

U-1

INORG

- 1) $P_4 S_{10}$ Struct. Exp
- 2) Kapustinskii eqn and application (10M)
- 3) Exp str and bonding in B_2H_6 (10M)
- 4) Str and prep S_4N_4
- 5) Lattice energy, ionic Model
- 6) Prep and prop of borazines
- 7) Chemistry of silanes.
- 8) Str. of Tetraboranes.
- 9) High-Tc-Semiconductor.

- 10) Nitrides of boron and silicon
- 11) Born-Landé Equation

U-2

- 1) fact affecting formation const
- 2) forced configuration
- 3) Force const determination (10M)
- 4) Methods of detection of complex formation
- 5) SM photometric, SM pH, SM potentiometric / method of determination of ^{formation} stability constant of complex
- 6) overall formation constant (Model Exam qn)

Unit - III

- 1) Nephelauxetic effect
- 2) Exp. splitting of d-orbital under octahedral crystal field
- 3) Evidences of CFSE
- 4) Exp bonding in hexamminecobalt(III) based on MOT
- 5) Postulates and Limitation of CFT.
- 6) LFT and MOT. postulates.
- 7) Factors affecting magnitude of $10Dq$
- 8) MO diagram of tetrahedral comp only sigma bonding
- 9) Jahn-Teller distortion (10M)
- 10) π bonding in octahedral complex.

UN-IV

- 1) Trans effect exp and app
- 2) Mol. rearrangement of four coordinated complexes
- 3) Exp inner and outer sphere mechanism
- 4) Exp - any 4 mech of co-ord ligand with suitable eg.

UN - V

- 1) photo chem rexn of Co(III) complex
- 2) photo chem rexn of metal carbonyl compounds with eg
- 3) various electronic transition in metal complex.
- 4) Mech of CTTM photo reduction
- 5) Reinecke's salt's chemical actinometer
- 6) photochem of ruthenium and chromium (III) comp
- 7) photo-physics and photochem of Ru-polypyridine comp

2020

U-II:-

- 1) Influence of statistical effect on stability of co-ord comp

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U-III:-

- 1) Discuss geometry of $[\text{Mn}(\text{CO})_4\text{NO}]$ and $[\text{Ni}(\text{CN})_5]$ and their site preferences
- 2) Eng. level diagram of $[\text{CoF}_6]^{2-}$

U-IV

- 1) Ligand displacement rexn in oct. comp.
- 2) Interconv of Stereoisomers
- 3) Outer sphere mechanism

U-V:-

- 1) Ligand field photochem of Cr(III) complexes
- 2) photochemical process of co-ord comp.
- 3) Reinecke salt chemical actinometer

(10 marks, 10 min, app.)