Instructions to Candidates:--
Answer all the three sections.

Section - A

I. Answer all the following questions.
1) Give an example for cationic complex.
2) Mention the types of Solvents.
3) Name a Monodendate 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.
16) Write a note on Sidgwick theory of Electronic interpretation.
17) Calculate the EAN of central metal ion in $K_4\left[Fe(CN)_6\right]$.

19) How do you distinguish primary, secondary and Tertiary amines by the action of Benzene Sulphonyl chloride.

20) How Acetone reacts with
   i) $\text{NH}_2\text{OH}$
   ii) $\text{NaHSO}_3$

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 $\left[\text{Fe(}CN)_{6}\right]^{4-}$ 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)

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