



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 <sup>1</sup>H - <sup>13</sup>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.

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