Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2143606 **Date: 12/06/2017**

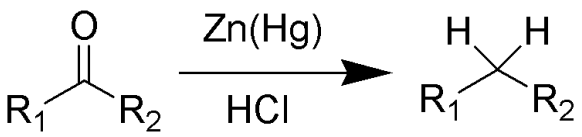
Subject Name: Advanced Organic Chemistry for Technologists

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	What is NGP?	
	2	Decreasing order of basicity among Pyridine, Pyrrole, and primary amine?	
	3	Two examples of five membered heterocylic compounds.	
	4	Nitro group is o, p or m directing?	
	5	Define Huckel Rule.	
	6	What is the electrophile in Friedel Craft Acylation reaction.	
	7	What is symmetry?	
	8	Describe Isomerism.	
	9	Draw structure of [8] annulene.	
	10	Draw structure of 3-Bromo-1-ethyl-4-nitrobenzene.	
	11	Define optical isomerism.	
	12	State Saytzeff Rule.	
	13	What is Walden inversion?	
	14	At which position electrophilic substitution takes place in Furan.	
Q.2	**(a)**	Write a note on applications of organic reactions (few) you studied so far.	**03**
	(b)	State major and minor products of addition reaction of But-1-ene and HBr. Give reactions and reasons.	**04**
	(c)	Recognize following reaction and propose detailed mechanism:	**07**



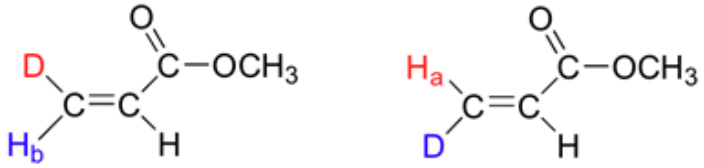
Where $R_1 = CH_3$ & $R_2 = C_2H_5$

OR

	(c)	Write mechanism of Electrophilic Substitution Reactions, by taking suitable example.	**07**
Q.3	**(a)**	Write short note on Markovnikov's Rule.	**03**
	(b)	Write short notes on: Racemic Mixture & Meso compounds	**04**
	(c)	Discuss detailed mechanism of Meerwein-Ponndorf-Verley reduction.	**07**

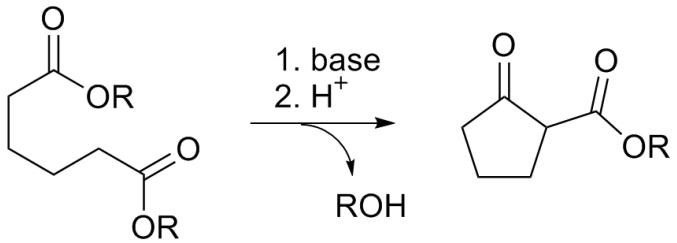
OR

Q.3	**(a)**	Discuss, which among following are aromatic: naphthalene, cycloheptatriene, pyrrole	**03**
	(b)	Give E & Z Notation to the following: i).	**04**



ii).

(c) Identify following Name reaction, explain and propose detailed mechanism for the same: **07**



Where R = CH_3

Q.4 **(a)** Write a short note on Geometrical Isomerism. **03**

(b) Discuss Pinacol-Pinacolon rearrangement. **04**

(c) Write methods of synthesis for Pyridine. Also write its reaction with Br_2, $NaNH_2$, H_2/Ni **07**

OR

Q.4 **(a)** Write a note on conformational isomerism. **03**

(b) Explain Hydroboration reaction with suitable examples. **04**

(c) Write a note on aromaticity of Heterocyclic compounds. Also write Nitration, Sulphonation and Acylation reactions of Furan. **07**

Q.5 **(a)** Write a note on Biological importance of heterocyclic compounds. **03**

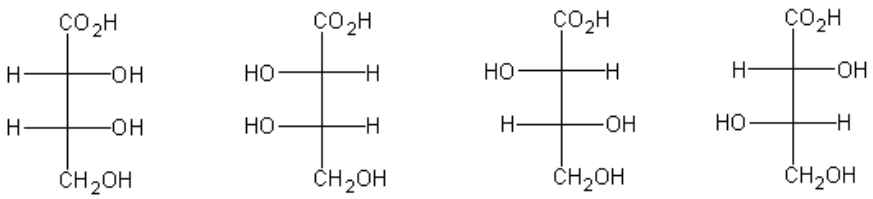
(b) Write a detailed note on optical activity of tartaric acid. **04**

(c) Write detailed mechanism of SN1 & SN2 reactions with suitable examples. **07**

OR

Q.5 **(a)** Write the activity order of Alkyl halides for E1 & E2 reactions, gives reasons too. **03**

(b) Identify enantiomeric and diasteromeric pairs from following: **04**



I II III IV

(c) Write detailed mechanism and applications of Michael Reaction. **07**

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