

21P212

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Name:

Reg.No:

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2022

(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. Discuss the potential energy profile for an SN1 reaction with suitable example.
2. Explain mechanistically why an SN2 reaction follows second order kinetics.
3. What is E1cB elimination reaction?
4. What is EI reaction?
5. Illustrate with equations the utility of Grignard reagent in the synthesis of (i) Alkene (ii) But-1-yne
6. Illustrate with equations the utility of Grignard reagent in the synthesis of (i) Ethyl acetate (ii) Acetone
7. Predict whether a photoinduced [4+2] cycloaddition would be possible if the dienophile instead of the diene were the excited reactant.
8. Why IR radiations are not used for carrying out photochemical reactions?
9. What are terpenoids? Explain the isomerism in Citral.
10. Explain the isolation of alkaloids.

(8 × 1 = 8 Weightage)

Section B

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

11. Give three nucleophilic substitution reactions of chlorobenzene with equations and stating the conditions.
12. The addition reaction of HBr with propene follows free radical mechanism. Justify this statement with suitable example.

13. What are free radicals? How they are formed? Explain their structure.
14. Discuss the stereochemistry of the product formed by 3(R), 4(S) dimethyl 1,5 hexadiene under photochemical condition.
15. Discuss oxa di-Pi methane rearrangement reaction with mechanism.
16. Describe Hofmann exhaustive methylation.

(4 × 3 = 12 Weightage)

Section C

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

17. What is meant by SN1 reaction? Discuss the factors affecting the reactivity of alkyl halides in SN1 reaction.
18. Write the mechanism for:
(a) Cannizaro reaction (b) Mannich reaction (c) Prins reaction (d) Ritter reaction (e) Wittig reaction
19. Discuss the electrocyclic reaction of hexa-1,3,5-triene using
(a) Dewar- Zimmerman approach. (b) Woodward Hoffmann selection rule.
20. Describe the total synthesis of Longifolene.

(2 × 5 = 10 Weightage)
