Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. – SEMESTER – III • EXAMINATION – WINTER • 2016

Subject Code: 2230004 Date: 25-11-2016

Subject Name: Pharmaceutical Chemistry – IV (Organic Chemistry - I)

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)**	Define hybridization. Explain hybrid orbitals with examples.	**06**
	(b)	Explain different types of bond by giving examples of each type.	**05**
	(c)	Explain the principle of Dumas method and Kjeldahl's method in detail.	**05**
Q.2	**(a)**	Write a note on Molecular orbital theory.	**06**
	(b)	Define and explain following: i) Stearic effect ii) Electrophile iii) Polarity of bonds iv) Carbanion v) Substitution reaction	**05**
	(c)	Write short notes on Markonikov's rule in detail.	**05**
Q.3	**(a)**	Write short notes on Haworth synthesis of naphthalene in details.	**06**
	(b)	Write detail short notes on Huckel Rule for aromaticity.	**05**
	(c)	Define carbocation. Discuss the structure and reactions of carbocations	**05**
Q.4	**(a)**	Discuss the mechanism and stereochemistry of SN^1 and SN^2 reaction.	**06**
	(b)	Give structural formula of the following compounds. 1. 2,3- dimethyl-4-pentyne 2. 2,3-dimethyl-3-hexene 3. Isobutane 4. 2,2,4-trimethylpentane 5. 2-bromo-3-chloro-1-pentene	**05**
	(c)	Discuss in detail about Grignard reaction for the synthesis of Alkanes and Alcohols.	**05**
Q.5	**(a)**	Write a note on Williamson's synthesis of ether.	**06**
	(b)	Write a note on Aldol condensation.	**05**
	(c)	Write a note on Neighbouring group effects	**05**
Q. 6	**(a)**	Correct if necessary and justify the following statements: 1. Benzene undergoes electrophilic substitution reaction. 2. Lower alcohols are insoluble in water. 3. Primary carbocation is more stable than tertiary carbocation.	**06**
	(b)	Write a note on Electronegativity and polarity	**05**
	(c)	Write a note on Hyperconjugation and its effect on chemical properties with relevant examples	**05**
Q.7	**(a)**	Give the preparation of benzene and anthracene.	**06**
	(b)	Give the preparations and reactions of carbenes.	**05**
	(c)	Give two methods for synthesis of alkynes and alkyl halides	**05**

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