

24P212

(Pages: 2)

Name :

Reg. No :

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2025

(CBCSS-PG)

(Regular/Supplementary/Improvement)

CC19P CHE2 C07 - REACTION MECHANISM 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. Explain the stereochemical aspects of SN1 reaction.
2. How can ethyl bromide be converted to ethyl cyanides?
3. Discuss the potential energy profile for an SN2 reaction with suitable example.
4. What are benzyne? Give any one method of generation.
5. How is lithium dimethylcuprate prepared? How does it react with ethyl iodide?
6. Illustrate with equations the utility of Grignard reagent in the synthesis of (i) Aldehyde (ii) Ketone
7. Illustrate with equations the utility of organo zinc compounds in the synthesis of (i) Secondary alcohol (ii) Primary alcohols
8. Sketch the HOMO and LUMO of cyclopentadienyl anion and radical.
9. Why IR radiations are not used for carrying out photochemical reactions?
10. Draw the structure of any two Anthocyanin.
11. Explain the term Walden inversion.
12. State the Woodward-Hoffmann rules for electrocyclic reactions.

(8 × 1 = 8 Weightage)

Section B

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

13. When acetolysis of trans-2-acetoxy cyclohexyl tosylate is carried out in the presence of ethanol a cyclic ortho ester is isolated in high yield. Explain.
14. The addition reaction of HBr with propene follows free radical mechanism. Justify this statement with suitable example.
15. What are free radicals? How they are formed? Explain their structure.

16. The product formed after heating Allyl vinyl ether does not show reversibility. Justify.
17. Discuss oxa di-Pi methane rearrangement reaction with mechanism.
18. Explain the conversion of Weiland meischer ketone into longifolene by suitable steps.
19. Describe Von Braun degradation methods for alkaloids.

(4 × 3 = 12 Weightage)

Section C

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

20. Discuss the competition between substitution and elimination reactions.
21. Discuss the different mechanisms for ester hydrolysis.
22. Discuss the Correlation diagram method for the electrocyclic reactions of
(a) 1, 3 butadiene (b) 1, 3, 5 hexatriene.
23. Explain the total synthesis of Cephalosporin.

(2 × 5 = 10 Weightage)
