

SSR Degree and PG College(A)
Department of Chemistry
Semester III- Synthesis of Organic compounds
Important Questions

Short Answers

Unit-I

- 1) Write EAN rule with any 3 examples?
- 2) Write the IUPAC nomenclature of the following compounds
 - i) $K_3[Fe(CN)_6]$
 - ii) $[Ni(CO)_4]$
 - iii) $[Cu(NH_3)_4]SO_4$
- 3) What is 18 e θ rule and explain the stability of following complexes.
 - a) $[Ni(CO)_4]$
 - b) $[Cr(CO)_6]$
 - c) $[Fe(CO)_5]$
- 4) Explain about alkyl magnesium compounds.
- 5) Draw the structures of $Fe(CO)_5$, $V(CO)_6$?

Unit-II

- 1) What is Hv_2 reaction? Give examples?
- 2) What is Arndt-Eistert synthesis?
- 3) Write Hofmran degradations reaction
- 4) Write the following reactions.
 - i) Gabriel synthesis
 - ii) Scmidt reaction
- 5) What is carbyl amine reaction?

Unit-III

- 1) Derive Bragg's Equation?
- 2) Explain the classification of crystallin solids with examples?
- 3) Explain Bravais lattices and the seven crystal systems.
- 4) Explain the general characteristics of catalytic reactions?
- 5) Explain Enzyme catalysis and its characteristics?

Unit-IV

- 1) Explain the biological significance of Na, K, Mg and Ca.
- 2) Explain the structures and functions of Haemoglobin?
- 3) Explain the aromatic character and resonance of pyrrole, furan and thiophene?
- 4) State and explain Gibbs Phase rule?
- 5) Describe the Pb-Ag simple eutectic system?

Long Answers

Unit-I

- 1) Write a note on geometrical and optical isomerism?
- 2) Explain valence bond theory of coordination compounds. Discuss the structures and magnetic prop's of tetrahedral and octahedral complexes and square planar complexes?
- 3) Describe the classification, structure and bonding in metal carbonyls? Explain the structure of $\text{Ni}(\text{CO})_4$, $\text{Fe}(\text{CO})_5$, $\text{Fe}_2(\text{CO})_9$ and $\text{Co}_2(\text{CO})_8$.
- 4) Define organometallic compounds. Explain the preparation, prop's and applications of alkyl and aryl compounds of lithium and Mg.
- 5) Discuss in detail the stereo Isomerism and structural isomerism in coordination compounds with suitable examples.

UNIT-II

1. Explain the methods of preparation of carboxylic acids. Explain
i) Hv_2 reaction ii) Arndt Eistert synthesis
2. Explain the preparation, properties and reactions of nitro alkanes, Discuss the reduction of nitro benzene in different media?
3. Explain the following in detail.
i) Gabriel Pthalamide synthesis ii) Hofmann bromide reaction.
iii) Hinsberg test iv) Diazotization and its application
4. Explain claisen condensation with a suitable example.
5. Explain the following reactions
a) Gattermann reaction b) Scheimann reaction.

UNIT-III

1. Discuss homogenous and heterogenous catalysis with examples.
2. Explain michaelis-menton equation and the significance of K_m and V_{max} .
3. Define crystalline solids Explain space lattice, unit (cl) Bravais lattices and seven crystal systems.
4. Derive Bragg's equation and discuss the determination of NaCl structure by X-ray diffraction.
5. Explain Acid-base catalysis, enzyme catalysis and factors effecting enzyme catalysed reactions.

UNIT-IV

- 1.Explain oxygen transport and storage by Hb?
- 2.Explain the toxicity of Cd, As, Hg and Pb and fixation of CO_2 in photosynthesis.
- 3.Define hetero cyclic compounds? Explain the aromaticity and basicity of pyrrole, furan and thiophene?
- 4.state and explain Gibbs phase rule. Discuss the phase equilibria of the one component water System.
- 5.Define phase, component and degree of freedom. Explain Pb-Ag system?