only
- C) K_a and K_b
- D) K_w only

Q55: The pH of a solution containing equal concentrations of NH₄OH and NH₄Cl is:

- A) <7
- B) >7
- C) =7
- D) Cannot be predicted

Q56: Which of the following expressions is correct for K_w ?

- A) $[H^+, OH^-]$
- B) $[H^+]$
- C) $[OH^-]$
- D) $[H_2O]$

Q57: Which acid has maximum conjugate base strength?

- A) HCl
- B) HNO₃
- C) HF
- D) H₂SO₄

Q58: For a buffer, maximum resistance to pH change is observed when:

- A) [salt] > [acid]
- B) [acid] > [salt]
- C) [acid]=[salt]
- D) K_a is large

Q59: The pH of a 0.1 M solution of CH₃COONa will be:

- A) <7
- B) =7
- C) >7
- D) ~=7

Q60: Which factor increases dissociation of a weak acid?

- A) Addition of strong acid
- B) Addition of salt
- C) Dilution
- D) Decrease in temperature

Q61: The pH of a solution having pOH=5 is:

- A) 5
- B) 7
- C) 9
- D) 14

Q62: Which of the following statements is correct?

- A) Strong acids have small K_a
- B) Weak acids have large K_a
- C) $K_a K_b = K_w$ for conjugate pair
- D) K_w depends on concentration

Q63: The pH of distilled water at 25 degC is 7 due to:

- A) $K_w=1$
- B) $[H^+]=10^{-7}$
- C) $[OH^-]=10^{-7}$
- D) Both $[H^+]$ and $[OH^-]$ equal

Q64: Which of the following has the highest buffering capacity?

- A) Dilute buffer
- B) Concentrated buffer
- C) Neutral solution
- D) Pure acid

Q65: Which salt gives acidic solution due to cation hydrolysis?

- A) NaCl
- B) KNO₃
- C) AlCl₃
- D) CH₃COONa

Q66: The pH of a solution decreases when:

- A) [H⁺] decreases
- B) [OH⁻] increases
- C) [H⁺] increases
- D) K_w decreases

Q67: Which of the following solutions will have pH closest to 7?

- A) 0.1 M HCl
- B) 0.1 M NaOH
- C) 0.1 M NaCl
- D) 0.1 M NH₄Cl

Q68: The pH of a solution depends directly on:

- A) [OH⁻]
- B) [H⁺]
- C) K_a
- D) K_b

Q69: Which of the following acids is diprotic?

- A) HCl
- B) HNO₃
- C) H₂SO₄
- D) CH₃COOH

Q70: Which solution will show maximum common ion effect?

- A) HCl + NaCl
- B) CH₃COOH + CH₃COONa
- C) NaOH + NaCl
- D) NH₄OH + NaCl

Q71: The pH of 0.001 M NaOH solution is:

- A) 9
- B) 10
- C) 11
- D) 12

Q72: Which of the following has minimum $[H^+]$ concentration?

- A) pH 3
- B) pH 5
- C) pH 7
- D) pH 9

Q73: For a salt of weak acid and strong base, the solution is:

- A) Acidic
- B) Neutral
- C) Basic
- D) Buffer

Q74: Which species acts as Bronsted-Lowry acid?

- A) NH₃
- B) OH⁻
- C) H₂O
- D) Cl⁻

Q75: The pH of a solution containing $[OH^-]=10^{-6}$ M is:

- A) 6
- B) 7
- C) 8
- D) 10

Q76: Which of the following acids has smallest pK_a value?

- A) HF
- B) HCl
- C) H₂CO₃
- D) CH₃COOH

Q77: Which salt gives basic solution due to anion hydrolysis?

- A) NH₄Cl
- B) NaCl
- C) CH₃COONa
- D) KNO₃

Q78: For a buffer solution, dilution will:

- A) Change pH drastically
- B) Increase pH
- C) Decrease pH
- D) Have negligible effect on pH

Q79: The pH of a solution becomes zero when:

- A) $[H^+]=1$
- B) $[H^+]=10^{-7}$
- C) $[OH^-]=1$
- D) $K_w=1$

Q80: Which statement about pH scale is correct?

- A) It is linear
- B) It is logarithmic
- C) It depends on temperature only
- D) It is always between 0 and 14

Q81: The pH of a 0.02 M solution of a strong monoprotic acid is:

- A) 1.7
- B) 2.0
- C) 2.3
- D) 3.0

Q82: For a weak acid HA, if $K_a=1.0 \times 10^{-4}$ and concentration is 0.1 M, the degree of dissociation alpha is approximately:

- A) 0.01
- B) 0.03
- C) 0.1
- D) 0.3

Q83: The conjugate base of HCO_3^- is:

- A) H_2CO_3
- B) CO_3^{2-}
- C) $\text{H}_3\text{CO}_3^{+}$
- D) OH^-

Q84: Which of the following solutions will have the highest pH?

