Reg.No.									

INTERNATIONAL CENTRE FOR APPLIED SCIENCES

(Manipal University)

III SEMESTER B.S. DEGREE EXAMINATIONS - NOV. / DEC. 2016

SUBJECT: ORGANIC CHEMISTRY (CH 231)

(BRANCH: BIOMEDICAL)

Friday, 25 November 2016

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

✓ **Answer ANY FIVE full questions.**

1A.i) What is hybridization? Explain the structure of benzene based on this concept.
ii) Explain the formation of sigma and pi-bonds with suitable examples.

B. Give the orbital structure of the following compounds.
i) Ethane ii) Methyl chloride
iii) Acetone

C. What are the characteristics of Vander Waals force? Explain the types of Vander Waals forces with suitable examples.

(8+6+6)

2A. Explain the following reactions with suitable examples.
i) Wurtz reaction ii) Kolbe's synthesis.
iii) Corey-House synthesis. iv) HVZ reaction

B. Give the mechanism of the following reactions
i) Peroxide effect ii) Markovinkoff's addition
iii) Halogenation of alkanes.

C. Explain the following with suitable examples:
i) Homolytic fission ii) Carbanions iv) Electrophile

(8+6+6)

3A. Why alkyl halides undergo nucleophilic substitution reactions? Explain the mechanism of Unimolecular and Bimolecular substitution reactions of Alkyl halides.

B. Explain any three different chemical properties and applications of Ethyl alcohol.

C. Give an account of different types of Elimination reactions with suitable examples.

(8+6+6)

4A. Explain the following with suitable examples.
i) Cannizzaro reaction ii) Aldol condensation
iii) Wolf Kishner reduction iv) Witting reaction.

B. i) Give the mechanism of nucleophilic addition reaction.
ii) How aldehydes react with the following?
a) Hydroxylamine b) Alcohol

C. Write an account of the following
i) Oxidation of alkenes.
ii) Dehydrogenation of alcohols.

(8+6+6)

5A. Name any four derivatives of carboxylic acids. Give one method of preparing the each compound.

B. How is acetic acid prepared from the following compounds?
i) Methyl cyanide ii) Ethyl acetate
iii) Ethyl alcohol

C. Give any three methods of preparation of cycloalkanes.

(8+6+6)

6A. i) How are Amines classified? Give example.
ii) Explain the following reactions of amines
a) Carbylamine reaction b) Reaction with nitrous acid c) Acylation

B. How are the following compounds prepared from acetaldehyde?
i) Acetic acid ii) Chloral
iii) Ethyl alcohol

C. Explain the concept of resonance and the rules for stability of resonating structures

(8+6+6)

7A. Give the mechanism of the following reactions of Benzene.
i) Halogenation ii) Nitration iii) Friedel-crafts alkylation

B. Write an account of Refining of Petroleum.

C. Explain the following:
i) Octane number
ii) Huckel rule

(8+6+6)

8A. Give the reduction reactions of the following:
i) Nitromethane ii) Methyl cyanide
iii) Acetyl chloride iv) Ethyl alcohol

B. Give an account of isomerism in alkanes and alkenes

C. How are the following compounds prepared from Acetylene?
i) Oxalic acid ii) Glyoxal iii) benzene

(8+6+6)