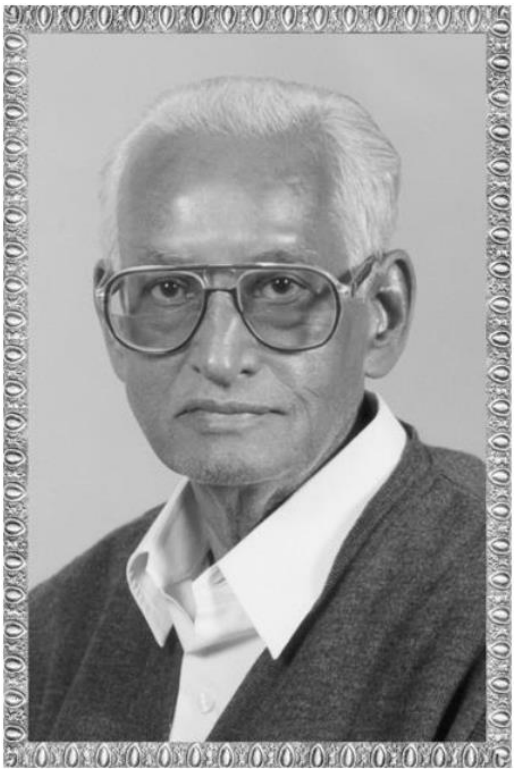

Lt. Shree Cimanbhai Shukla

B. Sc. Chemistry Semester-2 – Chapter-1,2,3,4,7

Question bank

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Questions for One mark

1. What is lattice energy?
2. What is coordination number?
3. Give the max born equation for lattice energy.
4. What is radius ratio?
5. What is geometry of coordination number 6?
6. Give the types of lattice defect.
7. What is point defect?
8. What is stoichiometric defect?
9. What is Non-stoichiometric defect?
10. What is Frenkle defect?
11. What is semiconductor?
12. What is p-type conductor?
13. Define Shottky defect
14. Give the example of AB type crystal.
15. Define Isomerism.
16. Define Ionization isomerism.
17. Define Geometrical isomerism.
18. What is cis-isomer?
19. What is trans isomer?
20. What is optical isomerism?
21. Give any one example of ionization isomerism.
22. What is stereo-isomer?
23. Define: Crystal.
24. What is Crystallography?
25. Explain unit cell.
26. Explain Millar Indices.
27. Discuss Space Lattice in short
28. Discuss Bravais Lattice.
29. Define: Isotropic and Anisotropic.
30. What is crystalline solid?
31. What is amorphous solid?
32. Define: Miller indices.
33. Give only main types of cubic lattice
34. Define Electrolyte
35. Define Degree of dissociation
36. Who was projected pH scale?
37. What is the pH equation?
38. Give the equation of relation between Ka & Kb.
39. Give the statement of common ion effect principle.
40. What is solubility product?
41. What is the Henderson equation?
42. What is meant by pH of a solution? A solution has a pH = 6. Is it acidic or alkaline?

Fill the Blanks

43. When a salt is added to a solution of another salt having a common ion, the degree of dissociation is……...(decreases)
44. The solubility (s) of a substance in a solvent is the concentration in …….solution (saturated).
45. Molar solubility is the number of ……of the substance per litre of the solution.(moles)
46. What is the solubility product of ……..is given by the expression? Ksp = [Ag] [Cl] (AgC1)
47. The product of concentration of ions (mol lit-1) in the saturated solution at a given temperature is called……..(solubility)
48. The precipitation of a salt takes place if its ionic product is greater than it's……... (Solubility product)
49. A solution is unsaturated if its ionic product …… Ksp. (<)
50. When NH4C1 is added to NH4OH solution, the dissociation of NH4OH is suppressed. It is due to……. (Common ion effect)

Questions for Two and Three mark

1. Explain Shottky defect.
2. Explain structure of fluorite.
3. Derive the radius ratio for the triangular planner.
4. What is limiting radius ratio? Give usefulness of limiting radius ratio.
5. Write note on n-type semi-conductor.
6. Explain two dimensional close packing structures.
7. Explain anti fluorite structure.
8. Derive the max-Born equation for calculation of lattice energy.
9. Derive the radius ratio for the Body centered cubic lattice.
10. Derive the eir- ratio for the tetrahedral.
11. Explain three dimensional close packing structures.
12. Explain covering of octahedral and tetrahedral void.
13. Explain metal excess defect briefly.
14. Explain extrinsic semi-conductor.
15. Explain ionization isomerism with example.
16. Explain co-ordination isomerism with example.
17. Explain hydration (hydrate) isomerism with example.
18. Explain polymerization isomerism with example.
19. Explain co-ordination position isomerism with example.
20. Explain Geometrical isomerism in 4 — coordinate complex compound.
21. Explain factors affecting on degree of dissociation.
22. Give explanation on Common ion effect.
23. Explain Applications of solubility product principle.
24. Derive Henderson-Hasselbalch equation for buffer solution.
25. Explain types of buffer solution. Write short note on,

(i) The pH Scale (ii) Buffer solution

26. Derive equation for,

(i) The Ionization Constant of Water and its Ionic Product (ii) Ionization Constants of Weak Acid (iii)Ionization Constants of Weak Base (iv) Relation between 1 and Kb

27. Calculate Relation between Kh, Kw and Ka for,

(i) Salt of weak acid and strong base (ii) Salt of strong acid and weak base (iii)Salt of weak acid and weak base

28. Calculate Relation between Kb and degree of hydrolysis (a) for
    (i) Salt of weak acid and strong base (ii) Salt of strong acid and weak base
    (iii)Salt of weak acid and weak base
29. Define and explain ionic product of water.
30. Explain Types of electrolytes.
31. Describe degree of dissociation.
32. Define: Saturated solution and solubility.
33. Characterize the terms 'Solubility' and 'Solubility product'.
34. Give the relation between ionic product and solubility product for precipitation of sparingly soluble salt.
35. Provide examples of salt of strong acid & strong base, and what is the pH of their?
36. Give the examples of salt of strong acid & weak base, and weak acid & strong base.
37. Provide equations for dissociation constant of weak acid and weak base.
38. Give, the examples of acidic and basic buffer solutions.
39. Explain about buffer capacity.
40. State the principle of solubility product. How the solubility of a salt is is affected by the presence of a common ion?

Questions for Five marks

1. Explain characteristics of Ionic Solid.
2. Explain Born Haber cycle briefly.
3. Explain AB Type crystal solids with example.
4. Write note on semi-conductors.
5. Explain stoichiometric defect in crystal lattice.
6. Explain Geometrical isomerism in 4-coordinate complex compounds.
7. Explain Geometrical isomerism in 6-coordinate complex compounds (Octahedral complexes).
8. Explain Optical isomerism in 6-coordinate complex compounds (Octahedral complexes).
9. Explain with example (a) ionization isomerism (b) polymerization isomerism.
10. Describe hydration (hydrate) isomerism and co-ordination position isomerism with example.
11. Give details on Solubility and solubility products salts.
12. Give the mechanism of buffer solution. -5
13. Derive the equation for the pH of acidic and basic buffer solo
14. Calculate Relation between Kb, Kw and L, Relation between of hydrolysis (a) and pH for Salt of weak acid and strong has
15. Relation between Kb, Kw and L. Relation between of hydrolysis (a) and pH for Salt of strong acid and weak base
16. Calculate Relation between Kb, Kw and Kb, Relation between of hydrolysis (a) and pH for Salt of weak acid and weak base
17. Explain the use of solubility product in qualitative analysis.
18. Explain any two applications of common ion effect.