



BBX-2051

Seat No. _____

M. Sc. (Sem. - IV) Examination

March/April - 2014

Organic Chemistry : CHN - 701 (O)

Time : 3 Hours]

[Total Marks : 70

- 1 Answer any three : 14
- (a) Write a note on classification of natural carbohydrates. Give their examples.
 - (b) Give the details of mutarotation.
 - (c) What is prebiotic chemistry ? Discuss the role of carbohydrates in the prebiotic system.
 - (d) Give the classification and differences of nucleic acids. Give one method of synthesis of thymine.
 - (e) Explain general methods of structure determination of nucleosides.
 - (f) Describe properties and reactions of uric acid.
- 2 Answer any three : 14
- (a) Discuss the conformations of cyclopropane and its derivatives.
 - (b) Draw and describe different conformers of 1,2,3,4,5,6 hexa chloro cyclo hexane. Which conformer(s) possess optical activity ?

- (c) Give conformational analysis of bicyclic (1,1,1) pentane and bicyclo (2,1,1) hexane.
- (d) Give conformational analysis of cyclohexanone and Z bromo cyclohexanone.
- (e) Discuss the conformational analysis of cyclohexane-1,2 dicarboxylic acid. Illustrate how chemical methods are useful for finding preferred conformation.

3 Answer any three : 14

- (a) Give synthesis of progesterone from diosgenin.
- (b) Give synthesis of cortisone.
- (c) Discuss the structure elucidation of oestrone.
- (d) Describe the general biosynthesis of steroids.
- (e) Prove the structure of lanosterol.

4 Answer any three : 14

- (a) Explain the DQF ^1H - ^1H cosy spectra of ipsenol.
- (b) Discuss the ^1H - ^{13}C heteronuclear correlation spectrum.
- (c) Describe the TOCSY spectrum of β -lactose.
- (d) Write a note on NMR shift reagents.
- (e) Write on any one of the following nuclear overhauser effect.
 - (i) (^1H) NMR NOE
 - (ii) (^{13}C) NMR NOE

5 Answer any seven in brief : 14

- (a) How can the conversion of oestrone into oestriol be done ?
- (b) Explain the helical structure of DNA.

- (c) Give the definition of steroid.
 - (d) Draw one enantiomeric pair of 1,3 di methyl cyclohexane.
 - (e) What are atrop isomers ?
 - (f) What is the meaning of correlation spectroscopy ?
 - (g) Give the full form of INADEQUATE. What is it ?
 - (h) What is spin decoupling ?
 - (i) Discuss the 2 alkyl ketone effect for cyclohexanone for methyl and isopropyl groups.
 - (j) What is A-T and G-C pair in nucleic acids ?
-