Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. – SEMESTER – IV • EXAMINATION – WINTER • 2014

Subject Code: 240003 **Date: 29-12-2014**

Subject Name: Pharmaceutical Chemistry - IV

Time: 02:30 pm - 05:30 pm **Total Marks: 80**

Instructions:

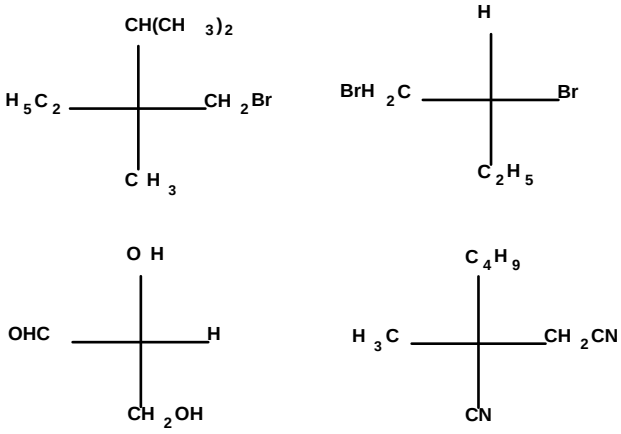
1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 (a) Enlist the different methods for the preparation of amines and explain Hofmann degradation method with mechanism. **06**

(b) Give the detailed reaction and mechanism for nitration of benzene. **05**

(c) Write a short note on Huckel's rule. **05**

Q.2 (a) Give the R & S configuration to following compounds. **06**



(b) Write a note on arenes. **05**

(c) Enlist the different methods of preparation of aldehydes and explain any two of them. **05**

Q.3 (a) Comment on the following statement. **06**

i. Ketones are more reactive than aldehydes towards nucleophilic addition reaction.
ii. Halogens are meta- director groups towards electrophilic aromatic substitution reaction.
iii. Esters are more reactive than acid chlorides towards nucleophilic substitution reaction.

(b) Explain the nucleophilic addition to α, β-unsaturated carbonyl compounds with example. **05**

(c) What is racemic mixture? Write a short note on resolution of racemic mixture. **05**

Q.4 (a) Give the following conversions. **06**

i. Benzene to ethylbenzene
ii. Aniline to phenol
iii. Phenol to salicylic acid
iv. Malonic acid to 2-methylpropanoic acid

(b) Describe the method for preparation of diazonium salt and explain their importance in organic synthesis with respect to sandmeyer's reaction. **05**

	(c)	Write a note on microwave synthesis.	**05**
Q.5	(a)	Define phenols, and explain any two methods for the synthesis of phenols.	**06**
	(b)	What is nucleophilic aromatic substitution reaction? Explain the bimolecular displacement mechanism with example.	**05**
	(c)	Which product would be formed from the reaction of benzoyl chloride with aniline, explain with mechanism.	**05**
Q. 6	(a)	Enlist the different methods for the synthesis of carboxylic acids and explain the Kolbe reaction.	**06**
	(b)	What is conformation? Draw all conformers of n-butane and comment on stability of each conformer.	**05**
	(c)	Give the structures and IUPAC name of the following compounds. i. Trifluoroacetic acid ii. Anthranilic acid iii. Diethyl oxalate iv. Propyl acetate v. Diethyl ketone	**05**
Q. 7	(a)	I. The observed rotation of 2.0 gm of compound in 20 ml of solution in polarimeter 50 cm long tube is +13.4. What is the specific rotation of the compound? II. Explain the following terms. Stereoselective and sterespecific reactions	**06**
	(b)	Write a short note on Reimer-Tiemann reaction.	**05**
	(c)	Write a short note on acetoacetic ester synthesis.	**05**

****