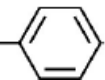
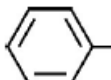
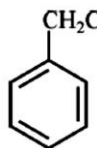
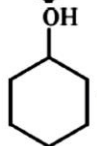


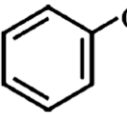
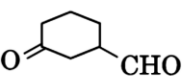

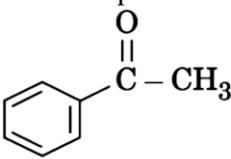
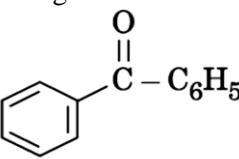
QUESTION BANK
UNIT 12 ALDEHYDES, KETONES & CARBOXYLIC ACIDS
CLASS-12 (CBSE)

S. No.	Questions	Year
1.	What happens when (a) Propanone is treated with methylmagnesium iodide and then hydrolysed, and (b) Benzene is treated with CH_3COCl in presence of anhydrous AlCl_3 ?	2020
2.	What happens when (a) Butanone is treated with methylmagnesium bromide and then hydrolysed, and (b) Sodium benzoate is heated with soda lime?	2020
3.	What happens when (a) Acetone is treated with $\text{Zn(Hg) / Conc. HCl}$, and (b) Ethanal is treated with methylmagnesium bromide and then hydrolysed ?	2020
4.	(a) An organic compound 'A' having molecular formula $\text{C}_5\text{H}_{10}\text{O}$ gives negative Tollens' test, forms n-pentane on Clemmensen reduction but doesn't give iodoform test. Identify 'A' and give all the reactions involved. (b) Carry out the following conversions : (i) Propanoic acid to 2-Bromopropanoic acid (ii) Benzoyl chloride to benzaldehyde (c) How will you distinguish between benzaldehyde and acetaldehyde ? <p style="text-align: center;">OR</p> (a) Complete the following sequence of reactions : $\text{CH}_3\text{COCH}_3 \xrightleftharpoons{\text{Ba(OH)}_2} (\text{A}) \xrightarrow[-\text{H}_2\text{O}]{\Delta} (\text{B})$ $\downarrow \text{NaOH, I}_2$ $(\text{C}) + (\text{D})$ (i) Identify (A) to (D). (ii) Give the IUPAC name of (A). (b) How can you distinguish between : (i) Ethanol and Propanone, and (ii) Benzoic acid and Phenol ?	2020
5.	Write the products formed when $(\text{CH}_3)_3\text{C} - \text{CHO}$ reacts with the following reagents : (i) CH_3COCH_3 in the presence of dilute NaOH (ii) HCN (iii) Conc. NaOH	2020
6.	(a) An organic compound (A) having molecular formula $\text{C}_4\text{H}_8\text{O}$ gives orange red precipitate with 2, 4-DNP reagent. It does not reduce Tollens' reagent but gives yellow precipitate of iodoform on heating with NaOH and I_2 . Compound (A) on reduction with NaBH_4 gives compound (B) which undergoes dehydration reaction on heating with $\text{conc. H}_2\text{SO}_4$ to form compound (C). Compound (C) on Ozonolysis gives two molecules of ethanal. Identify (A), (B) and (C) and write their structures. Write the reactions of compound (A) with (i) NaOH/I_2 and (ii) NaBH_4 . (b) Give reasons : (i) Oxidation of propanal is easier than propanone. (ii) α -hydrogen of aldehydes and ketones is acidic in nature. <p style="text-align: center;">OR</p> (a) Draw structures of the following derivatives : (i) Cyanohydrin of cyclobutanone (ii) Hemiacetal of ethanal	2020

