

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Sem-III Remedial Examination May 2011

Subject code: 130501 Subject Name: Organic Chemistry & Unit Process**Date: 27-05-2011****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) Fill in the blanks** **07**
1. According to Witt's theory the group responsible to give the color to dye is called _____.
 2. The rotation resists towards the motion of groups in geometrical isomerism is due to presence of _____ bond between carbons.
 3. During the synthesis of Grignard reagent the solvent use to prepare it is _____.
 4. Glucose on reaction with ammonical silver nitrate gives _____.
 5. _____ is an ideal domestic fuel.
 6. Aromatic compounds would like to undergo _____ reaction.
 7. Heterocyclic compounds are aromatic due to the presence of _____ pair of electrons.
- (b) Write in brief:**
1. Explain Nitration. Write different reagent use to carry out nitration. How aromatic compounds undergo nitration? **04**
 2. Conversion of Aldohexose to Ketohexose and vice versa. **03**
- Q.2 (a) Define colour. Explain the importance of dyes and describe Witt's and Quinoid theories to explain the colour concept.** **07**
- (b) Differentiate along with examples.**
1. Dyes and Pigments. **04**
 2. Oxidation and Reduction reactions **03**
- OR**
- (b) Explain**
1. Manufacturing process, properties and uses of Phenol. **04**
 2. Isomerism in Tartaric acid. **03**
- Q.3 (a) Write in detail the different fraction of crude oil after fractional distillation along with their composition, boiling range and usage.** **07**
- (b) Write in brief**
1. Electrophilic substitution and addition reaction. **04**
 2. Write the preparation of Acetone and Formaldehyde. **03**
- OR**
- Q.3 (a) What is an organometallic compound? Write the laboratory preparation of Grignard reagent and its usage to prepare alcohols, aldehydes, ketones and carboxylic acid with example.** **07**
- (b) Write in brief:**
1. Nucleophilic substitution and addition reaction **04**

2. Write the preparation, properties and use of amines. **03**
- Q.4 (a)** Explain the chemistry of Carboxylic acids along with the formation of important derivatives and their usage. Also show the formation of aceto acetic ester. **07**
- (b)** Write a note on; **07**
1. Soaps and detergents
 2. Cannizzaro and Reformatsky reaction
- OR**
- Q.4 (a)** Explain stereoisomerism? Write in detail the geometrical isomerism with different examples showing cis and trans configuration with special reference to its properties. **07**
- (b)** Write a note on **07**
1. Formation of Protein with different amino acids.
 2. Wolf kishner and Perkin reaction.
- Q.5 (a)** Explain what polynuclear aromatic hydrocarbon is. Write in detail the preparation of Naphthalene (Howarth's synthesis), physical & chemical properties and use. **07**
- (b)** Write in brief **07**
1. Properties of Polymers.
 2. Octane and Cetane number.
- OR**
- Q.5 (a)** Define Carbohydrates. Give the classification of it and write the synthetic process to manufacture glucose. **07**
- (b)** Write in brief
1. Preparation, properties and uses of Thiophene and Furan. **04**
 2. Isolation and aromaticity of benzene **03**
