

XII-FP1-24

Full Portion Test - 1

Standard XII

CHEMISTRY

Time: 3.00 hrs.

Instructions: 1) Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately.

2) Use Blue or Black ink to write and underline and pencil to draw diagrams.

PART - I

15x1=15

Note: i) Answer all the questions.

ii) Choose the most suitable answer from the given four alternatives and write the option code with the corresponding answer.

1. Maximum paramagnetic in 3d series is shown by the ion

a) Cr^{2+} b) Mn^{2+} c) Ni^{2+} d) Cu^{2+}

2. The conjugate acid of Ammonia molecule is

a) NH_2^- b) NO_2^- c) BF_3 d) NH_4^+

3. Assertion : Aniline is more basic than Ammonia.

Reason : The lone pair of electrons on Nitrogen atom in Aniline get delocalised over the Benzene ring.

a) Both assertion and reason are correct, reason explains assertion

b) Both assertion and reason are correct but reason does not explain assertion

c) Assertion is correct but reason is wrong

d) Assertion is wrong but reason is correct

4. Which of the following electrolytic solution has the least specific conductance?

a) 0.002 N

b) 0.0025 N

c) 0.2 N

d) 0.02 N

5. Which kind of isomerism is possible for the complex $[\text{Co}(\text{NH}_3)_4\text{Br}_2]\text{Cl}$?

a) Geometrical and optical

b) Optical and ionisation

c) Geometrical and ionisation

d) Geometrical only

6. Elements like Silicon and Germanium to be used as a semiconductor is purified by

a) heating under vacuum

b) zone refining

c) Van Arkel method

d) electrolysis

7. The crystal with a metal deficiency defect is

a) NaCl

b) FeO

c) ZnO

d) KCl

8. XeF_6 on complete hydrolysis gives

a) XeOF_4 b) XeO_2F_2 c) XeO_3 d) XeO_2

9. Which among the following is not a Borane?

a) B_2H_6 b) B_4H_{10} c) B_3H_6

d) None of these

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10. Fog is a colloidal solution of
 a) solid in gas b) liquid in gas c) gas in gas d) gas in liquid
11. Which one of the following will react with Phenol to give Salicylaldehyde after hydrolysis?
 a) Dichloromethane b) Trichloroethane
 c) Trichloromethane d) CO₂ *CHCl₃*
12. The secondary structure of protein refers to
 a) fixed configuration of the polypeptide backbone
 b) hydrophobic interaction
 c) sequence of α - amino acids d) α - helical backbone
13. Which among the following is the unit of rate constant of zero order reaction?
 a) mol²L⁻²s⁻¹ b) s⁻¹ c) mol L⁻¹s⁻¹ d) mol⁻¹L s⁻¹
14. Nylon is an example of
 a) polyamide b) polythene c) polyester d) polysaccharide
15. The formation of Cyanohydrin from acetone is an example of
 a) nucleophilic substitution b) electrophilic substitution
 c) electrophilic addition d) nucleophilic addition

PART - II

6x2=12

Note: i) Answer any six questions.

ii) Question No. 24 is compulsory.

16. Give the uses of Silicones.

17. What are the differences between minerals and ores?

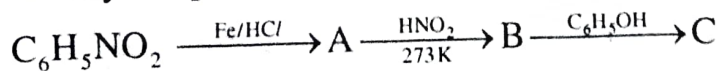
18. Which is more stable Fe³⁺ and Fe²⁺? Explain.

19. Give the differences between order and molecularity of a reaction.

20. State Kohlrausch law.

21. What are antibiotics? Give example.

22. Identify compounds A, B and C in the following reaction sequence.



23. What is metamerism? Give the structure of metamers of 2-methoxy propane.

24. Write the expression for the solubility product of Ca₃(PO₄)₂.

PART - III

6x3=18

Note: i) Answer any six questions.

ii) Question No. 33 is compulsory.

25. Write the postulates of Werner's theory of coordination compounds.

26. Distinguish between tetrahedral and octahedral voids.

27. Derive an expression for Nernst equation.

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28. Write a note on Zeolites.
29. What are interhalogen compounds? Give example. Write the hybridisation of interhalogen compound of the type AB_7 .
30. Give any three differences between DNA and RNA.
31. What is Urotropine? How is it prepared? Mention its uses.
32. Convert Benzene diazonium chloride into
1) Benzene 2) Nitro benzene 3) Phenyl hydrazine
33. Explain intermediate compound formation theory of catalysis with an example.

PART - IV

5x5=25

Note : Answer all the questions.

34. a) i) What is Lanthanide contraction and what are the effects of Lanthanide contraction? (3)
ii) Why Fluorine is more reactive than other Halogens? (2)

(OR)

- b) i) Describe the role of Silica in the extraction of Copper and the role of Sodium cyanide in froth floatation. (3)
ii) CO is a reducing agent. Justify with an example. (2)

35. a) i) Explain Frenkel defect. *AgBr, Diff size, density* (3)
ii) Write Arrhenius equation and explain the terms involved. *$K = A e^{-\frac{E_a}{R T}}$* (2)

(OR)

- b) Discuss briefly about the nature of bonding in metal carbonyls. (5)

36. a) i) Write a note on Standard Hydrogen Electrode (SHE). (2)
ii) Derive an expression for Ostwald's dilution law. (3)

(OR)

- b) Differentiate physisorption and chemisorption. *C_6H_6 " CH_3Cl* (5)

37. a) i) Explain Saytzeff's rule with an example. (3)
ii) Give two differences between hormones and vitamins. *[CH_3COCH_3] [CH_3CHO]* (2)

(OR)

- b) i) Write the mechanism of Aldol condensation. (3)
ii) Write about Hofmann's bromamide reaction. (2)

38. a) Explain the mechanism of cleansing action of soaps and detergents. (5)

(OR)

- b) Elucidate the structure of Glucose. *chem
49 IP
 NH_2OH/HCl
oxidation
Anhydride
Tollen's Fehling
Benedict* (5)

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