

Seat No. : _____

MB-221

May-2025

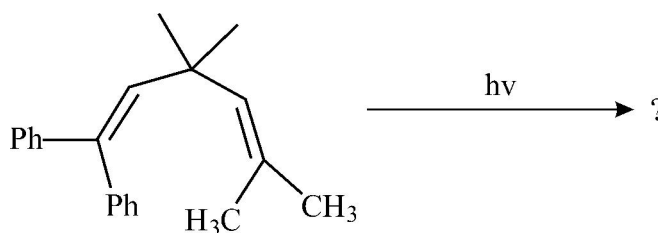
M.Sc., Sem.-II

408 : Organic Chemistry

Time : 2½ Hours]

[Max. Marks : 70

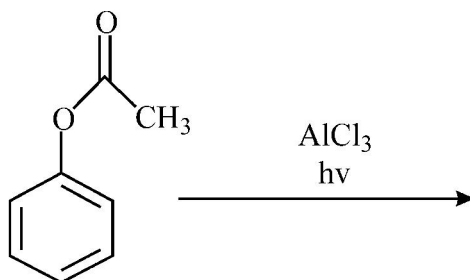
1. (A) Complete the given reaction with mechanism. Identify the major product and explain the reason. 7



- (B) Explain the Jablonski diagram, defining all the terms and transitions involved in the diagram. 7

OR

1. (A) Describe the Norrish Type II reaction with its mechanism. 7
(B) Complete the reaction and explain the reaction with its mechanism. 7



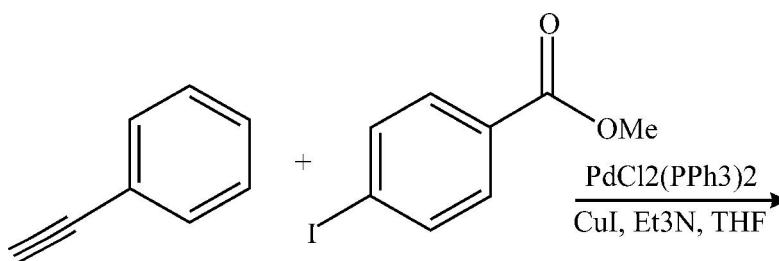
2. (A) Discuss the chemical reactions and synthesis of pyrrole. 7
(B) Discuss the chemistry and chemical reaction of tetrazole. 7

OR

2. (A) Discuss the chemistry of imidazole and provide the synthesis of metronidazole. 7
(B) Discuss the chemistry and synthesis of quinoline. 7

3. (A) Give principle of Shapiro reaction. Write its mechanism by taking suitable example and give two synthetic applications of the same. 7

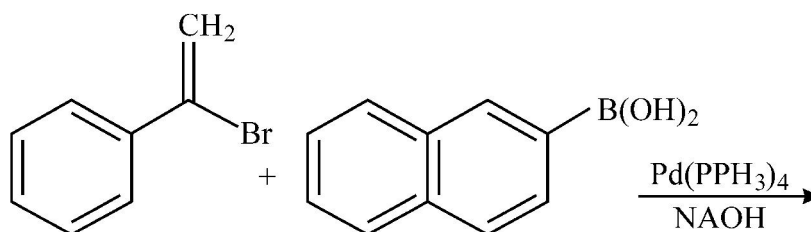
(B) Complete the reaction with its mechanism : 7



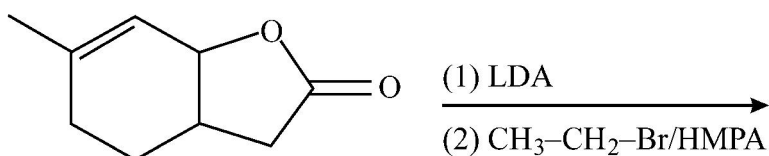
OR

3. (A) What are the key steps involved in the Buchwald-Hartwig amination mechanism ? Discuss the role of the palladium catalyst and the importance of the ligand choice in determining the reaction outcome. 7

(B) Complete the reaction and discuss its mechanism : 7



4. (A) Complete the reaction with its mechanism : 7

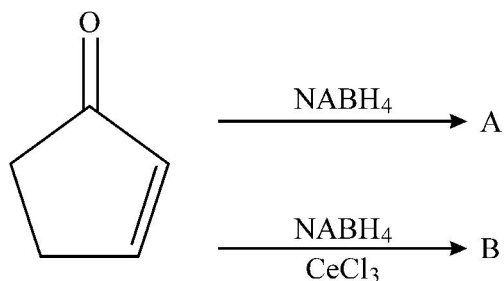


(B) Discuss selectivity, mechanism and three uses of DDQ and Dess-Martin periodinane. 7

OR

4. (A) Discuss selectivity, mechanism and three uses of DIBAL-H and HATU. 7

(B) Complete the reaction with its mechanism : 7



5. Answer any **seven** out of twelve : (each question carries **2** marks)

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- (1) What is Bioluminescence ?
 - (2) Define Photosensitization.
 - (3) What do you mean by Umpolung ?
 - (4) Mention the full name of HATU with structure.
 - (5) Define photoreduction.
 - (6) Give two reactions by using n-BuLi.
 - (7) What is cross coupling reaction ?
 - (8) Draw the chemical structure of azetidine.
 - (9) Write the full name and draw the chemical structure of DMAP.
 - (10) Draw the chemical structure of indolizine.
 - (11) What is specialty of n-Butyl lithium ?
 - (12) What is the order of stability of Carbon radical ?
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