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, June 2017

SUBJECT: Organic Chemistry-II [CHM-604]

(REVISED CREDIT SYSTEM)

Time: 3 Hours Date: 15-06-2017 MAX. MARKS: 50

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

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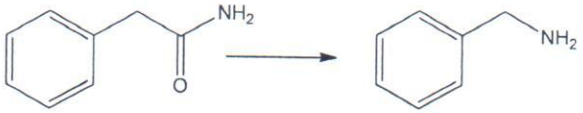
1. A. i. How do you prepare an amine by Curtis rearrangement? Explain the mechanism.
ii. Explain the factors affecting the rate of Diels-Alder reaction.

B. Write suitable reaction conditions and explain the mechanism for the following transformation.

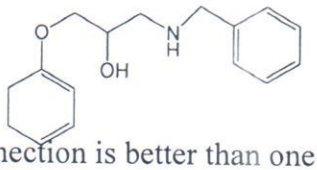
i) 

ii) 

C. Give reason for the following;
i) In fries rearrangement *p*-products are kinetically controlled, while *o*-products are thermodynamically controlled.
ii) Reactivity of diene is increased by electron releasing substituents in Diels-Alder reaction.

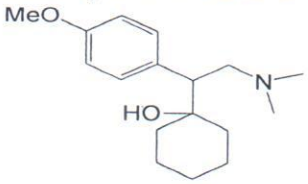
[4+4+2]

2. A. i) What is 1,2-diX relationship? Explain the retrosynthetic strategy for the following Compound.

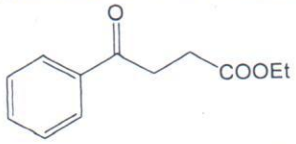


ii) Give reason: Two groups C-X disconnection is better than one group C-X disconnection

B. i) Suggest a retrosynthetic scheme for the following drug Venlafaxine



ii) Propose retrosynthetic method for the following 1,4-diX compound



C. Discuss the general methods for the protection and deprotection of alcohols.

[4+4+2]

3. **A.** i) What are the factors that would influence the migratory aptitude of different substituents in rearrangement reactions?
   ii) What is Reformatsky reaction. Explain the merits of this reaction over Grignard reaction.
   B. i) How is Wittig reagent prepared? Mention two of its applications.
   ii) Explain the mechanism of Reimer-Tiemann reaction.
   C. Explain the retrosynthetic method for 1,6-bifunctional compounds.

[4+4+2]

4. **A.** Write the structure of chiral benzodiazepine derivatives. How is alanine used in its synthesis? Write two of its properties.
   B. What are Evan's Auxiliaries? Discuss two of their synthetic applications.
   C. Explain the mechanism of Barton reaction using an example.

[4+4+2]

5. **A.** Describe two applications each of BINOL & DIOP ligands in asymmetric synthesis.
   B. Write the mechanism of Paterno-Buchi reaction and provide evidences to suggest it is not stereospecific.
   C. Write two of the specific advantages of photochemical reactions over corresponding thermal reactions in synthesis.

[4+4+2]

6. **A.** i) Describe the various reagents used in the synthesis of swainsonine.
   ii) What are chiral sulfoxides? How is it used in asymmetric reduction reaction?
   B. Provide an outline for the preparation of tomolol from d-mannitol.
   C. Give an account of the competitive Norrish type I & II reactions.

[4+4+2]

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