

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III(New) • EXAMINATION – WINTER 2016

**Subject Code: 2133501**

**Date: 02/01/2017**

**Subject Name: Organic Chemistry**

**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.

- Q.1. Short Questions : 14**
1. Give IUPAC name for Carbon Tetrachloride.
  2. Give the reaction of benzene with acetyl chloride in presence of anhydrous aluminium chloride.
  3. Define Nucleophile.
  4. Give IUPAC name of  $\text{CH}=\text{CH}-\text{CH}(\text{I})-\text{CH}=\text{CH}-\text{COOH}$
  5. What will happen when Nitrobenzene reacts with Oleum followed by reduction with  $\text{Fe}/\text{HCl}$ ?
  6. Give any two types of arrows used in a chemical reaction?
  7. What do you mean by Tautomerism.
  8. Give the structure of Non classical carbonium ion.
  9. Draw the structure of DDT and give its IUPAC name.
  10. Draw the conformers of cyclohexane.
  11. Give Markonikov rule.
  12. What do you mean by a chiral carbon.?
  13. Which is the highest electronegative atom ?
  14. How is a Grignard reagent formed?
- Q.2 (a) Explain the importance of knowing mechanism of any chemical reaction. 03**
- (b) Explain : Hyperconjugation and Resonance. 04**
- (c) Explain the generation , stability and reactions of carbonium ion. 07**
- OR**
- (c) Explain the generation , stability and reactions of carbenes. 07**
- Q.3 (a) Write the mechanism of Benzidine rearrangement. 03**
- (b) Give reactions of free radicals. 04**
- (c) Explain  $\text{S}_\text{N}2$  mechanism in detail. 07**
- OR**
- Q.3 (a) Explain the difference between  $\text{E}_1$  and  $\text{E}_2$  mechanism. 03**
- (b) Explain generation and stability of carbanion. 04**
- (c) Explain  $\text{S}_\text{N}1$  mechanism in detail. 07**
- Q.4 (a) Explain Stereoisomerism in Tartaric acid. 03**
- (b) Give the reactions of Bromobenzene with Ethyl bromide,  $\text{KNH}_2$ ,  $\text{Ni-Al}/\text{NaOH}$  and  $\text{Mg}/\text{ether}$ . 04**
- (c) Draw a detailed flowsheet for chemical reactions of Phenol. 07**
- OR**
- Q.4 (a) Explain Neighbouring group Participation. 03**
- (b) Give the reactions of Chlorobenzene with Chlorine,  $\text{NaOH}$  under drastic conditions, Nitrating mixture, Sulphuric acid/oleum. 04**
- (c) Draw a detailed flowsheet for chemical reactions of Aniline. 07**

- Q.5** (a) Explain the importance of Hydrogenation reaction in organic synthesis. **03**  
(b) Explain conformers of Ethane. **04**  
(c) Explain mechanism of Hydroboration-oxidation reaction. **07**
- OR**
- Q.5** (a) Explain Hofmann reaction with proper example. **03**  
(b) Explain conformers of Butane. **04**  
(c) Explain Pinacol-Pinacolone oxidation. . **07**

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