

21P312

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Name: .....

Reg.No: .....

**THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2022**

(CBCSS - PG)

(Regular/Supplementary/Improvement)

**CC19P CHE3 C11 - REAGENTS AND TRANSFORMATIONS IN ORGANIC CHEMISTRY**

(Chemistry)

(2019 Admission onwards)

Time : 3 Hours

Maximum : 30 Weightage

**Section A**

Answer any *eight* questions. Each question carries 1 weightage.

1. Describe a suitable method for the conversion of toluene into P- Nitro Benzaldehydes.
2. Discuss Wacker process with mechanism.
3. What is Birch reduction? Explain with example.
4. What is the product obtained when acetophenone is react with Zn/Hg in HCl? Explain.
5. On what factors the ability of crown ether depends to complex a cation?
6. Write down the structure of 9-BBN. Give any one of its synthetic application.
7. How does the presence of benzoquinone inhibit the freeradical polymerization of vinyl derivative?
8. What is Woodward and Prevost hydroxylation reactions?
9. Aziridine is weakly basic compared to other amines. Justify your answer.
10. Explain any two applications of supramolecular chemistry.
11. Brief the applications of LDA.
12. Discuss the structure of RNA.

**(8 × 1 = 8 Weightage)**

**Section B**

Answer any *four* questions. Each question carries 3 weightage.

13. What products will be obtained by oxidation of oleic acid with KMnO<sub>4</sub> in neutral and alkaline medium? Explain
14. Briefly explain the following reactions 1) Sharpless Asymmetric Epoxidation 2) Sharpless Asymmetric Dihydroxylation
15. What is homogeneous hydrogenation? What are its special use compared to hetrogeneous hydrogenation?

16. Discuss the application of hydroboration reaction.
17. What is natural rubber? What are its drawbacks? How vulcanization improves its quality?
18. Describe the mechanism of Hofmann rearrangement with suitable example.
19. Describe two methods of synthesis of indole.

**(4 × 3 = 12 Weightage)**

### Section C

Answer any *two* questions. Each question carries 5 weightage.

20. Discuss the mechanism of dehydrogenation with DDQ. Give one application of DDQ in the reaction related to (i) Aromatisation (ii) Preparation of salts of stable aromatic cations (iii) Oxidative cyclisation (iv) Oxidation of phenols (v) Oxidative dimerization (vi) Oxidation of benzylic group (v) Isomerisation during dehydrogenation.
21. What are the protecting agents employed in the peptide synthesis? Illustrate their role in the synthesis of peptides.
22. Illustrate the mechanism of (a) Heck reaction (b) Demjanov rearrangement
23. Discuss the bonding and electrophilic substitution reactions of pyridine.

**(2 × 5 = 10 Weightage)**

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