

SL No of QP:5920

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

Attempt any four questions

Each question carries equal marks

Q 1. Give explanation for the following

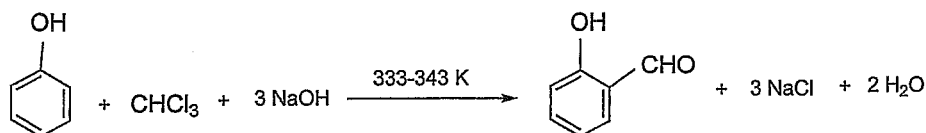
- (i) Ethoxy benzene on cleavage with HI gives ethyl iodide and phenol rather than iodobenzene and ethyl alcohol. Why?
- (ii) What will be the product of ester hydrolysis in acidic medium? Write the mechanism.
- (iii) Why are the alcohols less acidic than phenols?
- (iv) What is Houben-Hoesch condensation?
- (v) Write the mechanism of Iodoform test.

(3x5)

Q 2. (i) Why does the reaction of Carbonyl compounds with ammonia derivatives occur under controlled pH condition?

(ii) Write the mechanism of S_N1 reaction by taking a suitable example. What will be the product under different reaction conditions (a) Absence of Pyridine (b) Presence of Pyridine.

(iii) Write the name and mechanism of following reaction:



(5,5,5)

Q 3. (i) How do you distinguish between following pairs:

(a) $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-OH}$ and $(\text{CH}_3)_2\text{CH-OH}$

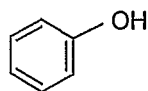
(b) $\text{CH}_3\text{-CH}_2\text{-CHO}$ and $(\text{CH}_3)_2\text{C=O}$

(ii) What is an Oppenauer oxidation? Give its mechanism.

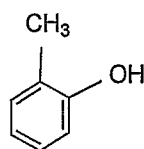
(iii) Why do the vinyl halides and aryl halides show low reactivity for the nucleophilic substitution reactions? (5,5,5)

Q 4. (i) Compare the stereochemistry of the products of $\text{S}_{\text{N}}1$ and $\text{S}_{\text{N}}2$ reactions.

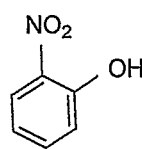
(ii) Arrange the following phenols in decreasing order of acidity. Give reason.



(a)

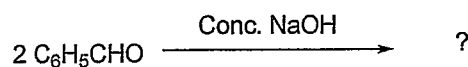


(b)



(c)

(iii) Give the product of the following reaction with step-by-step mechanism. Write the name of the reaction:



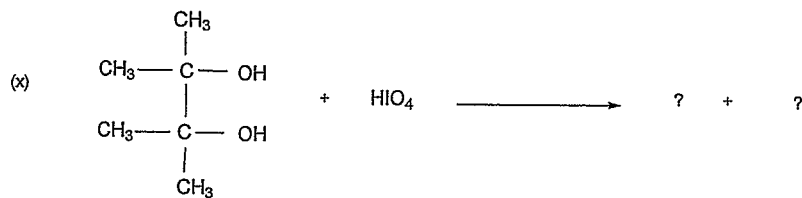
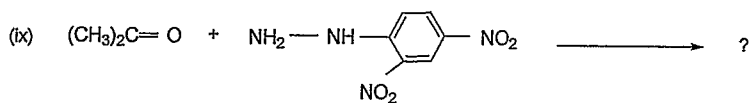
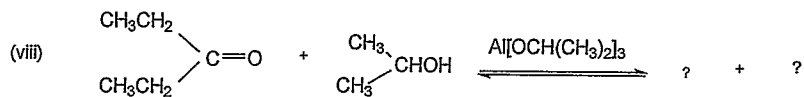
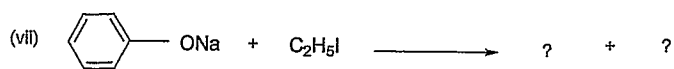
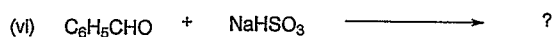
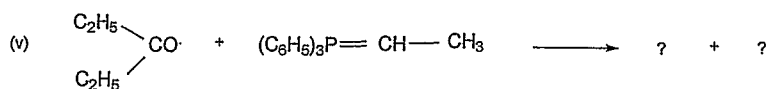
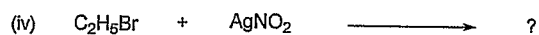
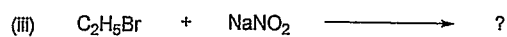
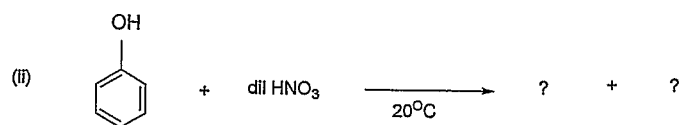
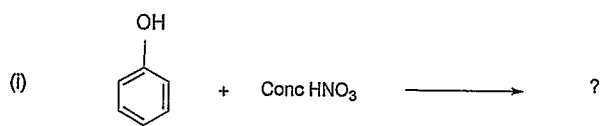
(5,5,5)

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

- (i) Aldol condensation
- (ii) Schotten-Baumann reaction
- (iii) Pinacol-Pinacolone rearrangement
- (iv) Benzyne mechanism

(5,5,5)

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



(5,5,5)