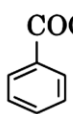
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	<p>(b) Write the major product(s) in the following :</p> <p>(i) $\text{CH}_3\text{-CH=CH-CH}_2\text{-CN} \xrightarrow[\text{(ii) H}_3\text{O}^+]{\text{(i) DIBAL-H}}$</p> <p>(ii) $\text{CH}_3\text{-CH}_2\text{-OH} \xrightarrow{\text{CrO}_3}$</p> <p>(c) How can you distinguish between propanal and propanone ?</p>	
7.	<p>(a) Write the products formed when benzaldehyde reacts with the following reagents :</p> <p>(i) CH_3CHO in presence of dilute NaOH</p> <p>(ii) $\text{H}_2\text{N-NH-}$ </p> <p>(iii) Conc. NaOH</p> <p>(b) Distinguish between following :</p> <p>(i) $\text{CH}_3\text{-CH=CH-CO-CH}_3$ and $\text{CH}_3\text{-CH}_2\text{-CO-CH=CH}_2$</p> <p>(ii) Benzaldehyde and Benzoic acid.</p> <p style="text-align: center;">OR</p> <p>(a) Write the final products in the following :</p> <p>(i) $\begin{array}{c} \text{CH}_3 \\ \diagdown \\ \text{C}=\text{O} \\ \diagup \\ \text{CH}_3 \end{array} \xrightarrow[\text{Conc HCl}]{\text{Zn/Hg}}$</p> <p>(ii) -COONa $\xrightarrow[\Delta]{\text{NaOH/CaO}}$</p> <p>(iii) $\text{CH}_2=\text{CH-CH}_2\text{-CN} \xrightarrow[\text{(b) H}_3\text{O}^+]{\text{(a) DIBAL-H}}$</p> <p>(b) Arrange the following in the increasing order of their reactivity towards nucleophilic addition reaction : CH_3COCH_3, HCHO, CH_3CHO,</p> <p>(c) Draw the structure of 2, 4 DNP derivative of acetaldehyde.</p>	2020
8.	<p>Write structures of compounds A and B in each of the following reactions :</p> <p>(i)  $\xrightarrow{\text{KMnO}_4\text{-KOH}}$ A $\xrightarrow{\text{H}_3\text{O}^+}$ B</p> <p>(ii)  $\xrightarrow{\text{CrO}_3}$ A $\xrightarrow{\text{H}_2\text{N-NH-CO-NH}_2}$ B</p>	2019

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9.	<p>Complete the following reactions :</p> <p>(i)  $\xrightarrow{\text{NaCN/HCl}}$</p> <p>(ii) $(\text{C}_6\text{H}_5\text{CH}_2)_2\text{Cd} + 2\text{CH}_3\text{COCl} \longrightarrow$</p> <p>(iii) $\text{CH}_3 - \overset{\text{CH}_3}{\underset{ }{\text{CH}}} - \text{COOH} \xrightarrow[\text{(ii) H}_2\text{O}]{\text{(i) Br}_2 / \text{Red P}_4}$</p> <p style="text-align: center;">OR</p> <p>Write chemical equations for the following reactions :</p> <p>(i) Propanone is treated with dilute $\text{Ba}(\text{OH})_2$.</p> <p>(ii) Acetophenone is treated with $\text{Zn}(\text{Hg})/\text{Conc. HCl}$</p> <p>(iii) Benzoyl chloride is hydrogenated in presence of Pd/BaSO_4.</p>	2019
10.	<p>Write structures of main compounds A and B in each of the following reactions :</p> <p>(a) $\text{C}_6\text{H}_5\text{COOH} \xrightarrow{\text{PCl}_5} \text{A} \xrightarrow{\text{H}_2 / \text{Pd}-\text{BaSO}_4} \text{B}$</p> <p>(b) $\text{CH}_3\text{CN} \xrightarrow[\text{(ii) H}_3\text{O}^+]{\text{(i) CH}_3\text{MgBr}} \text{A} \xrightarrow{\text{Zn(Hg)/conc. HCl}} \text{B}$</p>	2019
