

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – III • EXAMINATION – WINTER 2012****Subject code: 130501****Date: 04-01-2013****Subject Name: Organic Chemistry and Unit Processes****Time: 10.30 am – 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) (i) What is synthetic petrol? 01
(ii) Define: Auxochrom, Invert sugar, Octane number. 03
(iii) Explain the terms : Cetane number and Shale gas. 03
- (b) (i) What is Pigment? Explain the modern theory of colour. 04
(ii) Explain electrophile and nucleophile with one example of each. 03
- Q.2** (a) (i) What is stereochemistry? 01
(ii) Explain the following terms with the example of tartaric acid and required 06
figures: Enantiomers, Diastereomers, Meso forms and racemic mixture.
- (b) Explain SN_1 and SN_2 with suitable example. 07
- OR**
- (b) Explain the mechanism of nitration and chlorination reaction with example. 07
- Q.3** (a) What are grignard reagents? Describe the preparation of any one grignard 07
reagent and state any two types of alcohols from it.
- (b) Write the manufacturing processes of CH_3COOH and $HCOOH$. 07
- OR**
- Q.3** (a) Explain the chemical and physical properties of Carboxylic acids along with 07
the formation of important derivatives of Carboxylic acids.
- (b) Write about general physical and chemical properties and uses of 07
trichloromethane and methanol.
- Q.4** (a) Draw the structural formula of Sucrose. Explain the manufacturing process 07
of glucose.
- (b) Write the preparation, properties and use of primary aromatic amine. 07
- OR**
- Q.4** (a) Explain the reaction, mechanism and application of Michael reaction. 07
(b) Give examples of polynuclear aromatic compound with structure and explain 07
sulphonation of naphthalene.
- Q.5** (a) Explain the term 'Heterocyclic compound'. Discuss about any one Five 07
member ring compound containing 'N' as heteroatom.
- (b) Write the chemical reaction, properties and uses of benzene. 07
- OR**
- Q.5** (a) Differentiate and Distinguish between synthetic and natural polymers. 07
(b) Explain F.C. alkylation, acetylation and reduction of an aromatic compound. 07
