

Roll No.

Total Pages : 5

GSQ/M-21

1754

ORGANIC CHEMISTRY (Theory)

Paper-III (XX-CH-306)

Time Allowed : 3 Hours]

[Maximum Marks : 32

Note : Attempt **five** questions in all, selecting **two** questions from each Unit. Question No. **1** is compulsory.

Compulsory Question

1. (i) Write Paal-Knorr synthesis for Furan.
- (ii) Write the resonance structures of Thiophene.
- (iii) Draw the structure of Oxalate ions obtained from Acetylacetone.
- (iv) Out of the Acetone and Diethylmalonate which has more acidic strength and why?
- (v) Write about Zwitter ion structure of α -amino acid.
- (vi) Name two amino protecting groups in Peptide synthesis.

1754/K/74

P. T. O.

(vii) Name the monomers of :

(a) Nylon-6.

(b) Bakelite.

(viii) Name the most commonly used Ziegler-Natta catalyst. 1×8=8

UNIT-I

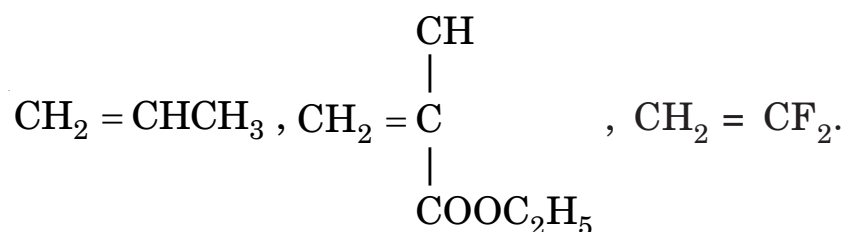
2. (a) Write about molecular orbital structure of Pyridine. 2
- (b) Write the reaction and mechanism of skraup synthesis of Quinoline. 2
- (c) What happens when : 2
- (i) Isoquinoline reacts with Sn/HCl ?
- (ii) Pyrrole undergoes Gattermann-Koch reaction ?
3. (a) Compare the basicity of Pyrrole, Pyridine and Piperidine. 2
- (b) Write mechanism and orientation of Electrophilic substitution in Pyrrole. 2

- (c) Write equations for : 2
- (i) Chlorination of Indole.
- (ii) Oxidation of Isoquinoline.
4. (a) Write the reaction and mechanism for the preparation of Ethyl acetoacetate. 2
- (b) From Malonic ester prepare : 3
- (i) Iso-valeric acid.
- (ii) 1,4-dicarboxylic acid.
- (c) Which Alkyl halide is used for the preparation of $\text{C}_6\text{H}_5\text{CH}_2\text{CH}_2 - \overset{\text{O}}{\parallel} \text{C} - \text{CH}_3$ from ethylacetoacetate. 1
5. (a) Comment upon acidic hydrolysis in the synthetic importance of ethylacetoacetate. 2
- (b) Prepare : 2
- (i) $\text{R} - \overset{\text{O}}{\parallel} \text{C} - \text{CH}_2\text{COOH}$ from malonic ester.
- (ii) Succinic acid from ethylacetoacetate.

- (c) Write about Keto-Enol tautomerism of ethyl-acetoacetate. 2

UNIT-II

6. (a) Write the general mechanism of Cationic vinyl polymerisation. 2
- (b) Write the preparation and uses of : 2
- (i) Nylon 66
- (ii) Polytetrafluoroethylene.
- (c) Write about natural rubber. 2
7. (a) Give preparation and uses of : 2
- (i) Bakelite
- (ii) Styron.
- (b) Arrange the following in increasing order of reactivity in anionic polymerisation : 2



- (c) Define the terms with example : 2
- (i) Addition polymerization
- (ii) Copolymer.
8. (a) Write equations for the preparation of Amino acids in : 2
- (i) Strecker synthesis.
- (ii) Gabriel phthalimide synthesis.
- (b) Write about solid Phase peptide synthesis. 2
- (c) Explain the process of Electrophoresis. 2
9. (a) Classify the Proteins according to hydrolysis products. 2
- (b) Write about acid-base behaviour of the Amino acids. 2
- (c) Discuss secondary structure of Proteins. 2