

Roll No. _____

SIVS-N 183 A-2K14
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** the following questions.

(15×1=15)

- 1) Give an example for cationic complex.
- 2) Mention the types of Solvents.
- 3) Name a Monodentate ligand.
- 4) What is monazite?
- 5) What is metallurgy?
- 6) What is Wittig reaction?
- 7) Write the IUPAC name of Acetone.
- 8) What are Nitroarenes?
- 9) What happens when an alkyl halide reacts with dry silver oxide?
- 10) What is Baeyer - Villiger oxidation?
- 11) Write Broglie's Equation.
- 12) What is freezing Mixture.
- 13) What is photosensitized reaction?
- 14) Define the term component has applied in phase-rule.
- 15) Give one difference between photochemical and Thermal reaction.

Section - B

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

(5×5=25)

- 16) Write a note on Sidgwick theory of Electronic interpretation.
- 17) Calculate the EAN of central metal ion in $K_4[Fe(CN)_6]$.

- 18) What are Epoxides? Give any two methods of preparation of Epoxides.
- 19) How do you distinguish primary, secondary and Tertiary amines by the action of Benzene Sulphonyl chloride.
- 20) How Acetone reacts with
 - i) NH_2OH
 - ii) NaHSO_3
- 21) State and explain Heisenberg's uncertainty principle.
- 22) Give a brief account of Black body and Black body radiation.

Section - C

III. Answer any **four** of the following.

(4×10=40)

- 23) a) Discuss the formation of $[\text{Fe}(\text{CN})_6]^{-4}$ ion on the basis of valence bond theory. Accounts for its magnetic properties and geometry (At. No. of Fe = 26) **(6)**
 - b) Explain high spin and low spin complexes with examples. **(4)**
- 24) a) How does thorium occurs in nature? How is the thorium metal Extracted from monazite sand. **(6)**
 - b) Describe the following reactions in liquid ammonia giving suitable examples
 - 1) Acid-base reaction.
 - 2) Precipitation reaction. **(4)**
- 25) a) What is Cannizzaro's reaction? Give its Mechanism with an example. **(6)**
 - b) Give any two methods of preparation of aromatic amines. **(4)**
- 26) a) How do you prepare Aldehydes from
 - i) Alcohols
 - ii) Gem - dihalides
 - iii) Alkynes **(6)**
 - b) Give any two synthetic applications of Benzene diazonium chloride. **(4)**
- 27) a) Explain the 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) Write a note on Crompton effect. **(4)**