

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-III Examination-Dec.-2011

Subject code: 130501

Date: 15/12/2011

Subject Name: Organic Chemistry and Unit Processes

Time: 2.30 pm -5.00 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) Define the followings **07**

1. Sugar	2. Octane number
3. Dyes	4. Stereoisomerism
5. Chiral carbon	6. Polymers
7. Inductive effect	

(b) What are the nucleophilic substitution reactions? Explain S_{N1} and S_{N2} with suitable example? **07**

Q.2 (a) Explain the benzene in following points- **02**

1. Any two preparation methods	02
2. Aromaticity	01
3. Sulphonation	02
4. Friedel Crafts alkylation	02

(b) Write short note on followings

1. Mutarotation	03
2. Structure of DNA	04

OR

(b) Write in brief

1. Stereoisomer of tartaric acid	03
2. Molecular Orbital Theory (MOT) of colour of dyes	04

Q.3 (a) Give the manufacturing of phenol from benzene and its reaction with following reagents **04**

1. Br_2 water 2. $CHCl_3 / OH^-$ 3. CO_2 / OH^-	03
--	-----------

(b) Give the one preparation method for each- Chloroform, Acetone, Acetic acid, Ethyl alcohol, Ethyl mercaptan, Aniline and Polyethene. **07**

OR

Q.3 (a) Give the preparation of Ethyl magnesium bromide and its reaction with followings **04**

1. Acetone and followed with H_2O	03
2. Ethyl alcohol	
3. C_6H_5CN and followed with H_2O	

- (b) What is shale gas? Explain the fractional distillation of petroleum constituents from crude oil. **07**
- Q.4 (a)** Give the Haworth preparation of naphthalene and its sulphonation. **07**
- (b) Explain the reaction mechanism of Perkin condensation and Cannizzaro reaction. (use arrow only and don't write words) **07**
- OR**
- Q.4 (a)** Give the manufacturing process, properties and uses of TEL. **07**
- (b) Explain the reaction mechanism of Stobbe condensation and Wolff Kishner reaction. (use arrow only and don't write words) **07**
- Q.5 (a)** Give the introduction of following unit processes-
1. Amination **04**
 2. Oxidation **03**
- (b) Differentiate these
1. Soap and Detergent **02**
 2. Pigment and dye **02**
 3. Synthetic and Natural polymers **03**
- OR**
- Q.5 (a)** Give the introduction of following unit processes-
1. Nitration **04**
 2. Reduction **03**
- (b) Distinguish the given pairs by chemical test-
1. Acetone and Acetaldehyde **02**
 2. Phenol and Aniline **02**
 3. Formic acid and Acetic acid **03**
