Seat No.:	Enrolment No
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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV(New) EXAMINATION - SUMMER 2016

Subject Code:2143606 Date:08/06/2016

Subject Name: Advanced Organic Chemistry for Technologists

Time:10:30 AM to 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.

			MARKS
Q.1		Short Questions	14
	1 2 3 4 5 6 7 8 9 10 11	Cyclo heptatriene is aromatic or non aromatic? From -CH $_3$, -NO $_2$ & -Cl groups, which group is strong deactivating group? Define: Sigmatropic reaction. Give IUPAC name of Benzene. Alkene show geometrical isomerism due to: Draw the structure of [14] - Annulene. How many isomers are possible for the compound with formula C $_4$ H $_8$? The formula of optical active acid compound is C $_5$ H $_10$ O, what is its structure? Explain why pyridine does not undergo friedel-craft reaction. What is the structure of [4] - Annulene? Explain the term 'Concerted reaction'. Define the term: Annulene	
Q.2	13 14 (a)	Nitrobenzene, Benzoicacid & Acetanilide, which will undergo o/p substituents? Draw the structure of Indigo. What is Huckel rule? Write the structure of two compounds that follow this rule.	03
	(b)	Explain why, Methyl (-CH₃ group) acts as ortho-para director.	04
	(c)	Explain Pinacol-Pinacolone rearrangement with mechanism.	07
		OR	
	(c)	Explain Claisen - Dieckmann condensation reaction with mechanism	07
Q.3	(a)	How will you convert Nitrobenzene into 4,4'- Benzidine?	03
	(b)	Explain Skruap synthesis with mechanism.	04
	(c)	How is furan synthesized? Describe its important reaction. OR	07
Q.3	(a)	Explain why, Nitro (-NO ₂ group) acts as meta director.	03
	(b)	Write a note on: Opposite behavior of Halogen group.	04
	(c)	How is pyrrole synthesized? What happens when pyrrole treated with the	07

following reagents:

- a. Nitric acid in acetic anhydride at -10° C.
- b. Sulfur trioxide in pyridine.
- c. Benzenediazonium chloride.
- d. Bromine in alcohol.
- Q.4 (a) Write a note on: Diastereomers

03

(b) Explain Gabriel synthesis in details. 04

(c) How is pyridine synthesized? Describe its important reactions. 07

OR

Write a note on: Optical Isomerism of Tartaric acid. **Q.4** (a)

03

1. Assign E,Z notation to each of the following; (b)

04

$$Me N(CH_3)_2$$

$$C=C$$

$$H_2N Et$$

- 2. Assign R,S configuration to each of the following; b.

Write a note on: Beckmann rearrangement

07

(a) Explain Thiophene is aromatic in nature. Q.5

03

(b) Explain why,

04

07

- a. Pyridine is more basic than pyrrole.
 - b. Pyridine is less basic than aliphatic amine.
- Name the following reaction and Explain its mechanism & application in detail. (c)

$$CH_3$$
 $Zn(Hg)$ HCl CH_3

OR

Explain MPV reduction in details. Q.5 (a)

03

(b) Which of the following compound show geometrical isomerism.

04

a.
$$CH_3CH=CH_2$$

b. $CH_3C=CCHCH_3$
l l Br Br
c. $CH_3CH_2CH_2CH=CHCH_3$

(c) Explain Hydroboration - Oxidation reaction with mechanism in details.

07