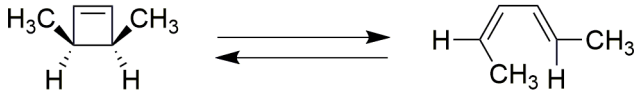
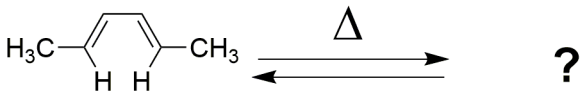
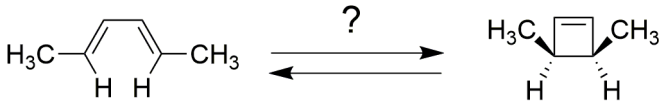
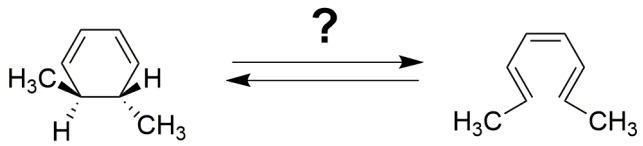
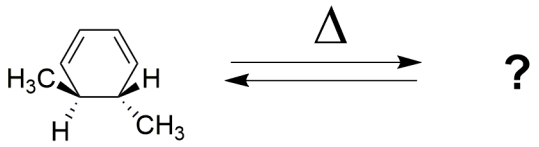
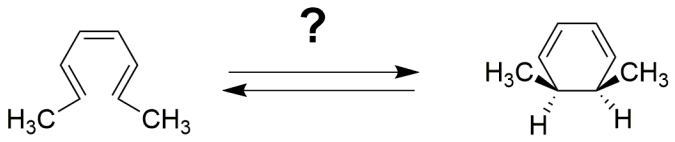
Date: 24.03.2020

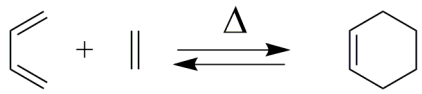
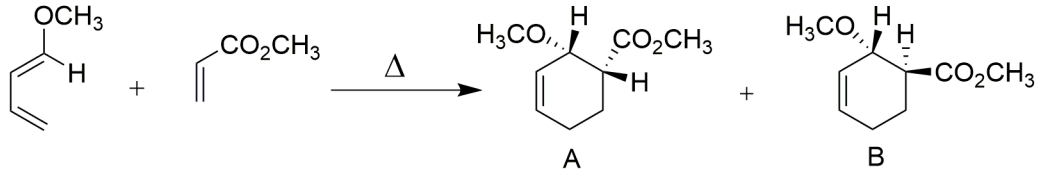
Pericyclic Reaction (M2 CHE 02-CT 06, Organic Chemistry)

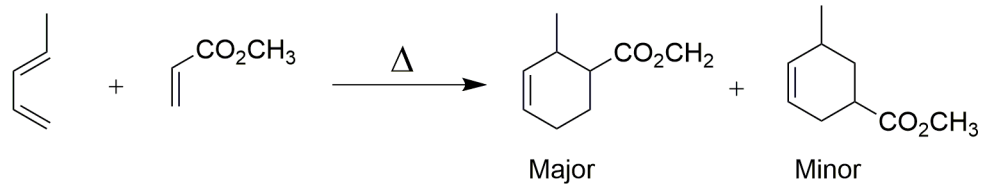
Online Assignment-1

M. Sc. II SEM, Chemistry

Roll No.	Topic
1, 25	What are the pericyclic reactions? Write down the key properties and the classification of these reactions with suitable examples.
2, 26, 49	What is molecular orbital symmetry? Explain the molecular orbital symmetry in following molecules: ethylene, 1,3-butadiene, 1,3,5-hexatriene and allylic system.
3, 27, 50	What is Woodward Hoffmann Correlation diagram? Draw the correlation diagram for the following transformation and also predict whether the transformation is Δ or h*ν* allowed. 
4, 28, 51	Explain the Frontier Molecular Orbital theory. Predict the product in the following reaction using FMO approach. 
5, 29, 52	What is Huckel-Mobius approach to explain a pericyclic reaction? Predict the suitable conditions for the following pericyclic reaction using Huckel-Mobius approach. 

6, 30, 53	What is Woodward Hoffmann Correlation diagram? Draw the correlation diagram for the following transformation and also predict whether the transformation is Δ or hν allowed. 
7, 31, 54	Explain the Frontier Molecular Orbital theory. Predict the product in the following reaction using FMO approach. 
8, 32, 55	What is Perturbation Molecular Orbital theory (PMO) to explain a pericyclic reaction? Predict the suitable conditions for the following pericyclic reaction using PMO method. 
9, 33	What are the electrocyclic reactions? What is the conrotatory and disrotatory motion? Explain with suitable examples.
10, 34	What is cycloaddition reaction? Explain the antarafacial and suprafacial additions with suitable examples.
11, 35, 56	What is ($\pi^2_s + \pi^2_s$) cycloaddition reaction? Explain this reaction using Woodward Hoffmann Correlation diagram.
12, 36, 57	What is (4s + 2s) cycloaddition reaction? Explain this reaction using Woodward

	Hoffmann Correlation diagram.
13, 37, 58	What is (2s + 2s) cycloaddition reaction? Explain this reaction using FMO approach.
14, 38, 59	What is (2 +2) cycloaddition reaction? What is the mode of addition under Δ and h*ν* conditions? Taking the example of $CH_2=CH_2$ molecule explain which condition (viz, Δ or h*ν*) is favorable for (2 + 2) addition.
15, 39,	Explain (2 + 2) addition reaction of $CH_2=CH_2$ molecule using Huckel-Mobius approach.
16, 40, 60	What is ($\pi^4_s + \pi^2_s$) addition reaction? Explain this reaction using FMO approach and also conclude that whether this reaction is Δ or h*ν* allowed.
17, 41	Discuss Perturbation Molecular Orbital theory. Explain the following pericyclic reaction using Huckel-Mobius analysis. 
18, 42	Discuss the endo-exo stereochemistry in Diels-Alder reaction. What is endo rule? Identify the major product in the following (4+2) cycloaddition reaction and explain the reason of its formation. 
19, 43	Discuss the 1,3-dipolar cycloaddition and cheleotropic reactions.
20, 44	What is sigmatropic rearrangement? Discuss suprafacial and antrafacial shifts of H atom with suitable examples.

21, 45	Explain the sigmatropic rearrangement. Discuss the shift of carbon moieties with retention of configuration and with inversion of configuration.
22, 46	Discuss the following in details: Claisen rearrangement Cope rearrangement aza-Cope rearrangement
23, 47	Write the detailed notes on following: Fluxional tautomerism Ene reaction
24, 48	Explain the regeoselectivity in the following Diels-Alder reaction. 

Name of the Faculty

Dr. Tarun Kumar

Date: 24.04.2020