



**AAC-2101**

Seat No. \_\_\_\_\_

**M. Sc. (Sem. IV) Examination**

**April - 2019**

**CHN-701(O) - Chemistry : Paper - I**

**(Organic Chemistry)**

Time : 3 Hours ]

[ Total Marks : 70

**1** Answer any **two** :

- (1) Discuss the constitution of cellulose.
- (2) Discuss the constitution and properties of uric acid.
- (3) What is the difference between caffeine and theine? Discuss the constitution of caffeine.
- (4) Discuss the structure of Nucleotides.

**2** Answer any **two** :

- (1) Differentiate among conformations, configurations and isomers. Discuss the conformation analysis of 1, 2-dimethyl and 1, 3-dimethyl cyclohexane.
- (2) What are bridge ring systems ? Discuss the stereochemistry of Bicyclo [1,1,1] pentane and bicyclo [2,2,2] octane.
- (3) What are hydrindanes ? Discuss their possible isomers. Discuss the conformers of cyclohexane-1, 2-dicarboxylic acid.
- (4) Discuss the conformational analysis of 2-bromocyclohexanone and 2-bromo-4, 4-dimethylcyclohexanone.

3 Answer any two :

- (1) Discuss the constitution of Progesterone.
- (2) Compare the structures of Oestrone, Oestriol and Oestradiol.
- (3) What are sterols ? Discuss in brief about Ergosterol.
- (4) What are adrenal cortical hormones ? Discuss the constitution of cortisone.

4 Answer any two :

- (1) What are shift reagents ? What is their importance in NMR ?
- (2) What is 2 D NMR? Discuss  $^1\text{H}$ - $^1\text{H}$  COSY.
- (3) What are HMBC and HMQC? Elaborate with suitable nuclei.
- (4) Discuss the INADEQUATE in reference to  $^{13}\text{C}$ - $^{13}\text{C}$ .

5 Answer any seven :

- (1) Write the formula of two references used in  $^1\text{H}$  and  $^{13}\text{C}$  NMR.
- (2) What do you mean by Perbiotic Chemistry?
- (3) Differentiate between nucleosides and nucleotides.
- (4) What are steroids ? Differentiate between steroids and hormones.
- (5) What do you mean by transformation in steroids?
- (6) Draw the structure of Bicyclo[2,1,1] Hexane and Bicyclo[2,1,1] heptanes.
- (7) What are follicular hormones?
- (8) What is Torsional strain?
- (9) What is Bredt's rule?
- (10) Write the formula of Caffeine, Guanine and Uric acid.