- A) 0.01 M NaOH
- B) 0.1 M NaOH
- C) 0.01 M NH₄OH
- D) 0.1 M NH₄OH

Q85: For the salt of weak acid and weak base, the pH of solution is determined by:

- A) K_a only
- B) K_b only
- C) K_a and K_b
- D) K_w only

Q86: The pH of a 0.01 M solution of NH₄Cl (K_b for NH₄OH = 1.8×10^{-5}) is approximately:

- A) 4.6
- B) 5.1
- C) 5.6
- D) 6.0

Q87: Which of the following is a conjugate acid-base pair?

- A) NH₃/NH₄⁺
- B) HCl/NaCl
- C) H₂SO₄/Na₂SO₄
- D) NaOH/NaCl

Q88: The pH of 0.1 M acetic acid ($K_a=1.8\times 10^{-5}$) is approximately:

- A) 2.4
- B) 2.9
- C) 3.0
- D) 3.4

Q89: Which of the following statements about buffers is correct?

- A) Buffer resists pH change on large addition of acid
- B) Buffer resists pH change on small addition of acid or base
- C) Buffer has pH = 7 always
- D) Buffer works only for acids

Q90: The pH of a solution containing $[H^+]=1.0\times 10^{-8} M$ is:

- A) 6
- B) 7
- C) 8
- D) 9

Q91: Which salt will produce a basic solution in water?

- A) NaCl
- B) NH₄NO₃
- C) Na₂CO₃
- D) KCl

Q92: For the equilibrium $H_2O \rightleftharpoons H^+ + OH^-$, increasing temperature will:

- A) Decrease K_w
- B) Increase K_w
- C) Not affect K_w
- D) Make $K_w=1$

Q93: Which of the following has the strongest conjugate acid?

- A) Cl⁻
- B) CH₃COO⁻
- C) F⁻
- D) NO₃⁻

Q94: The common ion effect is best illustrated by:

- A) Decrease in solubility of AgCl in NaCl solution
- B) Increase in solubility of AgCl in NaCl solution
- C) Increase in pH of water on dilution
- D) Hydrolysis of salts

Q95: For a buffer with [acid]=0.2 M and [salt]=0.02 M, the pH relative to pK_a is:

- A) Equal to pK_a
- B) Greater than pK_a
- C) Less than pK_a
- D) Independent of pK_a

Q96: Which of the following ions acts as a Lewis acid in water?

- A) Na^+
- B) K^+
- C) Al^{3+}
- D) Cl^-

Q97: The pH of a solution decreases by one unit means $[\text{H}^+]$ becomes:

- A) 10 times smaller
- B) 10 times larger
- C) 2 times larger
- D) 2 times smaller

Q98: For a weak base B, if $K_b=10^{-5}$, then pK_b is:

- A) 2
- B) 3
- C) 5
- D) 7

Q99: Which of the following will have minimum buffering capacity?

- A) 0.1 M buffer
- B) 0.01 M buffer
- C) 0.5 M buffer
- D) 1.0 M buffer

Q100: The pH of a solution containing equal concentrations of CH_3COOH and CH_3COONa is:

- A) 7
- B) pK_a
- C) pK_b
- D) 14

Q101: Which of the following species can act as both acid and base?

- A) HCl
- B) NH_3
- C) H_2O
- D) NaOH

Q102: The pH of a 0.001 M solution of NH_4OH ($K_b=1.8 \times 10^{-5}$) is approximately:

- A) 9.0
- B) 9.6
- C) 10.1
- D) 11.0

Q103: Which of the following solutions will show no hydrolysis?

- A) NaCl
- B) NH_4Cl
- C) CH_3COONa
- D) AlCl_3

Q104: The pH of a solution becomes acidic if:

- A) $[H^+] = [OH^-]$
- B) $[H^+] > [OH^-]$
- C) $[H^+] < [OH^-]$
- D) $K_w = 10^{-14}$

Q105: For a salt of weak acid and strong base, the hydrolysis constant is:

- A) $K_h = K_w / K_a$
- B) $K_h = K_w / K_b$
- C) $K_h = K_a K_b$
- D) $K_h = K_w$

Q106: Which acid has the highest pK_a value?

- A) HCl
- B) HNO₃
- C) CH₃COOH
- D) H₂SO₄

Q107: The pH of 0.1 M NaHCO₃ solution will be:

- A) < 7
- B) $= 7$
- C) > 7
- D) ~ 7

Q108: Which of the following will increase the pH of pure water?