11.	<p>(a) Give reasons :</p> <p>(i) Benzoic acid is a stronger acid than acetic acid.</p> <p>(ii) Methanal is more reactive towards nucleophilic addition reaction than ethanal.</p> <p>(b) Give a simple chemical test to distinguish between propanal and propanone.</p>	2019
12.	<p>Write structures of main compounds A and B in each of the following reactions :</p> <p>(a) $\text{CH}_3\text{CH}_2\text{OH} \xrightarrow{\text{PCC}} \text{A} \xrightarrow{\text{CH}_3\text{OH} / \text{dry HCl(g)}} \text{B}$</p> <p>(b) $\text{C}_6\text{H}_5\text{COCH}_3 \xrightarrow{\text{NaOI}} \text{A} + \text{B}$</p>	2019
13.	<p>(a) Predict the main product of the following reactions :</p> <p>(i)  $\xrightarrow{[\text{Ag}(\text{NH}_3)_2]^+}$</p> <p>(ii) $\text{CH}_3 - \overset{\text{O}}{\parallel}{\text{C}} - \text{CH}_2 - \overset{\text{O}}{\parallel}{\text{C}} - \text{OCH}_3 \xrightarrow[\text{(ii) H}^+]{\text{(i) NaBH}_4}$</p> <p>(iii)  $\text{CHO} + \text{CH}_3 - \text{CHO} \xrightarrow{\text{dil NaOH}}$</p> <p>(b) Give a simple chemical test to distinguish between</p> <p> and </p> <p>(c) Why is alpha (α) hydrogen of carbonyl compounds acidic in nature ?</p> <p style="text-align: center;">OR</p> <p>(a) Write the main product formed when propanal reacts with the following reagents :</p> <p>(i) 2 moles of CH_3OH in presence of dry HCl</p> <p>(ii) Dilute NaOH</p> <p>(iii) $\text{H}_2\text{N} - \text{NH}_2$ followed by heating with KOH in ethylene glycol</p>	2019

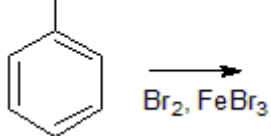
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	(b) Arrange the following compounds in increasing order of their property as indicated : (i) $F - CH_2COOH$, $O_2N - CH_2COOH$, CH_3COOH , $HCOOH$ — acid character (ii) Acetone, Acetaldehyde, Benzaldehyde, Acetophenone — reactivity towards addition of HCN	
14.	(a) Carry out the following conversions : (i) P-nitrotoluene to 2-bromobenzoic acid (ii) Propanoic acid to acetic acid (b) An alkene with molecular formula C_5H_{10} on ozonolysis gives a mixture of two compounds, B and C. Compound B gives positive Fehling test and also reacts with iodine and NaOH solution. Compound C does not give Fehling solution test but forms iodoform. Identify the compounds A, B and C. <p style="text-align: center;">OR</p> (a) Carry out the following conversions : (i) Benzoic acid to aniline (ii) Bromomethane to ethanol (b) Write the structure of major product(s) in the following : (i) $CH_3 - CH_2 - \underset{\begin{array}{c} \\ O \end{array}}{C} - H \xrightarrow[\text{(b) KOH, Glycol/heat}]{\text{(a) } H_2N - NH_2}$ (ii) $CH_3 - \underset{\begin{array}{c} \\ CH_3 \end{array}}{\overset{\begin{array}{c} CH_3 \\ \end{array}}{C}} - CHO \xrightarrow{\text{conc. NaOH}}$ (iii)  \xrightarrow{NaOH}	2019
