

B.Sc.- I (CBCS Pattern) Sem-II  
**USCCHT03 - Chemistry (Paper-I) : Organic Chemistry**

P. Pages : 2

Time : Three Hours



**GUG/W/22/11574**

Max. Marks : 50

- Notes :
1. All questions are compulsory and carry equal marks.
  2. Diagrams and Chemical equation should be given wherever necessary.
  3. Illustrate your answers wherever necessary with the help of neat sketches.
  4. Use of slide rule, Logarithmic tables, Steam tables, Mollier's chart, Drawing instruments, Thermodynamic tables for moist air, Psychrometric charts and Refrigeration charts is permitted. Non programmable Electronic calculator is allowed.
  5. Discuss the reaction, mechanism wherever necessary.

1. a) Discuss mechanism of  $SN^2$  reaction with energy profile diagram. 5
- b) Discuss the comparison of substitution and Elimination reaction. 5

**OR**

- c) Explain Sandmeyer reaction. 2½
- d) Explain Benzyne mechanism. 2½
- e) Give the preparation chlorobenzene from phenol. 2½
- f) Explain why allyl chloride is more reactive than chlorobenzene. 2½
2. a) Give the preparation of 1°, 2° and 3° alcohol by using Grignard Reagent. 5
- b) Explain the following reaction. 5
- i) Pinacol-pinacolone rearrangement.
- ii) Openeneur oxidation.

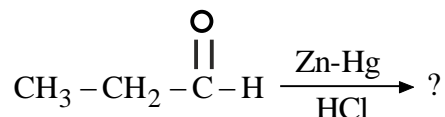
**OR**

- c) Discuss Houben-Hoesh condensation. 2½
- d) Explain Claisen rearrangement. 2½
- e) What is the action of HI on diethyl ether in cold condition. 2½
- f) Give the preparation of phenol from cumene.
3. a) Give the synthesis of Acetaldehyde and ketone from alcohols. 5
- b) Give the synthesis of benzaldehyde (any two method). 5

**OR**

c) Explain Wolf Kishner reduction. 2½

d) Explain the following reduction reaction 2½



e) Discuss aldol-condensation. 2½

f) What is the action of ammonia on formaldehyde. 2½

4. a) Explain the structure and bonding of carboxylic functional group. 5

b) Discuss the following. 5

i) Decarboxylation of carboxylic Acid.      ii) Hell-Volhard-Zelinsky.

**OR**

c) Explain relative stability of acyl derivatives. 2½

d) How will you prepare ethyl methyl ester from alcohol? 2½

e) How will you convert acetyl chloride to acetamide? 2½

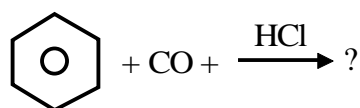
f) What is the action of phosphorous pentachloride on acetic anhydride. 2½

5. Attempt **any ten**. 1×10  
=10

1) What is Willimson's ether synthesis.

2) Write long form of S<sub>N</sub>i reaction.

3) Complete the following reaction.



4) What is Lucas reagent?

5) What are ethers?

6) What is Reimer-Tiemann reaction.

7) Write the structure of carbonyl group.

8) What is the necessary condition for Cannizaro's reaction.

9) Write Benzoin condensation.

10) What is the effect of heat on phthalic acid.

11) Arrange the following compounds in increasing order of reactivity.  
CH<sub>3</sub>CONH<sub>2</sub>, CH<sub>3</sub>COCl, CH<sub>3</sub>COOCOCH<sub>3</sub> and CH<sub>3</sub>COOC<sub>2</sub>H<sub>5</sub>

12) What is decarboxylation?

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