Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

III SEMESTER B.TECH END SEMESTER EXAMINATIONS, Dec 2015-Jan 2016

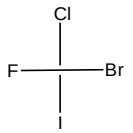
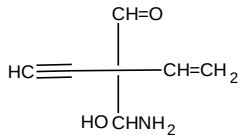
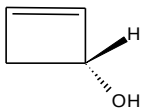
SUBJECT: ORGANIC CHEMISTRY [CHM 2101]

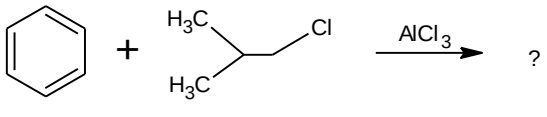
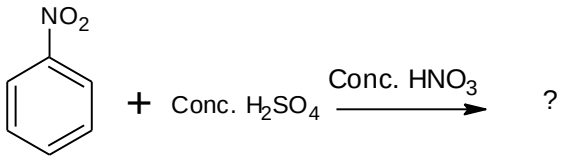
REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

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

1A.	i. a. Explain the mechanism of nitration of benzene. b. What are geometrical isomers? Explain with examples. ii. Describe the synthesis of pyridine from acrolein.	**5**
1B.	Assign the stereocenter in the molecule as either R or S by stepwise scheme. 1.  2.  3. 	**3**
1C.	How are carbocations generated? Discuss its structure and stability.	**2**
2A.	i. a. What are heterocyclic compounds? Explain their classification based on electronic structures with examples b. Explain the mechanism of sulphonation of benzene. ii. Differentiate between the functional and positional isomers.	**5**
2B.	Explain the synthesis of following dyes: **a.** Methyl orange **b.** Congo red **c.** Malachite green	**3**
2C.	Discuss the mechanism involved in the Friedel crafts alkylation of nitrobenzene.	**2**
3A.	Describe a method for the synthesis of the following: **a.** Aspirin **b.** Barbital **c.** Diazepam **d.** Pyrrole **e.** Phenylethyl alcohol	**5**
3B.	Explain the following terms: a. Auxochromes b. Hypsochromic shift c. Paal knorr synthesis.	**3**

3C.	Justify the following: i. Pyrrole undergoes electrophilic substitution at α- position ii. Secondary carbocation is more stable than the primary one.	**2**
4A.	What are carbohydrates? How they are classified? Discuss the evidence leading to the open chain structure of glucose.	**5**
4B.	Give the synthesis for the followings: i.Killiani Fischer synthesis. ii. Gabriel Phthalimide synthesis.	**3**
4C.	Discuss the acidity of aliphatic carboxylic acids.	**2**
5A.	What are enzymes? Give the mechanism of enzyme action. Explain the factors affecting the rates of enzyme catalyzed reaction.	**5**
5B.	Predict the products and explain the mechanisms in the each of the following reactions. **i.**  **ii.** 	**3**
5C.	Discuss on the color reactions shown by proteins.	**2**