Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – III • EXAMINATION – WINTER 2012

Subject code: 130501 **Date: 04-01-2013**

Subject Name: Organic Chemistry and Unit Processes

Time: 10.30 am – 01.00 pm **Total Marks: 70**

Instructions:

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

Q.1	**(a)**	(i) What is synthetic petrol?	**01**
		(ii) Define: Auxochrom, Invert sugar, Octane number.	**03**
		(iii) Explain the terms : Cetane number and Shale gas.	**03**
	(b)	(i)What is Pigment? Explain the modern theory of colour.	**04**
		(ii) Explain electrophile and nucleophile with one example of each.	**03**
Q.2	**(a)**	(i)What is stereochemistry?	**01**
		(ii)Explain the following terms with the example of tartaric acid and required figures: Enantiomers, Diastereomers, Meso forms and racemic mixture.	**06**
	(b)	Explain SN_1 and SN_2 with suitable example.	**07**
		OR	
	(b)	Explain the mechanism of nitration and chlorination reaction with example.	**07**
Q.3	**(a)**	What are grignard reagents? Describe the preparation of any one grignard reagent and state any two types of alcohols from it.	**07**
	(b)	Write the manufacturing processes of CH_3COOH and HCOOH.	**07**
		OR	
Q.3	**(a)**	Explain the chemical and physical properties of Carboxylic acids along with the formation of important derivatives of Carboxylic acids.	**07**
	(b)	Write about general physical and chemical properties and uses of trichloromethane and methanol.	**07**
Q.4	**(a)**	Draw the structural formula of Sucrose. Explain the manufacturing process of glucose.	**07**
	(b)	Write the preparation, properties and use of primary aromatic amine.	**07**
		OR	
Q.4	**(a)**	Explain the reaction, mechanism and application of Michael reaction.	**07**
	(b)	Give examples of polynuclear aromatic compound with structure and explain sulphonation of naphthalene.	**07**
Q.5	**(a)**	Explain the term 'Heterocyclic compound'. Discuss about any one Five member ring compound containing 'N' as heteroatom.	**07**
	(b)	Write the chemical reaction, properties and uses of benzene.	**07**
		OR	
Q.5	**(a)**	Differentiate and Distinguish between synthetic and natural polymers.	**07**
	(b)	Explain F.C. alkylation, acetylation and reduction of an aromatic compound.	**07**

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