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**SIVS-N-189 A-19**

**B.Sc IV Semester Degree Examination**

**CHEMISTRY**

**Paper: 4.1**

**(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 one use of liquid ammonia.
- 2) What is an inert complex?
- 3) What is base according to Arrhenius concept?
- 4) Define ionising solvent.
- 5) Define trans effect.
- 6) What are crown ethers?
- 7) What is Rosenmund reduction?
- 8) What are nitroarenes?
- 9) Write the structure of Benzene diazonium chloride.
- 10) What are amines?
- 11) What is Photoelectric effect?
- 12) Write de-Broglie equation.
- 13) What is the lowest temperature achieved in KI-H<sub>2</sub>O system?
- 14) State Grothus-Droper's law.
- 15) What is fluorescence?

**SECTION-B**

**II. Answer any five of the following questions. (5×5=25)**

- 16) Describe the following reactions in liquid ammonia giving suitable example.
  - i) Auto ionisation.
  - ii) Precipitation reaction.
- 17) Explain the structure and bonding in Iron penta carbonyl complex.
- 18) How do you distinguish primary, secondary and tertiary amines by the action of nitrous acid?
- 19) Explain the reduction of nitrobenzene in acid and alkaline medium.
- 20) Explain the phase diagram of sulphur system.
- 21) Explain the quantum numbers.

**SECTION-C**

**III. Answer any five of the following questions. (5×8=40)**

- 22) a) Discuss the molecular orbital diagram of carbon monoxide. (6)  
b) Explain the acid-base reaction of liquid sulphur dioxide. (2)
- 23) a) Explain the Bronsted-Lowry concept of acids and bases and mention its limitations. (4)  
b) Explain the structure and bonding in Nickel tetra carbonyl complex. (4)
- 24) a) How do you prepare di carboxylic acids by (4)
  - i) Cyanides
  - ii) Cyclic Ketones  
b) Write a note on Acid character of carboxylic acids. (4)
- 25) a) Explain the following chemical reactions. (4)
  - i) Friedel-Craft's reaction in acetyl chloride.
  - ii) Hoffman degradation in amides.  
b) Write any two methods of preparation of epoxides. (4)
- 26) a) Give any four differences between thermal and photochemical reactions. (4)  
b) Write a note on Compton effect. (4)
- 27) a) State and explain Heisenberg's uncertainty principle. (4)  
b) Write a note on photo sensitized reactions. (4)