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B.M.S. COLLEGE FOR WOMEN, AUTONOMOUS
BENGALURU-560004
SEMESTER END EXAMINATION-SEPT/OCT-2023

M.Sc. in Chemistry-2nd Semester

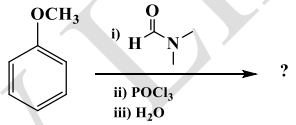
ORGANIC CHEMISTRY-II

Course Code: MCH202T **QP Code: 12008**
Duration: 3 Hours **Max.Marks:70**

Instruction: Answer Question No. 1 and any FIVE of the remaining.

1. Answer any TEN questions **(2X10 =20)**

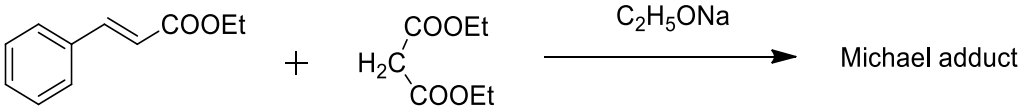
a) Explain the chemoselective reaction with mechanism.
b) Sketch and label an energy profile diagram for an electrophilic substitution reaction, indicating the activation energy and reaction intermediates.
c) Give ene synthesis reaction with an example.
d) Differentiate between essential and non-essential amino acids, providing an example of each type
e) Write the structure of Vitamin B_1 and give its important application.
f) Identify the following reaction and predict the product.



g) Complete the following reaction and write its mechanism
CH_3Br + NaOH → ?
h) Give the Sanger method of protein sequencing.
i) How does the choice of base affect the regioselectivity in E2 elimination reactions? Illustrate with an example.
j) Define racemization and discuss its impact on peptide synthesis.
k) What is Hofmann reaction?
l) Outline the mechanism of Beckmann rearrangement with an example.

2. a) Explain the following
i) influence of substituents in electrophilic aromatic substitution reactions
ii) effects of substituent on the ortho/para ratio
b) Explain the Von Richter reaction in nucleophilic substitution reaction with mechanism.
(6+4=10)

3. a) Write the Michael adduct of the following reaction with detailed mechanism



b) Outline the difference between $LiAlH_4$ and $NaBH_4$ reductions with an example. Explain mechanism involved in it. **(6+4=10)**

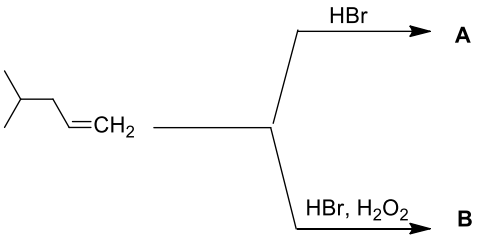
4. a) Sketch the mechanism of Dienone-phenol rearrangement **(5+5=10)**

b) Give the comparative account on Hoffmann, Curtius and Lossen rearrangements.

5. a) Explain the strategies used for the protection of amino and carboxyl groups in peptide synthesis, highlighting the Boc, Z, and Fmoc methods. Provide a rationale for choosing one over the other.

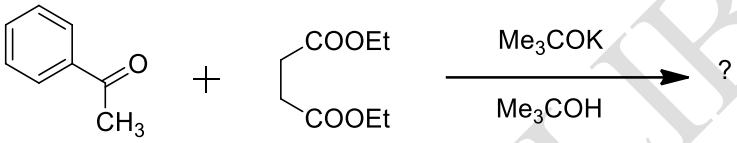
b) Write the synthesis vitamin A and mention its biological importance (**6+4=10)**

6. a) Discuss the Markovnikov and anti Markovnikov product of the following reaction

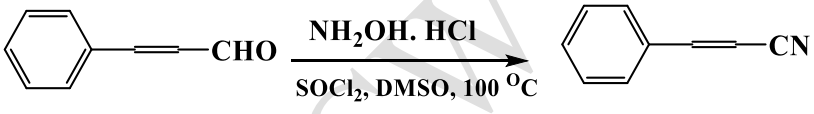


b) Write a short note on solid-phase peptide synthesis (**6+4=10)**

7. a) Complete the following reaction with mechanism.



b) Explain the mechanism involved in the following transformation.



(6+4=10)

8 a) Discuss the Pinacol-Pinacolone rearrangement with mechanism.

b) Explain Goldberg and Bucherer reaction. **(6+4=10)**

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