

QB365 Question Bank Software Study Materials

Carbonyl Compounds and Carboxylic Acids Important 2 Marks Questions With Answers (Book Back and Creative)

12th Standard

Chemistry

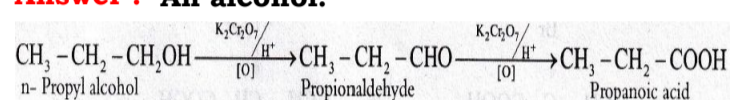
Total Marks : 40

2 Marks

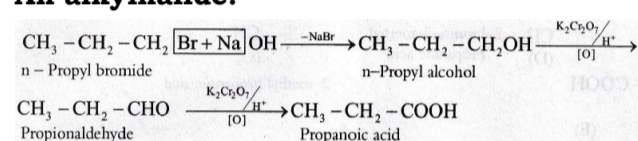
20 x 2 = 40

- 1) How is propanoic acid is prepared starting from
- an alcohol
 - an alkylhalide
 - an alkene

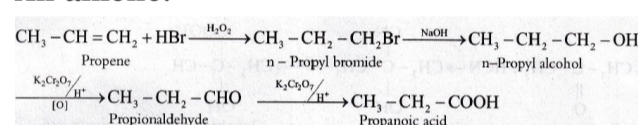
Answer : An alcohol:



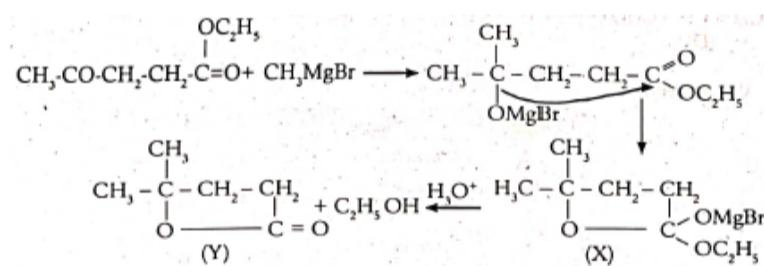
An alkylhalide:



An alkene:



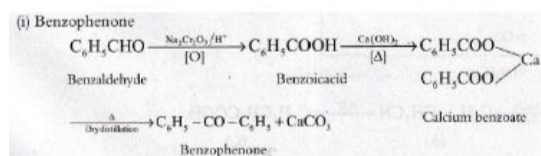
- 2) Identify X and Y.



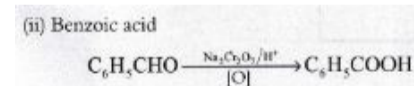
Answer :

- 3) How will you convert benzaldehyde into the following compounds?
- benzophenone
 - benzoic acid
 - α -hydroxyphenylacetic acid.

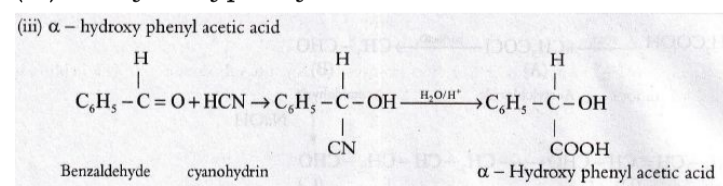
Answer :



- (ii) benzoic acid

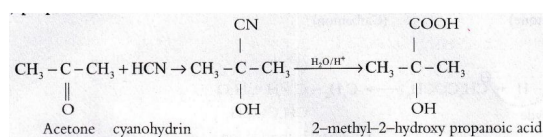


- (iii) α - hydroxyphenylacetic acid.

