M. Sc. DEGREE EXAMINATION, APRIL 2024
BRANCH IV- CHEMISTRY
SECOND SEMESTER

COURSE   **: CORE**
PAPER   **: ORGANIC CHEMISTRY – II**
SUBJECT CODE : 23CH/PC/OC24
TIME   **: 3 HOURS**   **MAX. MARKS: 100**

Q. No.	SECTION A (10 x 1 = 10 marks) **Answer ALL Questions**	CO	KL
1	Nucleophilic reagents behave as _____ a) water b) lewis base c) lewis acid d) salt	1	1
2	Using McMurry reaction cyclohexanone is converted to a) Cyclohexyledine cyclohexane b) cyclohexan-1,2-diol c) cyclohexadiene d) 2-cyclohexan-1-cyclohexanol	1	1
3	What is the other name for the intramolecular Claisen condensation? a) Perkin condensation b) Stobbe condensation c) Knoevenagel condensation d) Dieckmann condensation	1	1
4	Which intermediate carbocation is more stable in pinacol -pinacolone rearrangement? a) 1° b) 2° c) 3° d) 4°	1	1
5	Which of the following reactions is called Rosenmund reaction? a.) Aldehydes are reduced to alcohols. b.) Acids are converted to acid chlorides. c.) Alcohols are reduced to hydrocarbons. d.) Acid chlorides are reduced to aldehydes.	1	1
6	1. The oxidation of toluene to benzaldehyde by chromyl chloride is called as which of the following? a) Cannizzaro reaction b) Wurtz reaction c) Etard reaction d) Reimer-Tiemann reaction	1	1

7	Rearrangement of 1,4-Diene by photochemical process this rearrangement is called as a) di-pi methane rearrangement b) Zimmerman rearrangement c) Both a and b d) None of these	1	1
8	Ketene formation takes place in a) Norrish Type-1 b) Norrish Type-2 c) Both a and b d) None of these	1	1
9	When both Diene and dienophiles are cyclic then which adduct formed abundantly a) Endo adduct b) Exo adduct c) Internal adduct d) External adduct	1	1
10	Thermal electrocyclic reactions involving (4n) pi electrons are a) Disrotatory b) Conrotatory c) Antrafacial d) Suprafacial	1	1

Q. No.	SECTION – B (10 x 1 = 10 marks) Answer ALL Questions	CO	KL
11	What is the mechanism of the Neber reaction?	2	2
12	What is the key step in Arndt - Eistert synthesis?	2	2
13	What is Stobbe Condensation?	2	2
14	How does Sommelet-Hauser rearrangements occur	2	2
15	Give any two disadvantages of Swern oxidation	2	2
16	What is the CBS catalyst mechanism?	2	2
17	Give example for Intermolecular $[\pi2 - \pi 2]$ type cylco addition	2	2
18	What is the mechanism of the Barton reaction?	2	2
19	What are electro cyclic reactions give examples.	2	2
20	What is cis-trans photoisomerisation ?	2	2

Q. No.	SECTION C (4 x 6 = 24 marks) ANSWER ANY FOUR QUESTIONS	CO	KL
21	What is neighboring group participation? How is it effected by the presence of C=C, aromatic ring	3	3
22	Give the mechanism for Bischler-Napieralski reaction	3	3
23	Give the mechanism of Chugaev reaction	3	3

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| 24 | Explain di-pi methane rearrangement with suitable mechanism | 3 | 3 |
| 25 | Explain Woodward-Hoffmann rule for electrocyclic reactions using correlation diagram method. | 3 | 3 |

Q. No.	SECTION – D (4 x 8 = 32 marks) ANSWER ANY FOUR QUESTIONS	CO	KL
26	Explain the mechanism of Corey-Kim, Corey-Suggs reactions	4	4
27	Explain how carbene insertions are effective?	4	4
28	Explain Photo-Fries and Claisen rearrangements	4	4
29	Explain Jablonski diagram and mention its importance	4	4
30	Draw correlation diagram for the cycloaddition of 1,3-butadiene and ethylene. Predict whether the reaction is thermally or photochemically allowed.	4	4

Q. No.	SECTION – E (2 x 12 = 24 marks) ANSWER ANY ONE QUESTIONS	CO	KL
31 a 31 b	Discuss the following :- (a) Stork enamine reaction. (b) Favorskii Rearrangement (c) Mannich reactions (or) Discuss the following reaction:- (a) Houben-Hoesch (b) Peterson (c) Rubottom	5	5
32 a 32 b	Write notes on a) Corey-Bakshi-Shibata reduction b) di-pi methane rearrangement c) Photochemistry of α, β-unsaturated enones (or) a) Draw the correlation diagram of the suprafacial [2 + 2] cycloaddition of ethylene to form cyclobutane. Predict whether the reaction is allowed thermally or photochemically b) Give an example for [1,3] and [1,5]-sigmatropic rearrangement reactions. Predict the stereochemistry of their final products with the help of FMO diagrams.	5	5

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