

GUJARAT TECHNOLOGICAL UNIVERSITY**BE SEM-III Examination May 2012****Subject code : 130501****Subject Name: Organic Chemistry and Unit Processes****Date: 09/05/2012****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) Answer the following: **07**
- (i) Give any two examples of polysaccharides.
 - (ii) What are Diastereomers?
 - (iii) Give definition of auxochrom.
 - (iv) Rank following in increasing acid strength:
Propanoic acid, 2-Methylpropanoic acid, 2-chloropropanoic acid
 - (v) Detergent is better than soap as a cleansing agent. Comment.
 - (vi) Give chemical reaction for conversion of phenol into salicylic acid.
 - (vii) Complete the following reaction.

$$\text{C}_6\text{H}_6 + \text{CH}_3\text{Cl} \xrightarrow[\text{AlCl}_3]{\text{Anhydrous}} ?$$
- (b) What do you understand by optically active compounds? Explain optical isomerism of Tartaric acid. **07**
- Q.2** (a) Explain SN^1 and SN^2 reaction with their mechanism. **07**
- (b) Give mechanism and industrial uses of following reactions:- (i) **07**
 Canizzaro reaction
 (ii) Wolf-kischner reaction

OR

- (b) What do you understand by heterocyclic compound? Give example of five and six member heterocyclic compound. Give properties and application of any one of them. **07**
- Q.3** (a) How will you carry out following conversions: **07**
 (i) Glucose to Fructose
 (ii) Fructose to Glucose
- (b) Discuss preparation and synthetic applications of Grignard reagent **07**

OR

- Q.3** (a) Explain properties and uses of following compounds: **07**
 (i) formaldehyde (ii) chloroform
- (b) Explain (i) Resonance effect in organic compounds. **07**
 (ii) Hydrolysis reaction of acetoacetic ester.

- Q.4** (a) Explain mechanism of the following reactions: **07**
(i) Chlorination of Methane.
(ii) Sulphonation of Naphthalene
- (b) Write a note on Fractional Distillation of the Petroleum. **07**

OR

- Q.4** (a) What do you understand by dyes? Explain classification of dyes giving suitable examples. **07**
- (b) Write a short note on (i) Hyper conjugation. (ii) Inductive effect and its application **07**

- Q.5** (a) What do you understand by unit process? What is difference between unit process and unit operation? Give short note on Nitration process. **07**
- (b) Give example and mechanism of the following reaction. **07**
(i) Addition reaction
(ii) Electrophilic substitution reaction.

OR

- Q.5** (a) Explain Walden Inversion giving suitable example. **07**
- (b) Write in short about any two of following: (i) Esterification (ii) Homolysis (iii) Makownikove's addition **07**
