Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. PHARM. - SEMESTER – III • EXAMINATION – WINTER 2012

Subject code: 230003 **Date: 31/12/2012**

Subject Name: Pharmaceutical Chemistry - III

Time: 10.30 am - 01.30 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 the different methods used to estimate nitrogen in organic compound? Discuss in detail about the method involving evolution of nitrogen gas. 6

b. Write a note on molecular orbital theory 4

c. Explain: Antimarconikov addition, Antibonding orbital, Walden inversion 6

Q.2. a. Correct if necessary and explain with example 10

i. Sp3 hybridized C-C bonds are stronger than Sp2 hybridized.

ii. Higher the polarity stronger the bond.

iii. All cations are lewis acid.

iv. More the alkyl substituted carbanion more will be the stability.

v. Lower alcohols are imiscible in water.

b. What are difference between resonance and hyperconjugation ? What are their implications on various properties of organic compound. 6

Q.3. a. How carbocation and carbenes are generated ? Discuss about their stability and reactivity with suitable example. 7

b. Define conformation. Draw different conformations of n-butane. Discus about stability of each. 5

c. Write a note on halogenation of alkane. 4

Q.4. a. What are Chlorofluorocarbons (CFC) ? They are members of green house gases – Why? 6

b. What are geometrical isomers ? Discuss about different methods used to define configuration of geometrical isomer. 4

c. Give following conversions 6

i. 2-Bromobutane when reacted with alcoholic KOH.

ii. 1-Propene when reacted with HBr in presence and absence of hydrogen peroxide.

iii. Give synthetic route for n-nonane from ethyl chloride.

Q.5. a. Classify dienes. Which one is more stable ? Why? 4

b. What are different types of nucleophilic substitution reactions. Discuss about each with suitable example. 8

c. Write a note on sigmatropic reactions. 4

Q.6. Write a note on following 4 x 4

a. Williamson Synthesis b. Grignard synthesis of alcohol

c. Hydroboration-oxidation reaction d. Carius method of halogen estimation

Q.7. a. Which are the different types of elimination reactions ? Discuss about each with example. 8

b. Give two methods for synthesis of alkyne, epoxides, alkyl halides and alkene. 8

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