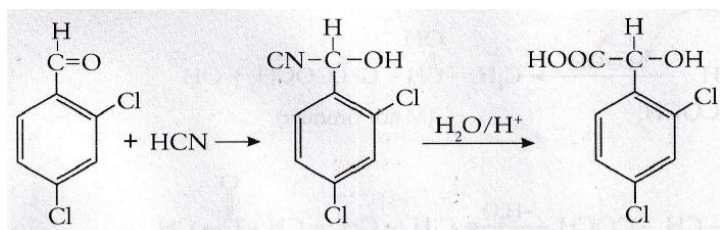


- 4) What is the action of HCN on
- propanone
 - 2,4-dichlorobenzaldehyde
 - ethanal

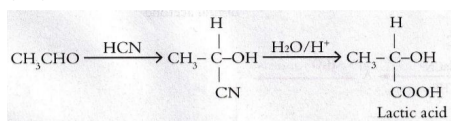
Answer :



(ii) 2,4-dichlorobenzaldehyde.

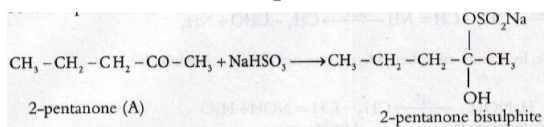


(iii) ethanal



- 5) A carbonyl compound A having molecular formula $C_5H_{10}O$ forms crystalline precipitate with sodium bisulphate and gives positive iodoform test. A does not reduce Fehling solution. Identify A.

Answer : An carbonyl compound having molecular formula $C_5H_{10}O$ giving positive iodoform test. It does not reduce Fehling solution. So it is 2-pentanone.



∴ (A) is 2-pentanone.

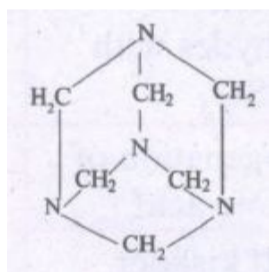
- 6) Does formaldehyde undergo aldol condensation? Justify your answer.

Answer : (i) Formaldehyde does not undergo aldol condensation.

(ii) Aldol condensation reaction is the characteristic of carbonyl compounds having a hydrogen atom. So this reaction does not take place in formaldehyde.

- 7) What is urotropine? Give its use.

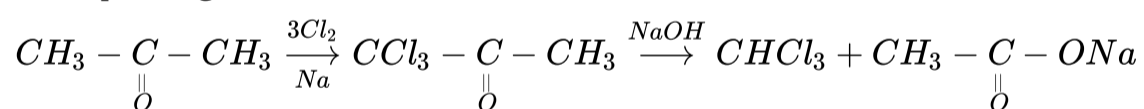
Answer : Hexamethylene tetramine formed by the reaction of formaldehyde and ammonia is called urotropine.



- 8) Write a note on haloform reaction.

Answer : Acetaldehyde and methyl ketones, containing $CH_3 - \underset{\text{O}}{\underset{||}{C}} - group$, when treated with halogen and alkali give the

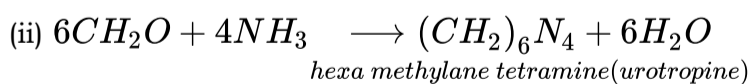
corresponding haloform. This is known as Haloform reaction



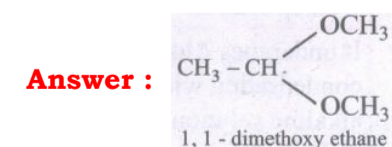
- 9) Write the structural formula of the main product formed when;

(i) The compound obtained by hydration of ethyne is treated with dilute alkali.

(ii) Methanal reacts with ammonia

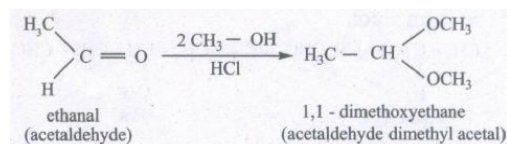


- 10) Write the structural formula of 1,1 - dimethoxy ethane. How is it prepared from ethanal?

