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12D08

FIRST REVISION TEST – 2025
CHEMISTRY

12 – STD
Time allowed = 3 hours
Maximum Marks = 70

SECTION – I

Note: 1) Answer all the questions.2) Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer. 15 X 1 = 15

1. Collodion is a 4% solution of which one of the following compounds in alcohol – ether mixture?
   a) Nitroglycerine b) Cellulose acetate c) Glycoldinitrate d) nitrocellulose
2. Which of the following are epimers
   a) D(+) Glucose and D(+) Galactose b) D(+) Glucose and D(+) Mannose
   c) Neither a) nor b) d) Both a) and b)
3. $C_5H_{13}N$ reacts with HNO_2 to give an optically active compound. The compound is
   a) pentan – 1 – amine b) pentan – 2 – amine
   c) N,N – dimethylpropan – 2 – amine d) N – methylbutan – 2 – amine
4. **Assertion** : rate of reaction doubles when the concentration of the reactant is doubles if it is a first order reaction.
   Reason : rate constant also doubles.
   a) Both assertion and reason are true and reason is the correct explanation of assertion
   b) Both assertion and reason are true but reason is not the correct explanation of assertion.
   c) Assertion is true but reason is false. Both assertion and reason are false.
5. Metals like copper and zinc can be refined by the process called
   a) Zone refining b) Electrolytic refining c) Van – Arkel method d) Mond's process
6. Match items in column – I with the items of column – II and assign the correct code.

Column – I		Column - II	
A	H_2SO_4	1	Highest electron gain enthalpy
B	Cl_2	2	Chalcogens
C	Sulphur	3	Teargas
D	CCl_3NO_2	4	Storage batteries

	A	B	C	D
a)	4	1	2	3
b)	1	2	3	4
c)	4	3	2	1
d)	None of these			

7. The element that does not show catenation among the following p-block elements is
   a) Carbon b) Silicon c) Lead d) Germanium
8. The ratio of close packed atoms to tetrahedral hole in cubic package is
   a) 1:1 b) 1:2 c) 2:1 d) 1:4
9. Primary cells, among the following cells are
   I) Lechlanche cells II) Nickel – Cadmium Cell III) Lead storage battery IV) Mercury cell
   a) I and IV b) I and III c) III and IV d) II and III
10. An antihistamine drug is
    a) Aspartame b) Cetrizine c) pencillin d) sodium metabisulphite
11. Which one of the following undergoes reaction with 50% NaOH to give-the Corresponding alcohol and acid
    a) phenylmethanal b) ethanal c) ethanol d) methanol
12. The sum of primary valence and secondary valence of the metal M in the complex $[M(en)_2(ox)]Cl$ is
    a) 3 b) 6 c) – 3 d) 9
13. Which one of the following statements related to lanthanoids is incorrect?
    a) Europium shows +2 oxidation state.
    b) The basicity decreases as the ionic radius decreases from Pr to Lu.
    c) All the lanthanoids are much more reactive than aluminium.
    d) Ce^{4+} solutions are widely used as oxidising agents in volumetric analysis.
14. Which of the following reagents distinguish phenol from benzoic acid?
    a) neutral ferric chloride b) aqueous NaoH c) Tollens reagent d) Molisch reagent
15. In which of the following cases the acid strength is highest?
    a) $K_a = 10^{-5}$ b) $p^{Ka} = 6$ c) $p^{Kb} = 1$ d) $K_b = 10^{-13}$

SECTION – II

Answer any six questions and question number 24 is compulsory. 6 X 2 = 12

16. Describe a method for refining nickel.

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17. Explain why Cr^{2+} is strongly reducing while Mn^{2+} is strongly oxidising.
18. What is crystal field splitting energy?
19. Write Arrhenius equation.
20. What are active centres?
21. Account for diazonium salts of aromatic amines are more stable than those of aliphatic amines.
22. What are hormones?
23. What are antifertility drugs?
24. Write the expression for the solubility product of $Ca_3(PO_4)_2$.

SECTION – III

Answer any six questions and question number 33 is compulsory. 6 x 3 = 18

25. Explain froth floatation method.
26. State any three differences between graphite and diamond.
27. Out of $Lu(OH)_3$ and $La(OH)_3$ which is more basic? why?
28. Distinguish between hcp and ccp.
29. What are the factors affecting electrolytic conductance?
30. Write a note on a) coupling reaction and b) pthalein reaction
31. What are reducing and non – reducing sugars? Give an example for each.
32. Explain the preparation of Buna – N rubber. State one use.
33. The rate of formation of a dimer in a second order reaction is $7.5 \times 10^{-3} mol L^{-1} s^{-1}$ at 0.05 $mol L^{-1}$ monomer concentration. Calculate the rate constant.

SECTION – D

Answer all the questions. 5 x 5 = 25

34.A.i) What is liquation? (2)
ii) Write a note on structure of boric acid. (3)

(OR)

B.i) Nitrogen does not form any penta halides like phosphorus. Why? (2)
ii)Explain the bleaching action of chlorine (3)

35. A.i) Why tetrahedral complexes do not exhibit geometrical isomerism? (2)
ii) On the basis of VB theory explain the nature of bonding in $[Co(C_2O_4)_3]^{3-}$ (3)

(OR)

B. i) Write a note on Zeigler – Natta catalyst. (2)
ii) Explain the functions of $H_2 - O_2$ fuel cell. (3)

36. A. i) Define activation energy. (2)
ii) Write a note on Schottky defect. (3)

(OR)

B. i) What are promoters? (2)
ii)Describe adsorption theory of catalysis. (3)

37. A.i) Write a note on Arrhenius concept of acids and bases. (2)
ii) Derive an expression for Ostwald's dilution law. (3)

(OR)

B.i) Define enzymes. (2)
ii) Write the mechanism of acid catalysed dehydration of ethanol to give ethene. (3)

38.A.A compound (A) with molecular formula C_2H_3N on acid hydrolysis gives (B) which reacts with thionyl chloride to give compound (C). Benzene reacts with compound (C) in presence of anhydrous $AlCl_3$ to give compound (D). Compound (D) on Clemmension reduction gives compound (E). Identify A to E and write the equations. (5)

(OR)

B.i) Write short notes on Gabriel pthalimide synthesis (2)
ii)What is oil of mirbane? How is it prepared? (3)

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