

This question paper contains 4 printed pages]

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S. No. of Question Paper : 5876

Unique Paper Code : 2172542402

Name of the Paper : DSC : Functional group Organic Chemistry-I

Name of the Course : B.Sc. (Prog.) Analytical Chemistry

Semester : IV

Duration : 2 Hours

Maximum Marks : 60

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt any four questions.

Each question carries equal marks.

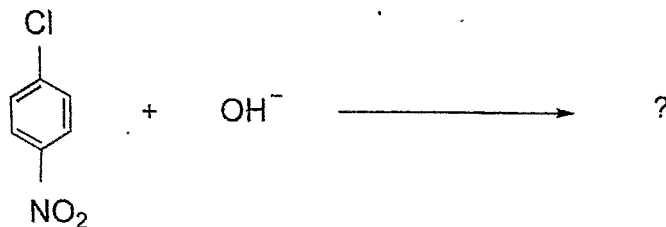
1. Give explanation for the following :

- (i) Write a test to distinguish between propan-2-ol and 2-methylpropan-2-ol.
- (ii) Why is the reaction of carbonyl compounds with 2,4-DNP carried out in weakly acidic medium ?
- (iii) Arrange the following alkyl halides in decreasing order of reactivity towards S_N1 reaction. Give reason for your answer.
 $(CH_3)_2CH-X$ $(CH_3)_3C-X$ CH_3-CH_2-X
- (iv) What is Schotten-Baumann reaction ?
- (v) Write the Williamson ether synthesis. Write the reaction with mechanism.

5×3

P.T.O.

2. (i) What is an ambident ion ? How can you prepare :
(a) Nitrite and Nitro,
(b) Nitrile and iso nitrile from a given alkyl halide ?
- (ii) Explain elimination-addition(benzyne) mechanism for nucleophilic aromatic substitution.
- (iii) Why is acetaldehyde more reactive than acetone towards nucleophilic addition reactions ? 5,5,5
3. (i) Write the mechanism of S_N2 reaction by taking a suitable example. Discuss the relative reactivities of primary, secondary and tertiary alkyl halide in S_N2 reaction.
- (ii) What products are formed when anisole is heated with HI ? Explain with the help of mechanism.
- (iii) How will you prepare primary, secondary and tertiary alcohol by using Grignard reagent ? 5,5,5
4. (i) Vinyl halides do not undergo S_N1 and S_N2 reaction. Explain the reason behind this.
- (ii) Give the product of the following reaction with step-by-step mechanism. Write the name of the reaction :



- (iii) What is intimate-ion pair ? How does it affect the stereochemistry of the product of S_N1 reaction ? 5,5,5

5. Write short notes on any *three* of the following :

(i) Reimer Tiemann reaction

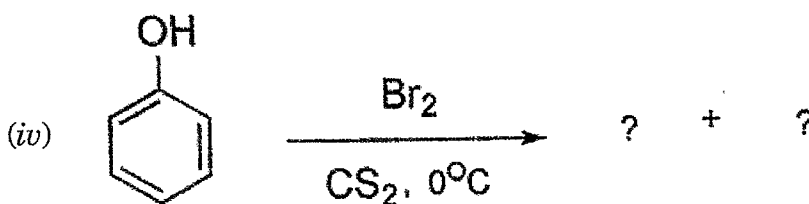
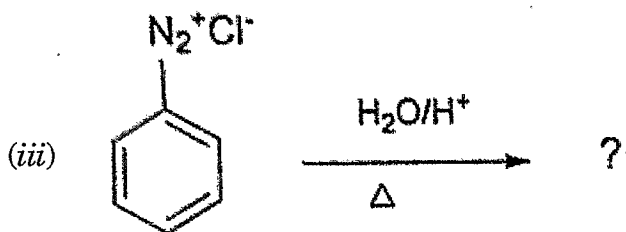
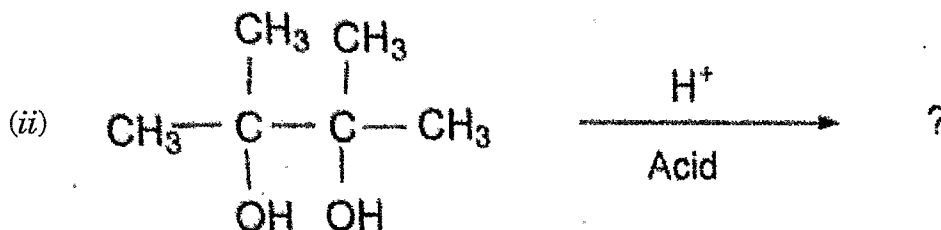
(ii) Aldol condensation

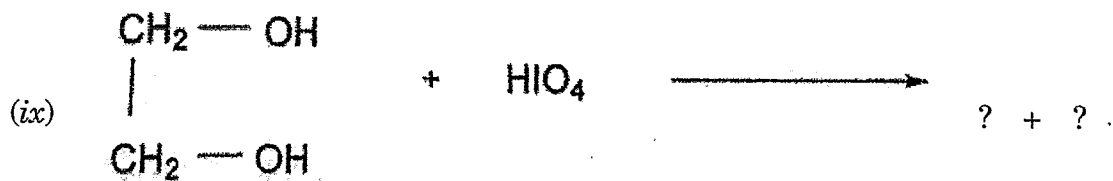
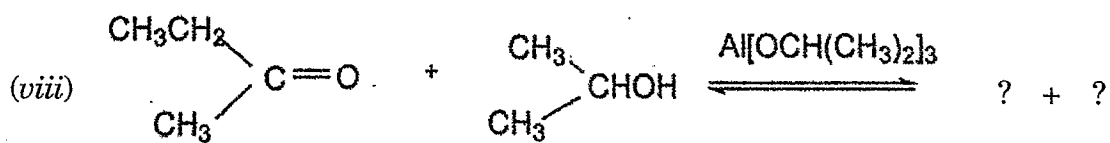
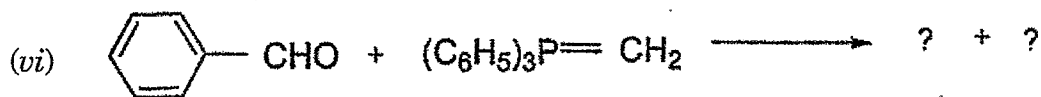
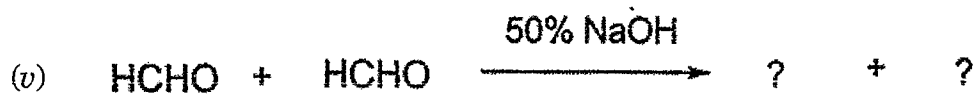
(iii) Benzoin condensation

(iv) Wolf Kishner reduction.

5,5,5

6. Complete the following reactions and write the products of the reaction :





15×1