Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. - SEMESTER– IV • EXAMINATION – SUMMER-2016

Subject Code: 2240004 **Date: 01/06/2016**

Subject Name: Pharmaceutical Chemistry-VI (Organic Chemistry-II)

Time: 10:30 AM to 1:30 PM **Total Marks: 80**

Instructions:

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

Q.1 **(a)** What is racemic modification? Enlist different methods of resolution of racemic modifications and explain any one method in detail. **06**

(b) Assign R & S configuration for following : **05**

1)

2)

3)

4)

5)

(c) What is configuration and conformation? Explain with suitable examples. Write in brief about Atropisomerism. **05**

Q.2 **(a)** Give the structure and numbering of following : **06**

i) Furan ii) Oxazole iii) Pyrazine

iv) Benzimidazole v) Isoquinoline vi) Indole

(b) Give the synthesis and reactions of pyridine **05**

(c) Predict the product for the following reactions : **05**

1)

2)

3)

4)

5)

Q.3	**(a)**	Write a short note on followings (Any Two): 1) Knoevenagel condensation 2) Hofmann rearrangement 3) Aldol condensation	**06**
	(b)	Answer the following (Any Two): 1) Why thiophene is more stable and more aromatic than pyrrole and furan ? 2) Why pyridine undergoes electrophilic substitution at β -position ? 3) Why pyrrole is weak base than pyridine?	**05**
	(c)	Describe in detail about Nucleophilic aromatic substitution reaction with suitable examples.	**05**
Q.4	**(a)**	Explain why aldehydes are more reactive than Ketones for nucleophilic addition reaction and add a note on Cannizzaro reaction ?	**06**
	(b)	Answer the following (Any Two): 1) Describe how primary, secondary and tertiary amines can be distinguished from one another ? 2) How will you differentiate the following pair of compounds by simple chemical test ? i) Pentanal and Pentanone ii) Aniline and phenol 3) What is the correct order of reactivity (most reactive first) of pyrrole furan and thiophene towards electrophiles?	**05**
	(c)	Write short notes on 1) Grignard reactions of Aldehydes and Ketones 2) Claisen Ester synthesis	**05**
Q.5	**(a)**	Write short notes on (any two) : 1) Fischer indole synthesis 2) Knorr Pyrrole synthesis 3) Skraup Quinoline synthesis	**06**
	(b)	Give two methods of synthesis and two reactions of any two of the following heterocycles : 1) Furan 2) Pyridine 3) Pyrrole	**05**
	(c)	Explain acid catalyzed esterification of carboxylic acids	**05**
Q. 6	**(a)**	What are diastereomers ? Explain with suitable examples	**06**
	(b)	Write in brief conformational analysis of n-Butane	**05**
	(c)	Give two methods of synthesis & reactions of carboxylic acid and its derivatives	**05**
Q.7	**(a)**	Describe in details about principles and applications of nanochemistry	**06**
	(b)	Enlist the "Green chemical principles". Give a brief account of green chemistry, its advantage and add a note on reactions using microwave energy.	**05**
	(c)	Write short notes on (any two) : 1) Wittig reaction 2) Michael addition reaction 3) Perkin condensation	**05**

****