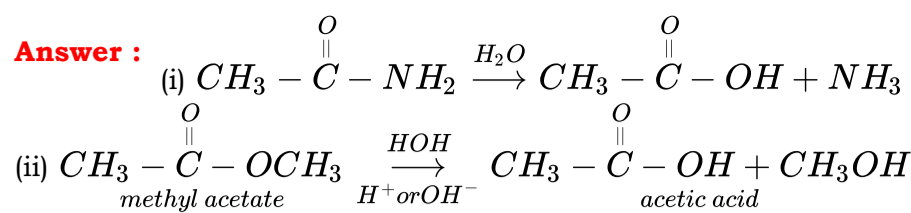


Preparation :

When acetaldehyde is treated with 2 equivalent of methanol in presence of HCl, 1,1, - dimethoxy ethane is obtained.



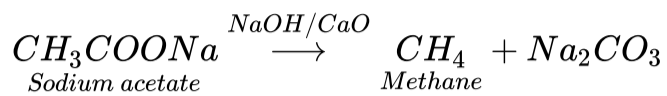
- 11) How is acetic acid prepared from amides and esters?



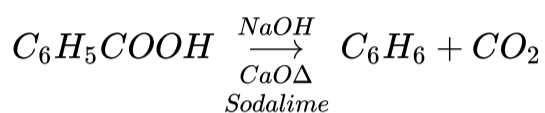
12) What happens when soda lime is treated with

- (i) CH_3COONa
 (ii) $\text{C}_6\text{H}_5\text{COOH}$?

Answer : (i) Decarboxylation: When anhydrous sodium salt of carboxylic acids are heated with soda lime, carboxyl group is removed with the formation of hydrocarbon containing one carbon atom less.



(ii) Heating benzoic acid with soda lime gives benzene.



13) Explain HVZ reaction.

Answer : (i) Carboxylic acids having an α -hydrogen are halogenated at the α -position on treatment with chlorine or bromine in the presence of small amount of red phosphorus to form α -halo carboxylic acids. This reaction is known as Hell - Volhard - Zelinsky reaction (HVZ reaction)

(ii) The α -Halogenated acids are convenient starting materials for preparing α -substituted acids.

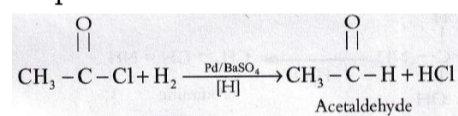
14) Compare the strength of mono, di, trichloro acetic acid.



Chlorine is the electron withdrawing group, it increases the acidic strength by -I effect.

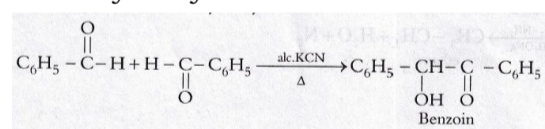
15) What is Rosenmund reduction?

Answer : Aldehydes can be prepared by the hydrogenation of acid chloride, in the presence of Pd supported by barium sulphate



16) What is Benzoin Condensation?

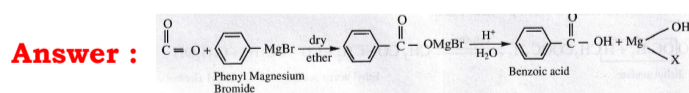
Answer : The benzoin condensation involves the treatment of an aromatic aldehyde with aqueous alcoholic KCN, The products are α -hydroxy ketone.



17) Discuss the uses of acetaldehyde.

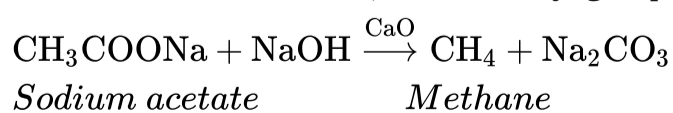
- Answer :** i) Acetaldehyde is used for silvering of mirrors.
 ii) Paraldehyde is used in medicine as a hypnotic.
 iii) Acetaldehyde is used in the commercial preparation of number of organic compounds like acetic acid, ethyl acetate etc.,

18) How is benzoic acid prepared from CO_2 ?



19) What is decarboxylation?

Answer : Removal of CO_2 from carboxyl group is called as decarboxylation. Sodalime is used as decarboxylating agent.



20) How will you convert benzaldehyde into the following compounds?

- (ii) benzoic acid

Answer :