15.	CH_3CHO is more reactive than CH_3COCH_3 towards reaction with HCN. Why?	2019
16.	Oxidation of CH_3-CHO is easier than CH_3-COCH_3 . Why?	2019
17.	p-nitrobenzoic acid has lower pka value than benzoic acid. Why?	2019
18.	(a) Give IUPAC name of $CH_3 - CH = CH - CHO$. (b) How can you distinguish between ethanol and ethanal? (c) How will you convert the following : (i) Toluene to benzoic acid (ii) Ethanol to propan-2-ol (iii) Propanal to 2-hydroxypropanoic acid <p style="text-align: center;">OR</p> (a) Give IUPAC name of Salicylic acid. (b) Chloroacetic acid is more acidic than acetic acid. Why? (c) Write the products formed when $(CH_3)_3C-CHO$ reacts with the following : (i) Zinc amalgam and dilute hydrochloric acid (ii) Concentrated sodium hydroxide solution (iii) Semicarbazide and a weak acid	2019
19.	How do you convert the following ? (a) Ethanal to Propanone (b) Toluene to Benzoic acid	2018
20.	Account for the following : (a) Aromatic carboxylic acids do not undergo Friedel-Crafts reaction. (b) pKa value of 4-nitrobenzoic acid is lower than that of benzoic acid.	2018
21.	(A), (B) and (C) are three non-cyclic functional isomers of a carbonyl compound with molecular formula C_4H_8O . Isomers (A) and (C) give positive Tollens' test whereas isomer (B) does not give Tollens' test but gives positive Iodoform test. Isomers (A) and (B) on reduction with $Zn(Hg)/\text{conc. HCl}$ give the same product (D). (a) Write the structures of (A), (B), (C) and (D). (b) Out of (A), (B) and (C) isomers, which one is least reactive towards addition of HCN ?	2018

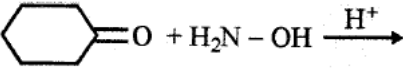
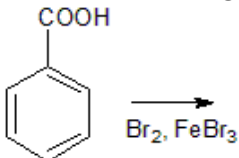
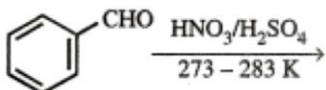
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22.	(a) Write the reactions involved in the following : (i) Etard reaction (ii) Stephen reduction (b) How will you convert the following in not more than two steps : (i) Benzoic acid to Benzaldehyde (ii) Acetophenone to Benzoic acid (iii) Ethanoic acid to 2-Hydroxyethanoic acid	2017(OD)
23.	Write the equations involved in the following reactions : (i) Wolff-Kishner reduction (ii) Etard reaction	2017(D) 2017(F)
24.	Write structures of compounds A, B and C in each of the following reactions : (i) $\text{C}_6\text{H}_5\text{Br} \xrightarrow{\text{Mg/dry ether}} \text{A} \xrightarrow[\text{(b) H}_3\text{O}^+]{\text{(a) CO}_2(\text{g})} \text{B} \xrightarrow{\text{PCl}_5} \text{C}$ (ii) $\text{CH}_3\text{CN} \xrightarrow[\text{(b) H}_3\text{O}^+]{\text{(a) SnCl}_2/\text{HCl}} \text{A} \xrightarrow{\text{dil. NaOH}} \text{B} \xrightarrow{\Delta} \text{C}$	2017(D)
25.	Do the following conversions in not more than two steps : (i) Benzoic acid to benzaldehyde (ii) Ethyl benzene to Benzoic acid (iii) Propanone to Propene	2017(D)
