Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

III SEMESTER B.TECH. (CHEMICAL ENGINEERING)

END SEMESTER EXAMINATIONS, DECEMBER 2017

SUBJECT: ORGANIC CHEMISTRY [CHM 2101]

REVISED CREDIT SYSTEM

Date: 22/12/2017

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A.	Explain Huckel's rule? Discuss the reasonance and molecular orbital structure of benzene. Give any two preparations of Pyrrole.Write the chemical equation for the reaction of Indole with the following i. Ozone in the presence of formamide ii. Hydrogen in the presence of Nickel iii. Sulphur trioxide in pyridine	**5**
1B.	Explain the four levels of structral organisation of proteins. How amino acids are classified based on the number of acidic or basic groups?	**3**
1C.	Give reason for the following: i) Quinoline is less basic than isoquinoline. ii) Benzene undergoes electrophilic substitution reactions whereas alkenes undergo addition reactions.	**2**
2A.	Discuss the Modern theory of colour of dyes. Give a method of preparation and uses of the following: i) Azo dyes ii) Tryphenylmethane dyes iii) Flourescent brightening dyes	**5**
2B.	**(a)** Write the structure of Cellulose and Maltose **(b)** What is epimerisation? Give the reactions involved in the conversion of glucose to mannose	**3**
2C.	Differentiate the following. i. Amylose and Amylopectin ii. Essential and non essential amino acids.	**2**
3A.	Explain the characteristic properties of enzymes? How are they classified. Give the mechanism of enzyme catalyzed reaction by using Arrhenius theory.Write two preparations of amino acids.	**5**

3B.	Give the mechanism of Friedal craft's acylation and halogenation of benzene.	**3**
3C.	How is pyridine synthesized? Explain why secondary amines are more basic than primary and tertiary amines.	**2**
4A.	What are reaction intermediates? Discuss the structure, stability and methods of generation of any three reaction intermediates.	**5**
4B.	i) What is meant by Enantiomeric excess? What is the **ee** of the racemic mixture containing 95% A and 5% B? ii) Label the stereogenic centers and draw all stereoisomers of the molecule given below $CH_3CH_2CH(Cl)CH(OH)CH_2CH_3$	**3**
4C.	i) Define the following terms a) Isoelectric point b) Ortho effect ii) Give reason: Starched cloth is smooth and it shines.	**2**
5A.	Discuss with examples the mechanisms of i) condensation & cyclization and ii) halogenation reactions used in the preparation of industrially important compounds. Explain the synthesis and uses of the following ; i) Diazepam ii) Chloroform	**5**
5B.	Differentiate between: i) Enantiomers and Diastereomers ii) Meso compound and Racemate iii) Singlet and triplet carbenes	**3**
5C.	**a)** Write chemical equations for the following reactions of Maltose i) Oxidation ii) Acetylation **b)** Give reason: Strontium compounds are used to isolate sucrose from molasses.	**2**