

C 42745

(Pages : 3)

Name.....

Reg. No.....

**SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)  
EXAMINATION, APRIL 2023**

(CBCSS)

Chemistry

CHE 2C 07—REACTION MECHANISM IN ORGANIC CHEMISTRY

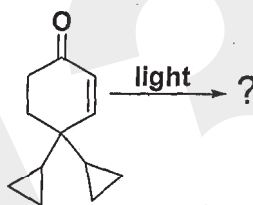
(2019 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

**Section A***Answer any **eight** questions.**Each question carries a weightage of 1.*

1. What type of solvent is best for SN2 reaction. Give 2 examples.
2. Tert-butyl carbonyl anion  $[(CH_3)_3CC=O \text{ anion}]$  reacts with methyl iodide to yield the corresponding ketone. What happens if the concentration of methyl iodide is doubled ?
3. Illustrate the product formed when diethyl malonate reacts with cyclohex-2-enone in presence of a mild base.
4. Which reactive intermediate is involved when o-bromo fluorobenzene reacts with phenyl azide to produce N-phenyl benzotriazole in presence of lithium ? Depict the reaction.
5. Depict the product formed when 2 moles of benzaldehyde react with 1 mole of acetone.
6. How can acetone be converted to methyl vinyl ketone ?
7. What product is formed from the following reaction ?



8. Depict the Norrish type-II reaction.

**Turn over**

9. Give examples of secondary metabolites.  
 10. Depict the structures of citral and quercetin.

(8 × 1 = 8 weightage)

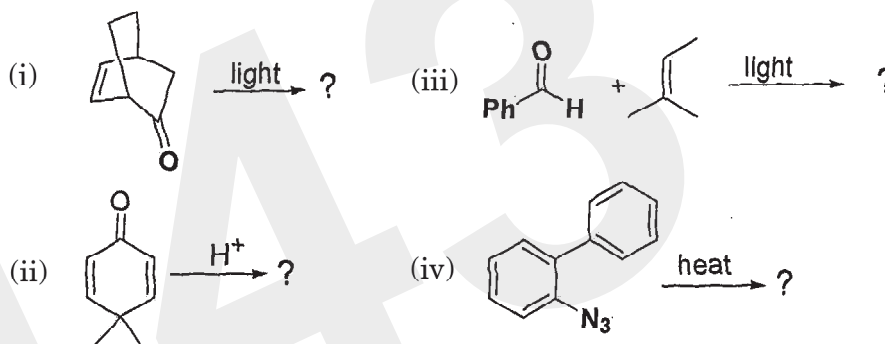
**Section B***Answer any six questions.**Each question carries a weightage of 2.*

11. Depict the product formed when (R)-2-hydroxybutane is treated with thionyl chloride.  
 12. Illustrate the S<sub>N</sub>Ar mechanism for the conversion of 2-nitrofluoro benzene to 2-nitro methoxybenzene.  
 13. How is benzoic acid converted to 2-methoxy benzoic acid ?  
 14. What happens when pyrrole is treated with chloroform and potassium hydroxide ?  
 15. Depict the reaction with reagents and mechanism for the conversion of benzaldehyde to cinnamic acid.  
 16. Illustrate Hoffmann-Löffler-Freytag reaction.  
 17. What are the structures of reserpine and cephalosporin ?  
 18. How is the alkaloid structure elucidated ?

(6 × 2 = 12 weightage)

**Section C***Answer any two questions.**Each question carries a weightage of 5.*

19. Predict the products from the following reactions :



20. Explain the correlation diagram for sigmatropic reactions.
21. Explain :
- Secondary orbital interaction ; and
  - [2 + 2] cycloaddition of ketene with alkene with suitable illustrations.
22. How are terpenes classified ? Give example in each class and explain their acid catalyzed rearrangement reaction.

(2 × 5 = 10 weightage)