CHALLENGE TUITION CENTRE

CHEMISTRY IMPORTANCE

12 STANDARD

QUARTERLY PORTION

➢ DETAILS

1. Explain zone refining process.
2. Explain the electrometallurgy of aluminium
3. Write about van-Arkle method for refining zirconium
4. Explain froth floatation
5. Describe a structure of diborane
6. Explain the type of ciliates
7. Write the molecular and structural formulas of the following a) nitric acid b) dinitrogen c) phosphoric acid
8. Compare lanthanide and actinide
9. Draw the structure of chromate ion and dichromate ion
10. What is Zeigler Natta catalyst giving a reaction in which it catalysis?
11. Differentiate crystalline solids and amorphous solids
12. Explain Schottky defects and Frankel defect
13. Calculate the percentage efficiency of packing in case of body cantered cubic crystal.
14. What are the characters of ionic crystal
15. Describe the construction of Daniel cell. Write the cell reaction.
16. The conductivity of a 0.01M solution of a 1 :1 weak electrolyte at 298K is 1.5 ×10 -4 S cm −1 . i) molar conductivity of the solution ii) degree of dissociation and the dissociation constant of the weak electrolyte Given that λ□ cation=248.2 S cm 2 mol-1 λ □ anion = 51.8 S cm 2mol-1
17. Derive an expression for Nernst equation
18. write short note on Luca's test?
19. Explain about victor Mayer test. 3.Explain about say Zeff's rule
20. A compound (A) with molecular formula C2H3N on acid hydrolysis gives (B) which reacts
21. with thionyl chloride to give compound (c). Benzene reacts with compound (C) in presence
22. of anhydrous AlCl3 to give compound (D). Compound (D) on reduction with Zn-Hg Con HCl
23. gives (E). Identity (A), (B), (C), (D) and (E) Write the equations
24. How will you prepare
    - (i) Acetic anhydride from acetic acid
    - (ii) Ethyl acetate from methyl acetate
    - (iii) Acetamide from methyl cyanide
    - (iv) Lactic acid from ethanol
    - (v) Acetophenone from acetyl chloride
25. How will you prepare (i) Ethane from sodium acetate

(ii) Benzoic acid from toluene
(iii) Malachite green from benzaldehyde
(iv) Cinnamic acid from benzaldehyde
(v) Acetaldehyde from ethyne

➢ IMPORTANT 3 MARKS

1. How is propanoic acid prepared starting from (a) an alcohol (b) an alkyl halide (c) an alkene
2. How to prepare the following from phenol? a. 2, 4, 6 – tri bromo phenol b) Picric acid:
3. Explain Phthalein reaction
4. How is phenol prepared from a. chloro benzene b. isopropyl benzene.
5. Explain kolbe's reaction.
6. Write the chemical equation for Williamson synthesis of 2-ethoxy – 2- methyl pentane starting from ethanol and 2 – methyl pentan -2-ol
7. State Kohlrausch Law. How is it useful to determine the molar conductivity of weak electrolyte at infinite dilution.
8. State Faraday's Laws of electrolysis.
9. Discuss Arrhenius concept of acids and bases with suitable example. Give its limitations
10. Distinguish Lewis acids and Lewis bases.
11. first order reaction takes 8 hours for 90% completion. Calculate the time required for 80% completion. (log 5 = 0.6989 ; log 10 = 1)
12. Derive integrated rate law for a zero order reaction A ⟶ product
13. Sketch i.sc ii.bcc iii.fcc&calculate its numberof atoms per unit cell
14. Describe the preparation of potassium dichromate
15. What is lanthanoid contraction and what are the effects of lanthanoid contraction?
16. Give two test for sulphuric acid /sulphates
17. Write a note on nitration of benzene
18. Give an account on structure of phosphorous
19. What is the hybridisation of iodine in IF7? Give its structure?
20. How will you prepare chlorine in the laboratory?
21. What type of hybridisation occur in a) BrF5 b)BrF3
22. Explain the structure of boric acid and Write the uses of boric acid
23. Write a note on Fisher tropsch synthesis
24. Give the structure of CO and CO2.
25. How will you identify borate radical?
26. What is the role of Limestone in the extraction of Iron from its oxide Fe2O3?
27. What is the difference between minerals and ores?

