Reg. No.										

INTERNATIONAL CENTRE FOR APPLIED SCIENCES

(Manipal University)

IV SEMESTER B.S. DEGREE EXAMINATION –MAY 2016

SUBJECT: BIOORGANIC CHEMISTRY (CH 243)

(BRANCH: IND. BIOTECH.)

25TH MAY, 2016

Time: 3 Hours **Max. Marks: 100**

- ✓ **Answer ANY FIVE full Questions.**
- ✓ **Draw a neat labeled diagram and equations wherever necessary.**

1A. Explain the following with suitable examples:

i Chain isomerism
ii Functional isomerism
iii Positional isomerism
iv Metamerism

1B. Describe two methods used for resolving racemic mixture into optically active forms.

1C. What is optical activity? State necessary conditions for a compound to show optical isomerism. Illustrate your answer with examples.

(8+6+6= 20 marks)

2A. What are active methylene compounds? Explain the methods of synthesis and applications.

2B. Give an account of stability of cycloalkanes.

2C. What are heterocylic compounds? Give classifications with examples.

(8+6+6= 20 marks)

3A. Explain the preparation and properties of pyridine.

3B. Explain different condition for a molecule to be aromatic and molecular structure of benzene.

3C. Explain the following conversions:

i Ethyl acetoacetate to acetonyl acetone
ii Malonic ester to crotonic acid
iii Ethyl acetoacetate into antipyrine

(8+6+6= 20 marks)

4A. Give an account of synthetic applications of Diazomethane with suitable examples.

4B. Explain the secondary and tertiary structure of proteins.

4C. Comment on aromaticity of heterocyclic compounds.

(8+6+6= 20 marks)

5A. Explain the physical and chemical properties of phenols.
5B. Explain the mechanism of nitration and halogenation of benzene.
5C. Write a note on the following:

i Hyperconjugation
ii Inductive effect
iii Carbenes

(8+6+6= 20 marks)

6A. Explain the chemical properties of phenol.
6B. Explain the methods of preparation of aliphatic carboxylic acids.
6C. Expalin the following:

i) Strecker synthesis ii) Koop synthesis

(8+8+4= 20 marks)

7A. Give an account on aromatic acids and their properties.
7B. Explain why

i. Pyridine is more basic than pyrrole
ii. Pyridine is less basic than aliphatic amines
iii. Pyridine is more basic than aniline

7C. Discuss the factors effecting strength of acids.

(8+6+6= 20 marks)

8A. Explain the general properties of carboxylic acids.
8B. Discuss the action of nitrous acid on a primary, a secondary and a tertiary amine.
8C. Differentiate between fibrous and globular proteins.

(8+6+6= 20 marks)