MANIPAL ACADEMY of HIGHER EDUCATION
(Institution of Eminence Deemed to be University)

Reg.No.									

DEPARTMENT OF SCIENCES, II SEMESTER M.Sc. (Chemistry)
END SEMESTER EXAMINATIONS, MAY 2023
ORGANIC CHEMISTRY - II [CHM 5202]
(CHOICE BASED CREDIT SYSTEM - 2021)

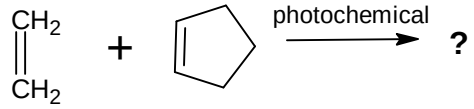
Time: 3 Hours Date: 24-05-2023 MAX. MARKS: 50

Note (i) Answer ALL questions
(ii) Draw diagrams, and write equations wherever necessary

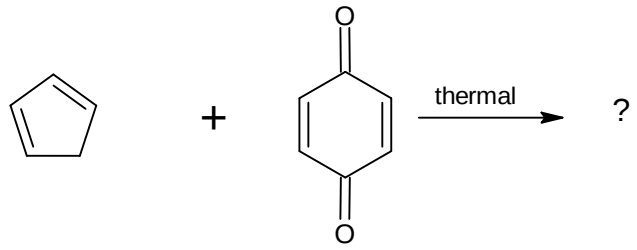
		Marks	CO	BL
1A	Write the reaction for the following. i) Preparation of ferrocene by transmetalation ii) Preparation of propanaldehyde by metal carbonyl iii)Preparation of Zeise's salt iv)Insertion reaction of metal allyl complex	4	5	2
1B	Give the proper conditions and product in the following reactions. i) $(Me_3CCH_2)Ta{=}CHCMe_3 + HCl \xrightarrow{?}$ **?** ii) $(CO_5)W{=}C(OMe)R + BX_3 \xrightarrow{?}$? iii) $K_2(C_8H_8) + NbCl_5 \xrightarrow{?}$? iv) $MgR_2 + Li \xrightarrow{?}$?	4	5	3
1C	Give reason for the following. i) Organoaluminum compounds react with active hydrogen compounds. ii) Organotin compounds and organosilicon compounds have similar properties.	2	5	2
2A	Give the suitable reaction for the following. **i)** Organomagnesium compound acting as a base. **ii)** Organolithium compounds acting as a nucleophile **iii)** Deprotonation reaction of metal hydride complex **iv)** Reduction of metal alkyne complexes	4	4	3
2B	i) Explain the Berry mechanism of isomerism present in $Fe(CO)_5$ complex. ii) Give the reaction involved in the preparation unsaturated alcohol from organosilicon compounds.	4	4	3
2C	Differentiate between the Homonuclear carbene complex and Heteronuclear carbene complex.	2	4	2
3A	Write a note on the following; i) Isolobal behavior in d^7-complexes. ii) Structure of oraganolithium compounds. iii) Π-back bonding in $Ni(CO)_4$. iv) Pyrobhobic behavior of organoboron compounds	4	4	3

3B	i)	Explain the molecular orbital symmetry in 1, 3 - butadiene and discuss its HOMO and LUMO.	4	2	2
	ii)	Explain the mechanism of Cope rearrangement by taking a suitable example.			
3C		Explain the mechanism of Sakurai reaction.	2	3	2
4A		Predict the product and explain the following cycloaddition reactions using FMO approach.	4	1	3

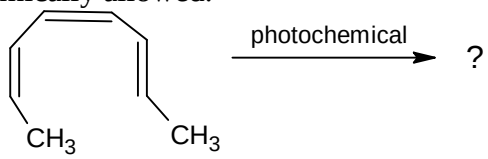
i)



ii)



4B		Describe the role of following reagents in organic reactions using suitable examples.	4	3	2
	i)	DDQ			
	ii)	Selenium dioxide			
4C		What is Claisen rearrangement? Write its mechanism.	2	1	2
5A		Explain the mechanism of following;	4	3	2
	i)	Brook rearrangement			
	ii)	Tishchenko reaction			
5B		Predict the product for the following electrocyclic reaction. Draw the Woodward – Hoffmann correlation diagram and predict whether the transformation is thermally or photochemically allowed.	4	1	3



5C		Write the mechanism of Ugi reaction. How it is different from Cannizzaro's reaction?	2	3	2

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