

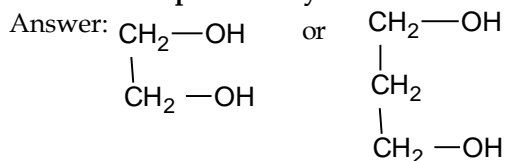


Blue Print (As per PU Board)

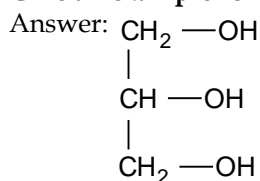
Topic	1 mark questions	2 marks questions	3 marks questions	5 marks questions	Total Marks
Alcohols, Phenols and Ethers	-	1	-	1	7

One mark questions

1. Give an example for dihydric alcohol



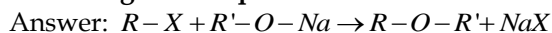
2. Give an example for a trihydric alcohol



3. What are allylic alcohols?

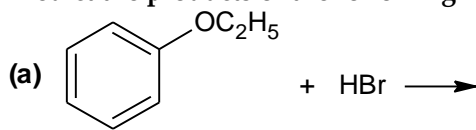
Answer: Alcohols in which an hydroxyl group is attached to SP^3 carbon atom which in turn is bonded to a SP^2 carbon atom (double bond)

4. Give the general equation of William son's ether synthesis

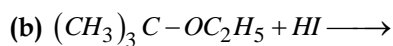


Two marks questions

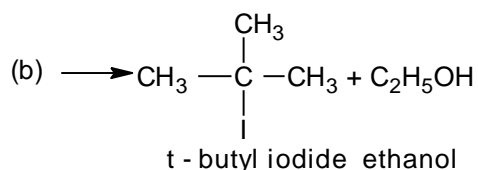
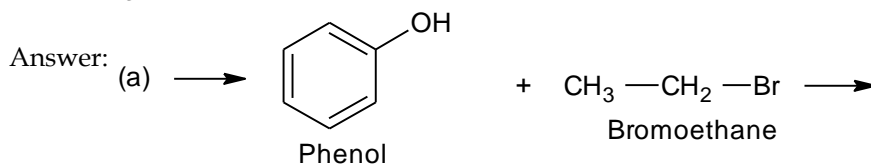
5. Predict the products of the following



(1 mark)



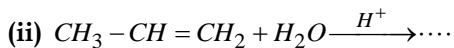
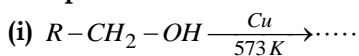
(1 mark)



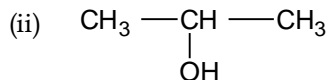
(1+1 mark)



6. Complete the reactions



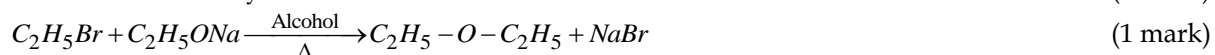
Answer: (i) $R-CHO + H_2$ or $R-CHO$ (1 mark)



(1 mark)

7. Explain Williamson's ether synthesis with an example.

Answer: Bromoethane reacts with alcoholic solution of sodium ethoxide to form diethyl ether is called Williamson's ether synthesis. (1 mark)



8. What is Lucas reagent? Between primary and tertiary alcohols, which one of these will react faster with Lucas reagent?

Answer: Conc. HCl + anhydrous $ZnCl_2$ (1 mark)

Tertiary alcohol (1 mark)

Five marks questions

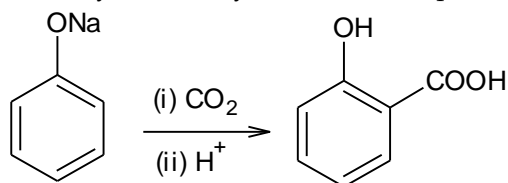
9. (a) Explain with equations:

(i) Kolbe's reaction

(ii) Williamson's ether synthesis

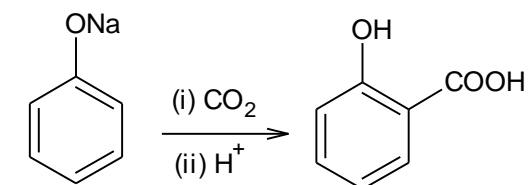
(b) A carbonyl compound (ρ) with the formula C_2H_4O reacts with CH_3MgX followed by hydrolysis to form an alcohol Q . Name the alcohol Q . (4+1 Marks)

Answer: (a) (i) **Kolbe's reaction:** Sodium phenate undergoes electrophilic substitution reaction with CO_2 to finally form salicylic acid as main product. (1 mark)



or

(1 mark)



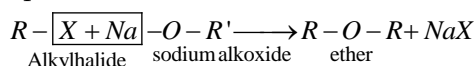
sodium phenate

2 - hydroxy benzoic acid

(salicylic acid)

(2 marks)

(ii) **Williamson's ether synthesis:** Alkyl halide reacts with alcoholic sodium alkoxide to form ether as main product. (1 mark)



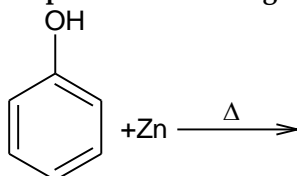
(1 mark)

(b) Q is propan-2-ol

(1 mark)



