# **Chapter -12**

# Aldehydes, Ketones and carboxylic acids. Marks - 06 with option 08

## **Multiple choice questions (1 Mark)**

		ict of reaction of	ethane nitrile with Grignard reagent followed by acid
hydrol	-		
	a) a ketone		b) an aldehyde
	c)an acid		d) an acid chloride
ii)	reaction is used to synthesize straight alkyl substituted benzenes.		
	a) Etard		b) Rosenmund reduction
	c) Stephen reaction		d) Wolf Kishner reduction
iii) Ketones can <b>NOT</b> be converted into carboxylic acid using			
	a) acidic KMnO <sub>4</sub>		b) CrO <sub>3</sub>
	c) dil.HNO <sub>3</sub>		d) Hot and conc. HNO <sub>3</sub>
iv) Correct order of acid strength for			
i)acetic acid ii) fluoroacetic acid iii) 4-Nitrobenzoic acid iv) 4-Methyl benzoic acid is			
	a) i> ii> iii > iv	b) $ii > iii > iv > i$ ,	
	c) $iii > iv > i > ii$	d) $iv > i > ii >$	· iii
v) Addition of sodium bisulphite to ethanol is type of reaction.			
	a)electrophilic addition b) electrophilic substitution		
	c) nucleophilic addition	d) nucleophil	ic substitution
vi) The following reactants Can't be converted into carboxylic acid?			
a Dry ice		b) Cyclohexane	
	c) Toluene	d) Cyclohexer	ne

- vii) The following compounds will give a positive Fehling's test.
  - a.Propandane
- b) Pentan-3-one

c) Butanone

d) Butan-2-ol

#### Very short answer type of questions (1 mark)

- 1. Write IUPAC name of Phthalaldehyde?
- 2. Write the structure of cyclic ketal.
- 3. Write the name of the product when ketones react with ethane-1,2 -diol in presence of dry HCl.
- 4. Write another name for the disproportionation reaction?
- 5. Write the number of products when a mixture of ethanal and propanal is reacted with dilute alkali?
- 6. Write structure of the product formed when carboxylic acid is heated with dehydrating agent like P<sub>2</sub>O<sub>5</sub>
- 7. Write the formula of a reducing agent, which can't reduce –COOH group of carboxylic acid.

### Short answer questions (Type-I) (2 Marks)

- i) Write Classification of aliphatic ketones with suitable example
- ii) What is the action of Grignard reagent on benzonitrile?
- iii) Carboxylic acids have higher boiling points than those of ethers .Give reason.
- iv) Explain Cannizzaro reaction with suitable examples.
- v) What is the action of following regents on propanal?
- a. Sodium Bisulphite b. Hydrazine
- vi) Write the chemical reactions for the preparation of acid amide from the following.
  - a.Carboxylic acid
- b. Acid chloride

## Short answer questions (Type-II ) (3 marks )

- i) What is the action of following reagents on ethanoic acid?
  - a) SOCl<sub>2</sub> / heat
- b) soda lime / heat
- c)  $P_2O_5$  heat
- ii) Explain aldol condensation reaction of ethanal in detail.
- iii)Write reactions for the following conversions.
  - a. Benzene to Benzaldehyde

- b. Propanone to Propane
- c.4-Nitrobenzoic acid to Nitrobenzene
- iv) Explain haloform reaction with suitable example.

Write chemical reaction to distinguish acetaldehyde from acetone

- v) Write IUPAC name of mesityl oxide. What is the action of following reagents on acetaldehyde?
  - a. hydroxylamine
- b. acidified potassium dichromate
- vi) Write chemical reactions to convert -COOH group of acetic acid into following
  - a. CH<sub>4</sub> b. C<sub>2</sub>H<sub>5</sub>OH c. CH<sub>3</sub>COCl

#### Long answer questions. (4 marks)

i) Draw structure of salicylaldehyde.

Write reaction for preparation of acetophenone from benzoyl chloride.

Explain the acidic nature of carboxylic acids.

- ii) Write reactions for the action of following reagents on p-chlorobenzaldehyde.
  - a) Ethane-1,2-diol in presence of dry HCl.
  - b) Tollen's reagent.
  - c) Phenyl hydrazine.

Write reagent for conversion of alkyl nitrile into aldehyde.

iii) What are aliphatic aldehydes? Complete the following sequence of reactions and write structures for A, B, C.