Reg. No. | | | | | | | | | | Makeup

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

INSPIRED BY LIFE

III SEMESTER B.TECH END SEMESTER EXAMINATIONS, NOV 2015-DEC 2016

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 the effects of the following on the acid strength: **3**

i. Hydrogen bond. ii. Steric hinderance iii. O-effect

1B. Discuss the structure, stability and two reactions of carbocations. **3**

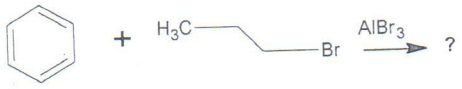
1C. Differentiate the following: **4**

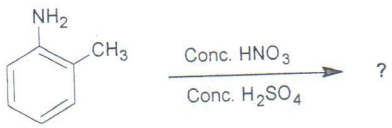
i. Structural and stereoisomers
ii. Position and functional isomers
iii. Electromeric effect and mesomeric effect
iv. Enantiomers and diastereomers

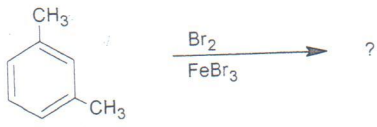
2A. Explain the following terms: **3**

Dipole moment ii. Carbenes iii. Semisynthetic flavours

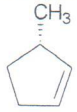
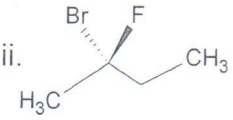
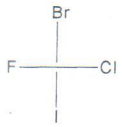
2B. Predict the product/s in the following and explain your reasoning. **3**

a. 

b. 

c. 

2C. Discuss two physical and two chemical properties of cellulose. **4**

3A.	i.	Explain the mechanism involved in the generation of nitronium ion from the conc. Sulfuric acid and conc. Nitric acid.	3
	ii.	Describe the mechanism of friedel crafts alkylation.	
3B.		Describe the mechanism of suphonation of benzene in detail.	3
3C.	i.	Explain two methods of synthesis of pyrrole.	4
	ii.	Explain the shape and hybridization of NH_3.	
4A.		Justify the following statements: i. Humans cannot use cellulose as food. ii. Quinoline is a slightly weaker base than pyridine. iii. Trans isomers are more stable than cis isomers.	3
4B.		Assign the stereocenter in the molecule as either R or S by stepwise scheme. i.  ii.  iii. 	3
4C.	i.	Describe the formation of H_2 molecule using orbital sketch and write MO energy level diagram.	4
	ii.	Explain the significance and classification of heterocyclic compounds.	
5A.		What are enzymes? Give the Mechanism of enzymatic reaction.	3
5B.		How are α-amino acid prepared? Describe any two methods and two important reactions of α- amino acid?	3
5C.		Explain the following terms with examples. i. Isoelectric point ii. Mutarotation iii. Epimerization iv. Denaturation	4
6A.		Discuss the structure of sucrose. Why is it not a reducing sugar?	3
6B.		Describe the conversion of aldohexose into aldopentose.	3
6C.		What happens when glucose treated with the following reagents? i. Br_2/H_2O ii. Con. HNO_3 iii. HI/P iv. Phenyl hydrazine	4