

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-III • EXAMINATION – WINTER • 2014**

**Subject Code: 2130404****Date: 01-01-2015****Subject Name: Fundamentals of Organic Chemistry****Time: 02.30 pm - 05.00 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** (a) What are hydrocarbons? Classify and explain each in detail with suitable examples. **07**  
 (b) What are reactive intermediates? Explain carbo cation and carbo anion in detail. **07**
- Q.2** (a) Explain fission reaction in detail along with its mechanism. **07**  
 (b) Explain following terms in detail with suitable examples. **07**  
     1. Inductive effect  
     2. Resonance
- OR**
- (b) Explain following terms in detail with suitable examples. **07**  
     1. Addition reaction  
     2. Substitution reaction
- Q.3** (a) What is meant by the term unit process? Explain manufacturing of nitrobenzene from benzene. **07**  
 (b) Write a note on preparation and properties of carboxylic acids. **07**
- OR**
- Q.3** (a) Explain unit process of amination and oxidation in detail. **07**  
 (b) Explain step wise formation of ester from carboxylic acids. **07**
- Q.4** (a) What is isomerism? Explain optical isomerism in detail. **07**  
 (b) What is meant by term amino acids? Classify them and give various methods to prepare amino acids. **07**
- OR**
- Q.4** (a) Write short note on: **07**  
     1. Enantiomers and diastereomers  
     2. Geometrical isomerism  
 (b) What are proteins? Classify them on the basis of structures. **07**
- Q.5** (a) What are dyes? Classify them on the basis of their applications. **07**  
 (b) Discuss in detail chromatographic separation. **07**
- OR**
- Q.5** (a) Explain theories governing colors. **07**  
 (b) Write short note on: **07**  
     1. Ultra Violet Spectroscopy  
     2. Colorimetric analysis

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