Seat No.: _____ Enrolment No. _____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**Pharm D – 1st Year • EXAMINATION – SUMMER • 2015**

**Subject Code: 818804** **Date: 28-05-2015**

**Subject Name: Pharmaceutical Organic Chemistry**

**Time: 10.30 am – 01.30 pm** **Total Marks: 70**

**Instructions:**

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

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|---|---|---|---|
| **Q.1** | **(a)** | How polarity influence the physical and chemical properties of organic molecule? Discuss with suitable examples. | **06** |
| | **(b)** | What are Lewis acids? Discuss about their importance in organic synthesis. | **04** |
| | **(c)** | Discuss about free radicals chain reaction of alkane. | **04** |
| **Q.2** | **(a)** | Enlist various electrophilic aromatic substitution reactions. Write any two in details. | **06** |
| | **(b)** | Write a note on nucleophilic aromatic substitution reaction. | **04** |
| | **(c)** | Draw the structures of followings.<br>i) 3-ethyl-4-methylpent-1-ene iii) 3-phenylpropenoic acid<br>ii) But-3-yn-2-ol iv) Butane-1,2,4-tricarbaldehyde | **04** |
| **Q.3** | **(a)** | Enlist various types of nucleophilic aliphatic substitution reactions. Give detail mechanism of each with factors influencing the reactivity. | **06** |
| | **(b)** | What are peroxides? Write a note on Kharasch effect. | **04** |
| | **(c)** | What is dehydrohalogenation reaction? Discuss the mechanism, orientation and reactivity of $E_2$ reaction. | **04** |
| **Q.4** | **(a)** | What is hyperconjugation? Discuss its types with suitable examples. How it influence the stability and reactivity of organic molecule. | **06** |
| | **(b)** | Discuss the reactions involving α- carbons of carbonyl compounds. | **04** |
| | **(c)** | Write a note on Reformatsky and Reimer-Tieman's reactions. | **04** |
| **Q.5** | **(a)** | Give the preparation, test for purity, assay and medicinal use of nitroglycerin and aspirin. | **06** |
| | **(b)** | Discuss oxidation reduction reaction with examples. | **04** |
| | **(c)** | Write about orientation and reactivity of free radical addition to conjugated dienes. | **04** |
| **Q. 6** | **(a)** | Write in detail about Hoffman degradation and Williamson's synthesis. | **06** |
| | **(b)** | Write a note on Bayer strain theory. | **04** |
| | **(c)** | Compare free radical substitution with free radical addition reaction. | **04** |
| **Q.7** | **(a)** | Write a note on allylic shift in nucleophilic substitution reaction. | **06** |
| | **(b)** | Discuss with suitable examples about nucleophilic addition reaction. | **04** |
| | **(c)** | Differentiate $E_1$ and $E_2$ reactions. | **04** |

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