- A) Adding HCl
- B) Adding NaOH
- C) Adding NaCl
- D) Cooling the water

Q109: The pH scale is logarithmic, meaning:

- A) Equal pH change means equal $[H^+]$ change
- B) pH change of 1 means tenfold change in $[H^+]$
- C) pH is proportional to $[H^+]$
- D) pH is independent of $[H^+]$

Q110: Which of the following will have maximum $[OH^-]$ concentration?

- A) pH 9
- B) pH 10
- C) pH 11
- D) pH 12

Q111: For a weak acid solution, K_a can be expressed as:

- A) $\frac{[H^+, A^-]}{[HA]}$
- B) $\frac{[HA]}{[H^+, A^-]}$
- C) $[H^+, OH^-]$
- D) $\frac{[A^-]}{[HA]}$

Q112: Which of the following statements is true?

- A) Strong acids have high pK_a
- B) Weak acids have low pK_a
- C) Strong acids have low pK_a
- D) pK_a is independent of acid strength

Q113: The pH of a solution containing $[OH^-] = 1.0 \times 10^{-3} M$ is:

- A) 10
- B) 11
- C) 12
- D) 13

Q114: Which salt will have pH less than 7?

- A) Na_2CO_3
- B) NH_4Cl
- C) CH_3COONa
- D) $NaCl$

Q115: For a buffer solution, addition of common ion will:

- A) Destroy buffer action
- B) Increase buffer capacity
- C) Not affect pH significantly
- D) Make solution neutral

Q116: The pH of a 0.1 M solution of H_2SO_4 (first dissociation complete, second neglected) is:

- A) 0.7
- B) 1.0
- C) 1.3
- D) 2.0

Q117: Which of the following will have pH exactly equal to 7 at 25 degC?

- A) Pure water
- B) 0.01 M NaCl
- C) Both A and B
- D) 0.01 M HCl

Q118: The species that increases pH on addition to water is:

- A) HCl
- B) NH_4Cl
- C) Na_2CO_3
- D) CO_2

Q119: For an acidic buffer, the pH range of effective buffering is approximately:

- A) $pK_a \pm 0.5$
- B) $pK_a \pm 1$
- C) $pK_a \pm 2$
- D) $pK_a \pm 3$

Q120: Which factor does NOT affect the pH of an aqueous solution?

- A) Temperature
- B) Nature of solute
- C) Concentration of solute
- D) Amount of solvent taken

Q121: The solubility product constant K_{sp} of AgCl is 1.8×10^{-10} . The solubility of AgCl in pure water (in mol L⁻¹) is approximately:

- A) 1.8×10^{-10}
- B) 1.34×10^{-5}
- C) 1.8×10^{-5}
- D) 1.34×10^{-10}

Q122: Which salt will have minimum solubility in presence of 0.1 M AgNO₃?

- A) AgCl
- B) AgBr
- C) AgI
- D) AgF

Q123: If K_{sp} of BaSO₄ is 1.1×10^{-10} , its solubility in 0.1 M Na₂SO₄ is approximately:

- A) 1.1×10^{-10}
- B) 1.1×10^{-9}
- C) 1.1×10^{-11}
- D) 1.1×10^{-12}

Q124: Which condition favors precipitation of a sparingly soluble salt?

- A) $Q < K_{sp}$
- B) $Q = K_{sp}$
- C) $Q > K_{sp}$
- D) K_{sp} very large

Q125: The solubility of CaF₂ increases in presence of:

- A) NaF
- B) CaCl₂
- C) HCl
- D) NaCl

Q126: For salt MX₂ with solubility s, the solubility product is:

- A) $4s^3$
- B) s^2
- C) $2s^2$
- D) s^3

Q127: Which of the following has highest solubility in water?

- A) AgCl
- B) AgBr
- C) AgI
- D) AgNO₃

Q128: If ionic product is less than K_{sp} , the solution is:

- A) Saturated
- B) Supersaturated
- C) Unsaturated
- D) Precipitated

Q129: The solubility of AgCl in presence of NH₃ increases due to formation of:

- A) AgOH
- B) $[Ag(NH_3)_2]^+$
- C) AgNH₂
- D) Ag₂O

Q130: Which of the following is used for selective precipitation of cations?

- A) Common ion effect
- B) Buffer action
- C) Complex formation
- D) Hydrolysis

Q131: The solubility of Mg(OH)₂ decreases in presence of:

- A) NH₄Cl
- B) HCl
- C) NaOH
- D) NaCl

Q132: For salt AB, if solubility is s, then K^{sp} equals:

- A) s
- B) s^2
- C) $2s$
- D) $4s^2$

Q133: Which of the following will NOT affect solubility of a sparingly soluble salt?

