

Roll No. _____

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SIVS - N 185 A-15
B.Sc.IV 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 a complex ion.
2. Give an example for a monodentate ligand.
3. What is EAN rule
4. What is monozite?
5. What is an acidic solvent?
6. Give the IUPAC name of diethyl ether.
7. What is Wolf - Kishner reduction?
8. What are epoxides?
9. Write the IUPAC name of acetaldehyde
10. Write the structure of para toluidine
11. Define Gibbs phase rule.
12. What is photosensitizer?
13. Define the term component.
14. What is meant by dual nature of matter?
15. State Grothus - Dropper's Law.

SECTION - B

II. Answer any five of the following questions.

(5 × 5 = 25)

16. Write the postulates of Werner's coordination theory.
17. Give the classification of solvents with examples.
18. Describe the mechanism of aldol condensation.
19. How acetaldehyde reacts with
 - i) HCN
 - ii) NH_2OH
 - iii) NH_2NH_2
20. Give any two methods of preparation of ethers.
21. Write note on Compton effect.
22. Explain Schrodinger wave equation and its importance.

SECTION - C

III. Answer any FOUR of the following questions:

(4 × 10 = 40)

23. a) What is crystal field splitting energy? Explain the splitting of d-orbitals in Octahedral complexes. (6)
b) Calculate the EAN of central metal ion in $[\text{Fe}(\text{CN})_6]$ (4)
24. a) How does thorium occur in nature? Describe the extraction of thorium from monazite sand. (6)
b) Discuss the acid-base reactions in liquid ammonia. (4)
25. a) Explain the reduction reactions of nitrobenzene in (6)
 - i) Alkaline and
 - ii) Neutral medium
b) Give a test to distinguish between primary, secondary and tertiary amines. (4)
26. a) Explain Perkin's reaction with mechanism. (6)
b) Give any two methods of preparation of ketones (4)
27. a) Explain the condensed phase diagram of Ag - Pb system (6)
b) Write note on fluorescence (4)
28. a) State and explain Stark-Einstein law of photochemical equivalence (6)
b) Explain the angular wave function. (4)