

0223**A****Total No. of Questions – 33****Regd.****Total No. of Printed Pages – 3****No.**

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Part - III
CHEMISTRY, Paper - II
(English Version)

Time : 3 Hours**Max. Marks : 60****SECTION - A****10 × 2 = 20**

- Note:** (i) Answer **ANY TEN** Questions
(ii) Each Question carries **TWO** marks
(iii) All are very short answer type questions.

1. What is Schottky defect?
2. What are f-centers?
3. How do you distinguish between crystal lattice and unit cell?
4. Define osmotic pressure.
5. What is an ideal solution?
6. State Henry's law.
7. What is coagulation ?
8. Name any two applications of colloidal solutions.
9. What is inert pair effect ?
10. What is tailing of mercury ? How is it removed ?
11. $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ is blue in colour whereas anhydrous CuSO_4 is colourless. Why?
12. Define denaturation as related to proteins.

13. What are essential and non-essential amino acids ? Give one example for each.
14. What is Tollens reagent? Explain its reaction with Aldehydes.
15. Write the reaction showing α -halogenation of carboxylic acid and give its name (HVZ reaction).

SECTION - B

6 × 4 = 24

- Note:** (i) Answer **ANY SIX** questions.
 (ii) Each question carries **FOUR** marks.

(iii) All are of short answer type questions.

16. Derive Bragg's equation.
17. What is electrolysis? Give Faraday's first law of electrolysis.
18. What are different types of adsorption ? Give any four differences between characteristics of these different types.
19. What are lyophilic and lyophobic sols ? Compare the two terms in terms of stability and reversibility.
20. How are XeF_2 and XeF_4 prepared? Give their structures.
21. How is chlorine obtained in the laboratory? How does it react with the following?
 - a) cold dil. NaOH b) excess NH_3
22. How does SO_2 react with the following?
 - a) $\text{Na}_2\text{SO}_3(\text{aq})$ b) Cl_2 c) Fe^{+3} ions d) KMnO_4
23. Write the characteristics properties of transition elements.
24. Explain Werner's theory of coordination compounds with suitable examples.
25. Using IUPAC norms write the formulas for the following:
 - (i) Tetrahydroxozincate(II)
 - (ii) Hexamminecobalt(III) sulphate
 - (iii) Potassium tetrachloropalladate(II) and
 - (iv) Potassium tri(oxalato)chromate(III)

26. What are nucleic acids? Mention their two important functions.
27. Explain the mechanism of Nucleophilic bimolecular substitution (S_N^2) reaction with one example.
28. With a suitable example write equations for the following:
 - i) Reimer-Tiemann reaction.
 - ii) Williamsons ether synthesis.
29. Accomplish the following conversions:
 - i) Benzoic acid to benzamide
 - ii) Aniline to p-bromoaniline

SECTION - C

2 × 8 = :

- Note:**
- (i) Answer any **ANY TWO** questions.
 - (ii) Each question carries **EIGHT** marks.
 - (iii) All are long answer type questions.

30. (a) State Raoult's law.
- (b) Define mole fraction. Calculate the mole fraction of H_2SO_4 in a solution containing 98% (w/w) H_2SO_4 by mass.
31. (a) State and explain Kohlrausch's law of independent migration of ions. <https://www.telanganaboard.com>
- (b) Define Order of a reaction. Illustrate your answer with an example. Define molecularity of a reaction. Illustrate with an example.
32. How is nitric acid manufactured by Ostwald's process? How does it react with the following ?
 - a) Copper b) Zn c) S_8 d) P_4
33. Describe the following:
 - i) Acetylation
 - ii) Cannizaro reaction
 - iii) Cross aldol condensation
 - iv) Decarboxylation