

Roll No. _____

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SIVS-N 187 A-16
B.Sc. IVth Semester Degree Examination
Chemistry
Paper : IV
(New)

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer all the three sections.

Section - A

- I. Answer all of the following questions. (15×1=15)**
1. Define the term co-ordination sphere
 2. Write the name of $[Fe(CN)_6]^{-4}$ ion.
 3. Name a monodentate ligand.
 4. What is a protic solvent?
 5. Write the formula of Thorianite.
 6. Which functional group is common in both aldehydes and ketones?
 7. What is auto oxidation?
 8. Write the IUPAC name of acetaldehyde.
 9. Write the structure of Benzenediazonium chloride.
 10. What is Mannich reaction?
 11. What is meant by phase?
 12. What is photoelectric effect?
 13. State Grothus - Dropper's law.
 14. Write one difference between photochemical and thermal reaction.
 15. What is meant by the term eutectic point?

Section - B

II. Answer any **Five** of the following questions.

(5×5=25)

16. Write the postulates of Werner's co - ordination theory.
17. Write a note on sidg - wick theory of electronic interpretation.
18. Describe the mechanism of Perkin's reaction.
19. What are Epoxides? Give any two methods of preparation of epoxides.
20. Explain and compare basic character of Aniline, P - nitro aniline and P - Toluidine.
21. State and explain Heisenberg's uncertainty principle.
22. Write a note on compton effect.

Section - C

III. Answer any **Four** of the following questions.

(4×10=40)

23. a) How does uranium occurs in nature? Describe the extraction of uranium from pitch - blende. (6)
- b) Calculate the EAN of central metal ion in $K_4[Fe(CN)_6]$ (4)
24. a) Write a note on stereo isomerism of complexes with co - ordination number - 4. (6)
- b) Give the classification of solvents with example. (4)
25. a) Explain the reduction reactions of nitrobenzene in
 - i) Alkaline and
 - ii) Neutral medium (6)
- b) Explain the nitrous acid test to distinguish between primary, secondary and tertiary amines. (4)
26. a) Explain aldol condensation with mechanism (6)
- b) Give any two methods of preparation of ketones. (4)
27. a) Explain phase diagram of sulphur system (6)
- b) Write a note on Fluorescence (4)
28. a) State and Explain Lambert's - Beer's law (6)
- b) Explain the Azimuthal quantum number and spin quantum number. (4)