(old Scheme)

Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

INSPIRED BY LIFE

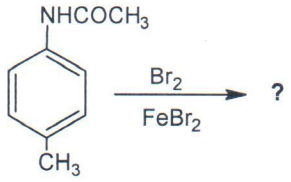
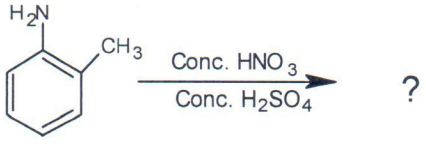
III SEMESTER B.TECH END SEMESTER EXAMINATIONS, NOV/DEC 2015

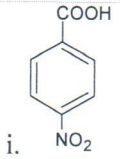
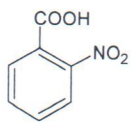
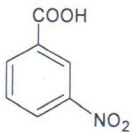
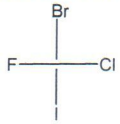
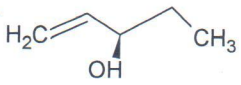
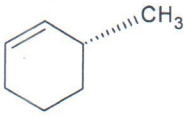
SUBJECT: ORGANIC CHEMISTRY [CHM 201]

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **any five full** questions.
- Missing data may be suitable assumed.

1A.	Explain three reactions of amino and carboxyl groups in the amino acids.	**3**
1B.	Explain the following terms: i. Mutarotation ii. Mesomeric effect iii. Chain isomerism	**3**
1C.	Explain the primary, secondary, tertiary and quaternary structure of protein.	**4**
2A.	Discuss the structure and stability of free radicals.	**3**
2B.	Predict the product/s in the following and explain your reasoning. i.  ii. 	**3**
2C.	Discuss two physical and two chemical properties of starch.	**4**
3A.	i. Describe in mechanism of chlorination of benzene. ii. Explain Ruff's degradation with a suitable example.	**3**
3B.	Compare and explain the acidities of the following molecules:	**3**

	i.  ii.  iii. 	
3C.	i. Explain metamerism and tautomerism using suitable examples. ii. What are heterocyclic compounds? Explain their classification based on electronic structures with examples.	**4**
4A.	Justify the following statements: i. Toluene is more reactive than benzene ii. Amylose has linear chain structure while amylopectin has a branched one. iii. Pyridine is less basic than ammonia.	**3**
4B.	Assign the stereocenter in the molecule as either R or S by stepwise scheme. i.  ii.  iii. 	**3**
4C.	i. Explain D and L designations of sugar. ii. Describe epimerization process using suitable example.	**4**
5A.	Explain the synthesis of the following: i. Cimetidine ii. Codeine iii. Quinoline	**3**
5B.	Describe three theories of enzymatic actions.	**3**
5C.	i. Explain in detail the structure and properties of the following: a. Zwitterion b. Carbenes. ii. Explain the steps involved in the conversion of D-fructose to D-glucose.	**4**
6A.	Differentiate between the following; i. Enantiomers and diastereomers ii. Fibrous and globular proteins iii. Carbocations and carbanions	**3**
6B.	Define specific rotation. Explain the working of a polarimeter using a schematic diagram.	**3**
6C.	i. Explain the shape and hybridization of H_2O. ii. What is barbital? Describe its synthesis.	**4**