26.	Do the following conversions in not more than two steps : (a) Propene to Acetone (b) Propanoic acid to 2-hydroxypropanoic acid	2017(F)
27.	Give reasons : (a) Propanone is less reactive than ethanal towards nucleophilic addition reactions. (b) $\text{O}_2\text{N} - \text{CH}_2 - \text{COOH}$ has lower pKa value than CH_3COOH . (c) $(\text{CH}_3)_2\text{CH} - \text{CHO}$ undergoes aldol condensation whereas $(\text{CH}_3)_3\text{C} - \text{CHO}$ does not.	2017(F)
28.	Write the structure of A and B in the following reaction: (i) $\text{CH}_3\text{COCl} \xrightarrow{\text{H}_2/\text{Pd}-\text{BaSO}_4} \text{A} \xrightarrow{\text{H}_2\text{N}-\text{OH}} \text{B}$ (ii) $\text{CH}_3\text{MgBr} \xrightarrow[2. \text{H}_3\text{O}^+]{1. \text{CO}_2} \text{A} \xrightarrow{\text{PCl}_5} \text{B}$	2016 (OD)
29.	Distinguish between: (i) $\text{C}_6\text{H}_5 - \text{COCH}_3$ and $\text{C}_6\text{H}_5 - \text{CHO}$ (ii) CH_3COOH and HCOOH (c) Arrange the following in the increasing order of their boiling points: CH_3CHO, CH_3COOH, $\text{CH}_3\text{CH}_2\text{OH}$	2016 (OD)
30.	(a) Write the chemical reaction involved in Wolf-Kishner reduction. (b) Arrange the following in the increasing order of their reactivity towards nucleophilic addition reaction: $\text{C}_6\text{H}_5\text{COCH}_3$, $\text{CH}_3 - \text{CHO}$, CH_3COCH_3 (c) Why carboxylic acid does not give reactions of carbonyl group. (d) Write the product in the following reaction $\text{CH}_3\text{CH}_2\text{CH}=\text{CH}-\text{CH}_2\text{CN} \xrightarrow[2. \text{H}_2\text{O}]{1. (\text{i-Bu})_2\text{AlH}}$ (e) A and B are two functional isomers of compound $\text{C}_6\text{H}_6\text{O}$. On heating with NaOH and I_2 , isomer B forms yellow precipitate of iodoform whereas isomer A does not form any precipitate. Write the formulae of A and B.	2016 (OD)
31.	Write the structures of A, B, C, D and E in the following reactions: $\text{C}_6\text{H}_6 \xrightarrow[\text{Anhyd. AlCl}_3]{\text{CH}_3\text{COCl}} \text{A} \xrightarrow{\text{Zn-Hg/conc. HCl}} \text{B} \xrightarrow[\text{(ii) H}_3\text{O}^+]{\text{(i) KMnO}_4 - \text{KOH}, \Delta} \text{C}$ $\text{A} \xrightarrow{\text{NaOI}} \text{D} + \text{E}$	2016(D)
32.	(a) Write the chemical equation for the reaction involved in Cannizzaro reaction. (b) Draw the structure of the semicarbazone of ethanal. (c) Why pKa of $\text{F} - \text{CH}_2 - \text{COOH}$ is lower than that of $\text{Cl} - \text{CH}_2 - \text{COOH}$?	2016(D)

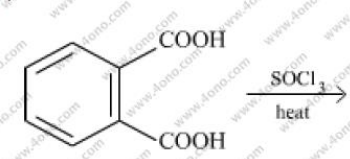
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	(d) Write the product in the following reaction $\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_2\text{CN} \xrightarrow[\text{(ii) H}_2\text{O}]{\text{(i) DIBAL - H}}$ (e) How can you distinguish between propanal and propanone?	