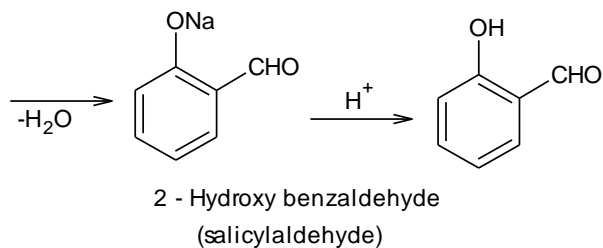
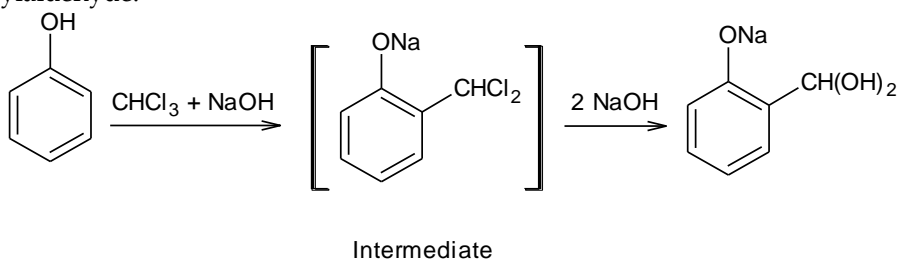
10. (a) With equation, give an example for
 (i) Reimer Tiemann reaction
 (ii) Dehydration of a primary alcohol
 (b) Complete the following equation



(4+1 Marks)

Answer: (a) (i) **Reimer -Tiemann reaction**

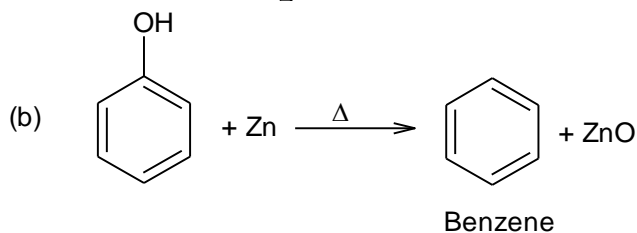
Phenol reacts with chloroform in presence of NaOH to form a product which on acidification gives salicylaldehyde.



(1 mark)

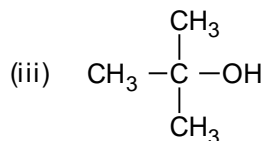
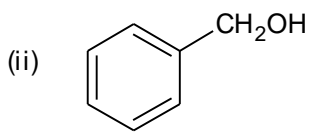
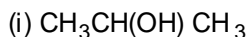
(ii) **Dehydration of a primary alcohol**

Ethyl alcohol when heated with concentrated sulphuric acid dehydrates to form acetaldehyde (ethanal)
(1 mark)



(1 mark)

11. (a) Name the major product formed when the vapours of following alcohols are passed over hot copper at 573 K



(b) Explain Friedel-Crafts reaction by taking anisole as an example

Answer: (a) (i) Acetone or propan-2-one

(1 mark)

(ii) Benzaldehyde

(1 mark)

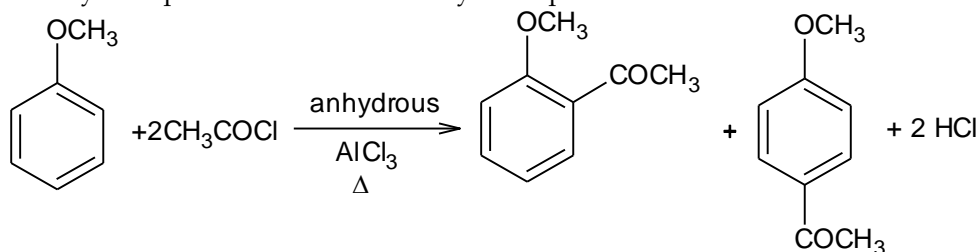
(iii) 2-methylprop-1-ene

(1 mark)

(b) Anisole reacts with acetyl chloride in presence of anhydrous aluminium chloride catalyst to give

2-Methoxyacetophenone and 4-Methoxyacetophenone

(1 mark)



(1 mark)

12. (a) Explain the mechanism of dehydration of ethanol to ethene

(b) On treating phenol with chloroform in presence of aqueous sodium hydroxide at 340 K followed by acid hydrolysis gives the product

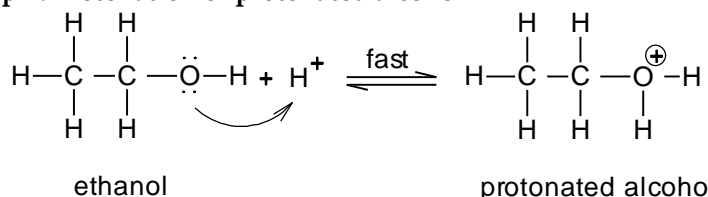
(i) Write the name of the product

(ii) Give the name of the reaction

(3+2 marks)

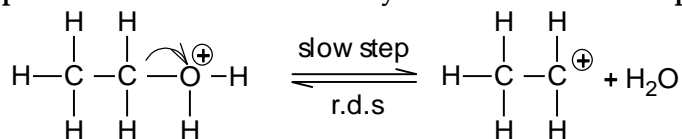
Answer: (a) Mechanism

Step-1: Protonation of ethanol



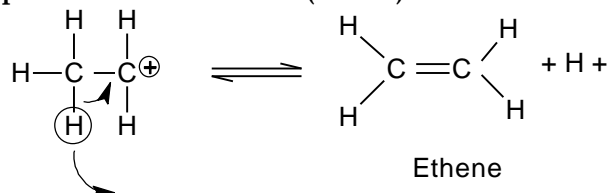
(1 mark)

Step-2: Formation of carbocation by loss of water from the protonated alcohol.



(1 mark)

Step-3: Formation of alkene (ethene) from the carbocation by elimination of proton.



(1 mark)

(b) (i) Salicylaldehyde

(1 mark)

(ii) Reimer-Tiemann reaction

(1 mark)