Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (New) EXAMINATION – WINTER 2015

Subject Code:2130404 **Date:29/12/2015**

Subject Name: Fundamentals of Organic Chemistry

Time: 2:30pm to 5:00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1		**Short Questions**	**14**
	1	What is cis and trans isomer?	
	2	Define Chirality.	
	3	Give two chlorinating agents.	
	4	Is Lactic acid is optically active or not?	
	5	Define 'saponification value'.	
	6	Draw the structure of DNA.	
	7	What is Anthraquinone dyes?	
	8	Give one example of amphoteric acid with structure.	
	9	What is used as internal reference in NMR spectroscopy?	
	10	Define free redical.	
	11	Give full form of HPLC.	
	12	Define the term: Inductive effect.	
	13	What is unit process?	
	14	Define hybridization.	
Q.2	**(a)**	Explain Gas chromatography in detail.	**03**
	(b)	Enlist methods for the Resolution of racemic mixture in detail.	**04**
	(c)	Explain unit process of sulphonation with mechanism in detail.	**07**
		OR	
	(c)	What are hydrocarbons? Give classification of it with example.	**07**
Q.3	**(a)**	Write a short note on colorimetric analysis.	**03**
	(b)	Explain any Nucleophilic substitution reaction with mechanisam.	**04**
	(c)	Explain step wise formation of ester from carboxylic acids.	**07**
		OR	
Q.3	**(a)**	Explain the application of Polarimeter.	**03**
	(b)	Give the synthesis of Phenolphthalein.	**04**
	(c)	What are reactive intermediates? Explain carbonium and nitrenes in detail.	**07**
Q.4	**(a)**	Define the terms: Nucleophile and Electrophile	**03**
	(b)	What are proteins? Give classification of them on the basis of structures.	**04**
	(c)	Classify dyes on the basis of their applications.	**07**

OR

Q.4	**(a)**	Give the synthesis of Congo red.	**03**
	(b)	What is isomerism? Explain optical isomerism in detail.	**04**
	(c)	Explain Friedel Craft alkylation and acylation with mechanisam.	**07**
Q.5	**(a)**	Explain manufacturing of toluene from benzene.	**03**
	(b)	Write a short note on steric effect and hyper conjugation.	**04**
	(c)	Explain Molecular orbital theory governing colors.	**07**

OR

Q.5	**(a)**	Write a short note on Geometerical isomerism.	**03**
	(b)	Enlist classification and preparation of amino acids with examples.	**04**
	(c)	Enlist manufacturing of Cane Sugar from Sugarcane with flow sheet diagram.	**07**