

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (NEW) EXAMINATION – SUMMER 2019

**Subject Code: 2130501**
**Date: 15/06/2019**
**Subject Name: Organic Chemistry and Unit Processes**
**Time: 02:30 PM TO 05:00 PM**
**Total Marks: 70**
**Instructions:**

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

		MARKS
<b>Q.1</b>	(a) Define the term: Stereoisomerism, Chiral Carbon, Optical activity.	<b>03</b>
	(b) What is cracking? State its importance? Define Octane number & cetane number.	<b>04</b>
	(c) Explain with suitable example of $S_N^2$ Reaction.	<b>07</b>
<b>Q.2</b>	(a) Write the derivatives of carboxylic acid.	<b>03</b>
	(b) Explain Electrophillic addition reaction.	<b>04</b>
	(c) Write a note on optical isomerism of lactic acid and tartaric acid.	<b>07</b>
	<b>OR</b>	
	(c) Discuss the manufacturing of Nitrobenzene from benzene by continuous nitration with fortified spent-acid process.	<b>07</b>
<b>Q.3</b>	(a) State nitrating agents and sulphonating agents.	<b>03</b>
	(b) With reactions discuss the sulphonation of benzene.	<b>04</b>
	(c) Explain the manufacturing process of Acetic acid.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Give diazotization reaction along with its mechanism.	<b>03</b>
	(b) Explain preparation of “Synthetic Petrol” by Bergius method.	<b>04</b>
	(c) Write in detail Howarth's synthesis, properties and use of Naphthalene	<b>07</b>
<b>Q.4</b>	(a) Define the term : Free radical, electrophile and nucleophile.	<b>03</b>
	(b) Discuss preparation, properties and uses of Pyrrole.	<b>04</b>
	(c) Give mechanism and application of Cannizzaro reaction and Wolf-Kishner reaction.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Give the synthesis and Uses of Sulphanilamide.	<b>03</b>
	(b) What do you understand by isoelectric point of amino acids? Explain.	<b>04</b>
	(c) Manufacturing of sucrose from sugar cane with flow diagram.	<b>07</b>
<b>Q.5</b>	(a) Discuss preparation, properties and uses of furan.	<b>03</b>
	(b) What are $\alpha$ -amino acids? Discuss any one method of preparation for Glycine.	<b>04</b>
	(c) Explain the classification of dyes on the basis of their Chemical Constitution. Give the synthesis of Congo Red.	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Explain the Witt's theories to explain the colour concept.	<b>03</b>
	(b) Write a note on Killiani fischer synthesis.	<b>04</b>
	(c) Give the synthesis and application of Paracetamol and Chloroquine.	<b>07</b>

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