➢ IMPORTANT TWO MARKS

1. Which type of ores can be concentrated by froth flotation method? Give two examples for such ores
2. Give uses of zinc.
3. What is ammonia leaching?
4. What is auto reduction of metallic ores?
5. Write the applications of copper.
6. Write the applications of gold.
7. What is refining process of a metal?

8. Give the uses of borax.
9. Give the uses of silicones.
10. AlCl3 behaves like a Lewis acid. Substantiate this statement.
11. Write a short note on hydroboration.
12. Give one example for each of the following: (i) Icosagens (ii) Tetragon (iii)Pnictogen (iv)Chalcogen
13. Write a note on metallic nature of p-block element.
14. How will you convert boric acid to boron nitride?
15. What happen when boron burns with nitrogen and oxygen (or) air?
16. Write any two methods for the preparation of metal borides
17. Write any three uses of boron.
18. What happen when borax is heated?
19. What happen when borax is treated with ammonium chloride?
20. What happen when boric acid is heated?
21. Why Boric acid is a weak monobasic acid?
22. Write the uses of boric acid
23. What is inert pair effect?
24. Explain why fluorine always exhibit an oxidation state of -1?
25. What are interhalogen compounds? Give example?
26. Why fluorine is more reactive than other halogens?
27. Give the uses of sulphuric acid?
28. Give the uses of Argon?
29. What happens when PCl5 is heated?
30. How is ammonia prepared in the laboratory?
31. How do you convert i) White phosphorous → Red Phosphorous ii) Red phosphorous → White phosphorous
32. Mention the uses of phosphorous.
33. Give the allotropic forms of Sulphur.
34. Why H2SO4 is used as a dehydrating agent?
35. What are transition metals? Give four examples
36. What are inner transition elements?
37. What are actinides? Give three examples.
38. Why Gd3+ is colourless?
39. What are interstitial compounds?
40. Write the electronic configuration of Ce4+ and Co2+
41. Why do Zirconium and Hafnium exhibit similar properties?
42. Transition metals show high melting points. Why?
43. Write the electronic configuration of Cr and Cu
44. Write the uses of KMnO4
45. What is Hume- Rother rule to form a substitute alloy?
46. What are the uses of potassium dichromate?
47. Define unit cell
48. Give any three characteristics of ionic crystals.
49. Classify the following solids a. P4 b. Brass c. diamond d. NaCl e. Iodine
50. What are point defects?
51. Calculate the number of atoms in an fcc unit cell.
52. Why ionic crystals are hard and brittle?
53. What is the two-dimensional coordination number of a molecule in square close packed layer?
54. What is meant by the term “coordination number”?
55. What is the coordination number of atoms in a bcc structure?

56. Aluminium crystallizes in a cubic close packed structure
57. Define rate law and rate constant
58. Define rate of a reaction.
59. Give the unit of rate of reaction for (i) aqueous reaction (ii) Gaseous reaction 3 Define molecularity.
60. Define order of a reaction
61. What are Lewis's acids and bases? Give two examples for each
62. Define Solubility Product.
63. Define pH
64. A saturated solution, prepared by dissolving CaF2 (s) in water, has [Ca2+] =3.3 x 10-4 M. What is the Ksp of CaF2?
65. Calculate the pH of 0.001M HCl solution
66. What happens when 1-phenyl ethanol is treated with acidified KMnO4.
67. What is Metamerism? Give the structure and IUPAC name of metamers of 2 – methoxy propane.
68. Write the uses of ethylene glycol.
69. How will you prepare nitro-glycerine (TNG)?
70. Give the uses of glycerol.
71. Write the uses of methanol.
72. Write the uses of ethanol
73. Write note on Riemer – Tieman reaction.
74. Write note on coupling reaction.
75. How will you prepare benzoic acid using Grignard reagent?
76. How will you prepare propanone from prop-1-yne?
77. Wite about Rosemond reduction:
78. Explain Stephen's reaction:
79. Write about Gattermann – Koch reaction.
80. How is urotropine prepared? Write its use?
81. Explain Clemmensen reduction:
82. What is Wolf Kirshner reduction? Give example.