MANIPAL UNIVERSITY

Reg. No.										

Deemed- to -be -University under Section 3 of the UGC Act, 1956

DEPARTMENT OF SCIENCES, M.Sc (Chemistry)
II SEMESTER END SEMESTER EXAMINATIONS, APRIL 2017

SUBJECT: Organic Chemistry-II [CHM-604]

REVISED CREDIT SYSTEM)

Time: 3 Hours Date: 21/04/2017 MAX. MARKS: 50

Note: **a) Answer any five full questions b) Write diagrams and equations wherever necessary**

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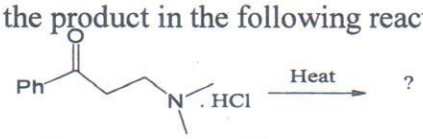
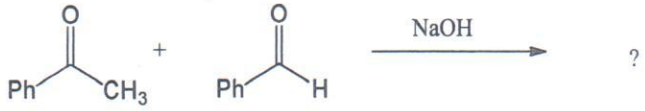
1. **A.** Describe the mechanism of Baeyer-Villiger oxidation. Comment on stereochemistry of the product and migratory aptitude of the migrating groups.

   B. Explain the following reactions with suitable mechanism.

   i) Reformatsky reaction ii) Benzilic acid rearrangement

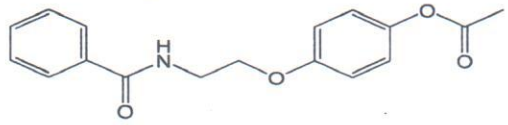
   C. Predict the product in the following reactions:

   i) 

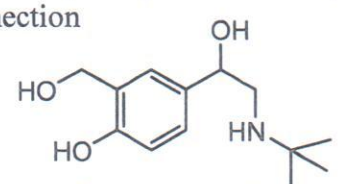
   ii) 

   [4+4+2]

2. **A.** What is chemoselectivity? Predict all the possible disconnections and suggest a synthetic scheme for the following molecule.

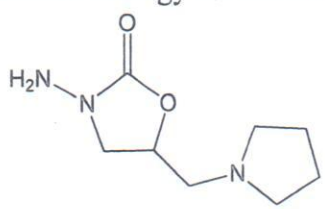


   B. i. What is 1,2-diX relationship? Explain the retrosynthetic strategy for the following drug using this C-C disconnection



   ii. Discuss the general methods for the protection and deprotection of carbonyl compounds.

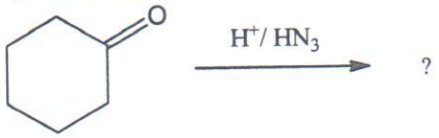
   C. Suggest suitable retrosynthetic strategy for the following heterocyclic compound.



   [4+4+2]

3. **A.** i) What is Perkin reaction? Describe the reaction mechanism and comment on the stereochemistry of product.

ii) Predict the product and explain with suitable mechanism.



B. i) Give reason for the following;

a) Friedel-craft acylation reaction requires excess catalyst.

b) Meerwein-Poundorf-Verley reduction is highly chemoselective.

ii) How are lactones prepared by Bayer- Villiger rearrangement? Discuss the migratory aptitude of migrating group and stereochemistry of the product.

C. Explain the retrosynthetic strategy in case of 1,4-bifunctional compounds.

[4+4+2]

4. **A.** i) Describe the mechanism of addition of alkenes to carbonyl compounds using examples.

ii) What is di-pi methane rearrangement reaction? Write its mechanism.

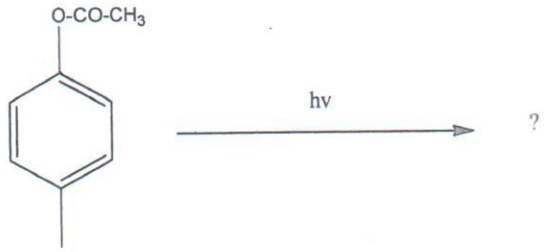
B. Describe the secondary photochemical reactions of carbonyl compounds using examples.

C. Explain the advantages using chiral auxiliary technique in asymmetric synthesis.

[4+4+2]

5. **A.** How is chiral reducing agents prepared from LAH? Comment on the mechanism of the asymmetric reduction reactions.

B. Predict the product and write the mechanism of following reaction. Explain the role of substrate on the reactivity during the reaction.



C. Justify the following statements;

i) Chiral pool technique requires stoichiometric amounts of reactants.

ii) Bulkier ligands are preferred in asymmetric reagents..

[4+4+2]

6. **A.** Describe aldol and alkylation reactions using oxazolidinone auxiliary.

B. Illustrate the use of camphor derivative in asymmetric synthesis.

C. Give reasons for the following;

i)Triplet excited states lead to photochemical reactions in good yield.

ii) Benzophenone acts as photosensitizer.

[4+4+2]

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