Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code: 240003 Date: 21-05-2014

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)	What are amines? Explain why aliphatic amines are more basic as compared to aromatic amines.	**06**
	(b)	Comment on low reactivity of aryl halides towards nucleophilic aromatic substitution reaction.	**05**
	(c)	Enlist various reactions of amines and discuss the formation of alkenes from amines.	**05**
Q.2	(a)	What is racemic mixture? Discuss any three methods to resolve racemic mixture.	**06**
	(b)	Give different reactions of alkylbenzenes.	**05**
	(c)	Halogens though are electron withdrawing give ortho-para orientation in electrophilic aromatic substitution reaction. Explain with structural examples.	**05**
Q.3	(a)	What are carbonyl compounds? Give four different methods for preparation of ketones.	**06**
	(b)	Explain Nitrile synthesis for the preparation of carboxylic acids and comment on the effect of substituents on acidity of carboxylic acids.	**05**
	(c)	What is nanochemistry? Discuss application of nanochemistry in Pharmacy.	**05**
Q.4	(a)	Discuss with reaction mechanism Howarth synthesis of Naphthalene.	**06**
	(b)	What is conformation? Discuss various conformers of n-butane with respect to stability and potential energy.	**05**
	(c)	Explain why the addition of bromine to cis and trans 2-butene is stereospecific as well as stereoselective. Support your answer with suitable reaction mechanism.	**05**
Q.5	(a)	Explain benzyne mechanism giving suitable evidence for each step.	**06**
	(b)	Nitration occurs at alpha position in naphthalene more rapidly as compared to beta position. Explain with structural examples.	**05**
	(c)	Enlist various reactions of aldehydes and ketones. Explain reactions of Grignard reagent with aldehyde and ketones.	**05**
Q. 6	(a)	Draw structures of following compounds. i. 3-Nitro-4`-methylbenzophenone ii. 2-Methylbutanoicacid iii. N-Isobutylaniline iv. 2-Methylpropenoic acid v. 1,4 diphenyl-1,3-butadiene vi. 2,4-dinitrobenzonitrile	**06**
	(b)	Give a brief account on stereochemistry of spirans.	**05**
	(c)	What are esters? Explain mechanism of acid catalyzed transesterification.	**05**
Q.7	(a)	Explain Michael addition with examples and reaction mechanism.	**06**
	(b)	Comment on side chain halogenations of alkylbenzene.	**05**
	(c)	Discuss Hell-Volhard-Zelinsky reaction with mechanism.	**05**

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