

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
M.Sc., Winter 2017-18 Examination

Semester: 1

Subject Code: 11205101

Subject Name: Organic Chemistry-I

Date: 18/12/2017

Time: 2:00pm to 4:30pm

Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A) Write a Brief note on the following questions. (08)**
(a) Explain Markonikov's and Anti-Markonikov's rule with reaction involved.
(b) Explain SE1 & SE2 reaction with their mechanism & stereochemistry involved.
- Q.1. B) (a) Answer the following questions (Any two) (04)**
1. Define: Nucleophile & Electrophile with examples.
2. Define: Energy of activation and Transition state.
(b) Explain Hammett equation of Liner Free Energy relationship. (04)
(c) Explain SN1 reaction with their mechanism & stereochemistry involved. (04)
- Q.2. A) (a) Answer the following questions (04)**
1. Differentiate between: SE and SN reactions.
2. Mention the effect of solvent on SN Reaction.
(b) Write note on Taft equation. (04)
- Q.2. B) Answer the following questions (Any two)**
(a) Explain Elimination reaction of Halides and Alcohols. (03)
(b) Explain the use of isotope to determine reaction mechanism. (03)
(c) Explain the addition reaction of Ethyne and 1- Butyne with Br₂ and O_{3(G)} (03)
- Q.3. A) Essay type/ Brief note (4x2) (Each of 04 marks) (08)**
(a) Explain structure & stability order of free radical & carbenes.
(b) Write Wagner-Meerwein reaction with mechanism.
- Q.3. B) (a) Answer the following questions (Any two) (04)**
1. What is Nitrene? Give its structure.
2. What is Aryne? Give its structure.
(b) Explain the Generation, reactivity & stability order of Carbocation & Carbanion. (04)
(c) Give Dakin and Wittig rearrangements (Mechanism not required). (04)
- Q.4. A) (a) Answer the following questions. (04)**
1. What are Hetarynes? Give one example of it.
2. Give complete reaction steps to prepare Ethene from Ethane.
(b) Explain in detail: Tiffeneau-Demyanov & Favorskil reactions. (04)
- Q.4. B) Answer the following questions (Any two)**
(a) Give Pinacol-Pinacolone re-arrangement with mechanism. (03)
(b) Write Bayer-Villiger reaction with examples. (03)
(c) Give chemical reaction for Benzidine rearrangements and Curtius reaction. (03)