



PZ-841

Seat No. _____

M. Sc. (Sem. IV) Examination

April / May - 2016

Organic Chemistry : Paper - CHN-701(O)

Time : Hours]

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.
(2) All questions carry equal marks.

- 1 Answer any two of the following : 14
- (i) Giving differences between starch and cellulose, explain the molecular weight determination of cellulose through chemical method.
 - (ii) Explain importance of methylation and hydrolysis in proving structure of Amylopectin.
 - (iii) Giving differences in DNA and RNA, explain importance of RNA in biosynthesis of protein.
 - (iv) Evidences for the nature of sugar ring and its linkage in pyrimidine nucleoside.
- 2 Answer any two of the following : 14
- (i) Discuss the conformational analysis of bicyclo [2,2,1] heptane.
 - (ii) Draw and name all conformers of cyclohexanol and explain their stabilities.
 - (iii) Explain the terms constitution, configuration and conformation with examples.
 - (iv) Give conformational analysis of 1,2 and 1,3 dimethyl cyclohexanes.

- 3 Answer any two of the following : 14
- (i) Evidences for the presence of "Gem-Dimethyl" group in Lanosterol.
 - (ii) Discuss the constitution of progesterone.
 - (iii) What are oestrogens ? Discuss the chemical relationship between oestrone, oestriol and oestradiol.
 - (iv) Write note on : Adrenocortical hormones.
- 4 Answer any two of the following : 14
- (i) Write note on NMR shift reagents.
 - (ii) Describe the ^1H - ^{13}C heteronuclear correlation spectroscopy.
 - (iii) Discuss the ROESY spectrum of lactose.
 - (iv) Explain the carbon connectivities for caryophyllene oxide using the INADEQUATE spectrum.
- 5 Answer any seven of the following : 14
- (i) Give name and structure of two purine based present in DNA.
 - (ii) What are reducing and non-reducing sugars ?
 - (iii) Give the structural formula of gun cotton.
 - (iv) What is configuration ?
 - (v) Draw the structure of bicycle [2,1,1] hexane.
 - (vi) Give the synthesis of oestriol from oestrone.
 - (vii) Draw the structure and nomenclature of steroids.
 - (viii) What is HETCOR spectroscopy ?
 - (ix) What is COSY technique ?
 - (x) Give the full form of NOESY and HMBS spectrum.