Code No.: 8955

FACULTY OF SCIENCE

M.Sc. III Semester Examination, May/June 2012

ORGANIC CHEMISTRY

Paper II

(Asymmetric Synthesis, Synthesis Strategies Hetero Cyclics)

Time : 3 Hours] [Max. Marks : 80

Answer **all** *questions.*

Section A – (Marks: 8 x 4 = 32)

1. (a) What do you understand by Topocity in molecules? Explain the terms 'enantiotopic' and 'diastereotopic' groups giving examples.

   (b) What is meant by enantiomeric excess and how it is measured?

2. (a) State and explain Cram's rule giving examples.

   (b) Dissus the role of BINAL-H in asymmetric reductions.

3. (a) What is a "Synthon"? Give two examples of it.

   (b) Explain the Robinson annulation with examples.

4. (a) Explain why imidazole is a stronger base than thiazole?

   (b) The boiling point of pyrazole is higher than that of oxazole - Why?

Section B – (Marks: 4 x 12 = 48)

5. (a) State and explain "Stereoselective Reactions" giving examples.

   (b) What is chiral NMR? How it is useful in the study of stereochemistry of molecules?

   Or

   (c) Differentiate between kinetic and Themodynamic control of reactions giving examples.

   (d) Write a note on Chiral PHLC.

6. (a) Discuss asymmetric hydroborations using IPC_2BH and $IPCBH_2$.

   (b) What are Wilkinson and Noyori Catalysts? How are they made? How are they useful in asymmetric hydrogenations?

   Or

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(c) Describe the sharpless asymmetric dihydroxylation and aminohydroxylations.

(d) What is diastereoselective aldol reaction? Explain it by Zimmerman - Traxel model.

7. (a) State and explain synthesis involving ""reversal of polarity" giving two examples.

(b) Write a note on two-bond connections.

Or

(c) What do you understand by "Functional Group Interconversion" and "Functional Group Elimination"? Give examples.

(d) Discuss one group C-C disconnections involving alcohol and carbonyl compounds.

8. (a) Describe any two methods for the synthesis of isoxazoles.

(b) Discuss the tautomerism in imidazoles.

Or

(c) Outline one method each for the synthesis of oxazines and Thiazines.

(d) Describe the importance and two methods of synthesis of pyrimidines.

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