

(iii) What is Iodoform test? Write an example.

(5,5,5)

(1000)

[This question paper contains 8 printed pages.]

**Your Roll No.....**

**Sr. No. of Question Paper : 4263**

**H**

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

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **four** questions.
3. Each question carries equal marks.

P.T.O.

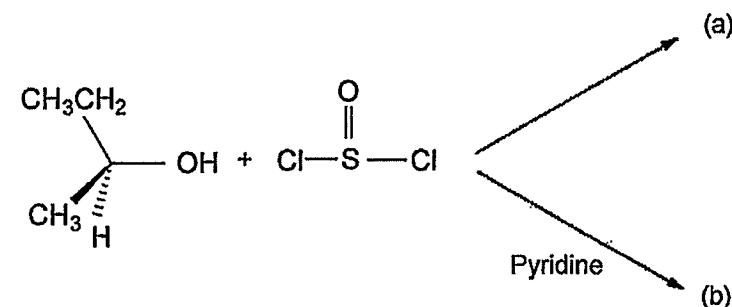
1. Give explanation for the following :

- (i) Why are phenols more acidic than alcohols?
- (ii) What is Lucas reagent? Describe Lucas test for distinguishing primarysecondary and tertiary alcohol.
- (iii) Why is  $S_N2$  reaction of alkyl halide accompanied by inversion of configuration?
- (iv) How will you convert cumene into phenol? Write the reaction steps.
- (v) Write the chemical reaction of acetone with 2,4-dinitrophenylhydrazine? (3,3,3,3,3)

2. (i) What do you understand by  $S_N1$  reaction? Discuss the stereochemistry of the product of  $S_N1$  reaction.

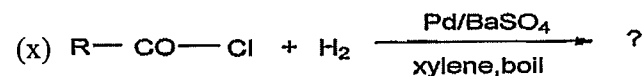
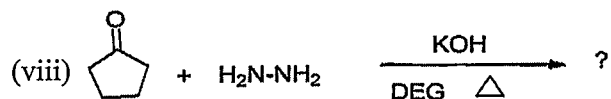
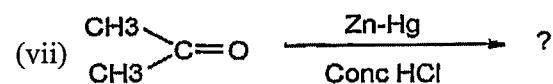
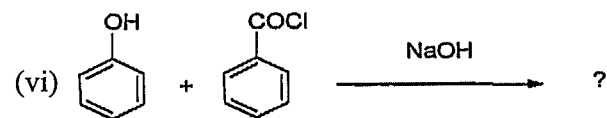
(b) What is Pinacol-Pinacolone rearrangement? Write the mechanism. (10×1,5)

6. (i) What is Williamson ether synthesis? Write the mechanism and its limitation.
- (ii) What is the name of the following reaction. Write the mechanism and product under different reaction conditions.



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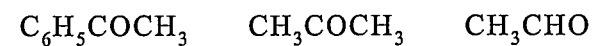
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(ii) Describe the Benzyne mechanism for nucleophilic aromatic substitution reaction. Explain with a suitable example.

(iii) Why are aryl halides less reactive than alkyl halides towards nucleophilic substitution reaction? Explain. (5,5,5)

3. (i) Arrange the following compounds in the increasing order of their reactivity towards nucleophilic addition reaction. Give reason.



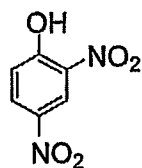
(ii) Arrange the following compounds (a) isopropyl chloride (b) ethyl chloride (c) tertiary butyl chloride in increasing order of reactivity towards the  $S_N2$  reaction? Justify your answer.

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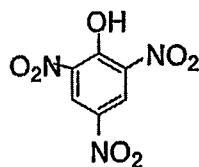
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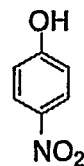
- (iii) Arrange the following phenols in decreasing order of acidity. Explain (5,5,5)



(a)



(b)



(c)

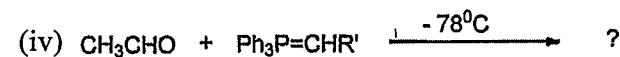
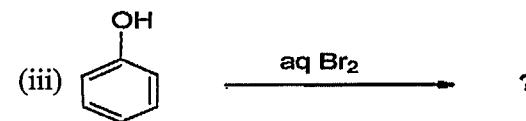
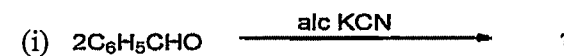
4. Write short note on any three of the following :

- (i) Aldol condensation
- (ii) Reimer Tiemann reaction
- (iii) Clemmensen reduction
- (iv) Cannizaro reaction (5,5,5)

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5. (a) Complete the following reactions and write the main product of the reaction :



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