- A) Common ion
- B) pH
- C) Temperature
- D) Catalyst

Q134: The precipitation of AgCl will start when:

- A) $[Ag^+, Cl^-] = K_{sp}$
- B) $[Ag^+, Cl^-] > K_{sp}$
- C) $[Ag^+, Cl^-] < K_{sp}$
- D) $K_{sp} = 0$

Q135: The solubility of CaCO₃ increases in acidic medium because:

- A) Ca²⁺ reacts
- B) CO₃²⁻ reacts with H⁺
- C) K_{sp} increases
- D) Common ion effect

Q136: Which salt shows maximum common ion effect on AgCl solubility?

- A) NaCl
- B) NaNO₃
- C) KNO₃
- D) NH₄NO₃

Q137: If K_{sp} of PbI₂ is 7.1×10^{-9} , the solubility (s) is approximately:

- A) 1.3×10^{-3}
- B) 1.3×10^{-2}
- C) 7.1×10^{-9}
- D) 2.6×10^{-3}

Q138: Which of the following is correct regarding K_{sp} ?

- A) Depends on concentration
- B) Depends on temperature
- C) Depends on common ion
- D) Depends on pH

Q139: The solubility of Al(OH)₃ increases in presence of:

- A) NaOH
- B) HCl
- C) NaCl
- D) NH₄Cl

Q140: Which of the following will precipitate first when Cl⁻ is added gradually?

- A) AgCl
- B) PbCl₂
- C) Hg₂Cl₂
- D) NaCl

Q141: For selective precipitation, which salt is precipitated first?

- A) Higher K_{sp}
- B) Lower K_{sp}
- C) Higher solubility
- D) Lower molar mass

Q142: Which of the following salts has highest K_{sp} ?

- A) AgCl
- B) AgBr
- C) AgI
- D) AgF

Q143: If solubility of a salt increases, its K_{sp} :

- A) Always increases
- B) Always decreases
- C) May increase or decrease
- D) Remains constant at same temperature

Q144: Which factor does NOT affect solubility of a sparingly soluble salt?

- A) Common ion
- B) pH
- C) Complex formation
- D) Catalyst

Q145: The solubility of Ag₂CrO₄ decreases in presence of:

- A) NaNO₃
- B) K₂CrO₄
- C) NH₃
- D) HNO₃

Q146: Which statement is correct?

- A) High K_{sp} means low solubility
- B) Low K_{sp} means low solubility
- C) K_{sp} depends on concentration
- D) K_{sp} changes with dilution

Q147: The solubility of ZnS increases in presence of:

- A) Na₂S
- B) HCl
- C) NaCl
- D) ZnCl₂

Q148: Which salt will NOT show common ion effect with BaSO₄?

- A) Na₂SO₄
- B) K₂SO₄
- C) BaCl₂
- D) NaNO₃

Q149: If Q=K_{sp} for a salt solution, the solution is:

- A) Unsaturated
- B) Supersaturated
- C) Saturated
- D) Precipitated

Q150: Which of the following will increase solubility of AgCl?

- A) NaCl
- B) HCl
- C) NH₃
- D) AgNO₃

Q151: The solubility of Fe(OH)₃ is minimum at:

- A) Low pH
- B) High pH
- C) Neutral pH
- D) All pH

Q152: Which of the following salts is least soluble?

- A) AgCl
- B) AgBr
- C) AgI
- D) AgF

Q153: For salt M₃X₂, if solubility is s, then K_{sp} is:

- A) s⁵
- B) 36s⁵
- C) 4s³
- D) 27s⁵

Q154: Which of the following is true for selective precipitation?

- A) Higher solubility precipitates first
- B) Lower K_{sp} precipitates first
- C) Higher K_{sp} precipitates first
- D) All precipitate together

Q155: The solubility of AgCl decreases on adding:

- A) NH₃
- B) NaCl
- C) HNO₃
- D) NaNO₃

Q156: Which of the following salts will dissolve more in acidic medium?

- A) AgCl
- B) BaSO₄
- C) CaCO₃
- D) NaCl

Q157: The solubility product of a salt is numerically equal to:

- A) Solubility
- B) Ionic product at equilibrium
- C) Degree of dissociation
- D) Molar mass

Q158: Which of the following does NOT increase solubility of a salt?

- A) Complex formation
- B) pH change
- C) Common ion addition
- D) Temperature increase

Q159: For salt MX, precipitation will start when:

- A) Q>K_{sp}
- B) Q<K_{sp}
- C) Q=0
- D) K_{sp}=0

Q160: Which of the following statements about K_{sp} is correct?

- A) It changes with dilution
- B) It changes with common ion
- C) It depends on temperature
- D) It depends on initial concentration