

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-III (NEW) EXAMINATION – WINTER 2017****Subject Code: 2132805****Date: 21/11/2017****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** (a) Write Aufbau, Hund and Pauli's principles for electronic configuration of any element. **03**  
(b) Differentiate between Homolytic and Heterolytic bond fission. **04**  
(c) Give an account of different types of organic reactions with examples. **07**

- Q.2** (a) Define : (1) Electronegativity (2) Chirality (3) Isomerism **03**  
(b) Differentiate between electrophilic and nucleophilic reagents. **04**  
(c) What do you understand by Diazotisation reaction? Explain coupling reactions of aryl diazonium salts with different phenols. **07**

**OR**

- (c) Explain polarity of covalent bonds and its connection with dipole moment. **07**

- Q.3** (a) Describe functional isomerism with suitable examples. **03**  
(b) Write any four nucleophilic substitution reactions of alkyl halides. **04**  
(c) How will you describe geometrical isomerism with proper examples? **07**

**OR**

- Q.3** (a) What are the general physical properties of esters? **03**  
(b) How will you check optical activity of a molecule by using polarimeter? **04**  
(c) How will you prepare amides by different methods? **07**

- Q.4** (a) Write and explain Huckel Rule for aromaticity. **03**  
(b) How Formic acid can be prepared from Formaldehyde and Oxalic acid? What are the uses of Formic acid? **04**  
(c) Describe important electrophilic substitution reactions of Anthracene. **07**

**OR**

- Q.4** (a) Write only equations with necessary reaction conditions of Bromination, Nitration and Sulphonation of Aniline. **03**  
(b) With important reaction conditions show how Pyridine will undergo electrophilic substitution reaction with  $\text{KNO}_3$ ,  $\text{H}_2\text{SO}_4$ ,  $\text{Br}_2$ ? **04**  
(c) Describe chemistry of Toluene. **07**

- Q.5** (a) Write only equations with necessary reaction conditions of any three methods of preparation of Pyrrole. **03**  
(b) What do you understand by Heterocyclic compounds? Give examples of five and six member heterocyclic compounds with structures. **04**  
(c) How will you identify given unknown organic compound in laboratory? **07**

**OR**

- Q.5** (a) What are the uses of Urea? **03**  
(b) Compare aldehydes with ketones. **04**  
(c) How different organic solids can be purified by different methods? **07**

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