33.	Write the reagents required in the following reactions: (i) $\text{CH}_2 = \text{CH} - \text{CH}_2\text{OH} \xrightarrow{?} \text{CH}_2 = \text{CH} - \text{CHO}$ (ii) $\text{CH}_3 - \text{COOH} \xrightarrow{?} \text{CH}_3 - \text{CONH}_2$	2015(OD)
34.	Arrange the following compounds in increasing order of their property as indicated: (i) CH_3COCH_3 , $\text{C}_6\text{H}_5\text{COCH}_3$, CH_3CHO (reactivity towards nucleophilic addition reaction) (ii) $\text{Cl-CH}_2\text{-COOH}$, $\text{F-CH}_2\text{-COOH}$, $\text{CH}_3\text{-COOH}$ (acidic character)	2015(OD)
35.	Predict the products of the following reactions: (i) $\text{CH}_3 - \text{C} = \text{O} \xrightarrow{\text{H}_2\text{N} - \text{NH}_2} ?$ (ii) $\text{C}_6\text{H}_5 - \text{CH}_3 \xrightarrow[\text{(b) H}^+]{\text{(a) KMnO}_4/\text{KOH}} ?$  (iii)	2015(OD)
36.	Name the reagents used in the following reactions: (i) $\text{CH}_3 - \text{CO} - \text{CH}_3 \xrightarrow{?} \text{CH}_3 - \underset{\text{OH}}{\text{CH}} - \text{CH}_3$ (ii) $\text{C}_6\text{H}_5 - \text{CH}_2 - \text{CH}_3 \xrightarrow{?} \text{C}_6\text{H}_5 - \text{COO}^- \text{K}^+$	2015(D)
37.	Predict the products of the following reactions: (i) $\text{CH}_3 - \underset{\text{CH}_3}{\text{C}} = \text{O} \xrightarrow[\text{(ii) KOH/Glycol, } \Delta]{\text{(i) H}_2\text{N} - \text{NH}_3} ?$ (ii) $\text{C}_6\text{H}_5 - \text{CO} - \text{CH}_3 \xrightarrow{\text{NaOH/I}_2} ? + ?$ (iii) $\text{CH}_3\text{COONa} \xrightarrow[\Delta]{\text{NaOH / CaO}} ?$	2015(D)
38.	Write the equation involved in the following reactions: (i) Reimer-Tiemann reaction (ii) Williamson synthesis	2014(OD) 2013(OD)
39.	Write the products formed when CH_3CHO reacts with the following reactions: (i) HCN (ii) $\text{H}_2\text{N} - \text{OH}$ (iii) CH_3CHO the presence of dilute NaOH	2014(OD)
40.	Give simple chemical tests to distinguish between the following pairs of compounds: (i) Benzoic acid and Phenol (ii) Propanal and Propanone	2014(OD)
41.	(a) Account for the following: (i) $\text{Cl-CH}_2\text{COOH}$ is a stronger acid than CH_3COOH . (ii) Carboxylic acids do not give reactions of carbonyl group. (b) Write the chemical equations to illustrate the following name reactions: (i) Rosenmund reduction (ii) Cannizzaro's reaction (c) Out of $\text{CH}_3\text{CH}_2\text{-CO-CH}_2\text{-CH}_3$ and $\text{CH}_3\text{CH}_2\text{-CH}_2\text{-CO-CH}_3$ which gives iodoform test?	2014(OD)

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42.	<p>Write the products of the following reactions:</p> <p>(i) </p> <p>(ii) $2 \text{C}_6\text{H}_5\text{CHO} + \text{conc. NaOH} \longrightarrow$</p> <p>(iii) $\text{CH}_3\text{COOH} \xrightarrow{\text{Cl}_2/\text{P}}$</p> <p>(b) Give simple chemical tests to distinguish between the following pairs of compounds: (i) Benzaldehyde and benzoic acid, (ii) Propanal and propanone.</p>	2014(D)
43.	<p>Account for the following:</p> <p>(i) CH_3CHO is more chemical reactive than CH_3COCH_3 towards reaction with HCN. (ii) Carboxylic acid is a stronger acid than phenol.</p> <p>(b) Write the chemical equations to illustrate the following name reactions: (i) Wolff-Kirsher reduction (ii) Aldol condensation (iii) Cannizzaro reaction</p>	2014(D)
44.	<p>Rearrange the following compounds in the increasing order of their boiling points: $\text{CH}_3\text{-CHO}$, $\text{CH}_3\text{-CH}_2\text{-OH}$, $\text{CH}_3\text{-CH}_2\text{-CH}_3$</p>	2013(OD)
45.	<p>How will you convert the following:</p> <p>(i) Propanone to Propan-2-ol (ii) Ethanal to 2-hydroxy propanoic acid (iii) Toluene to benzoic acid</p> <p>(b) Give simple chemical test to distinguish between: (i) Pentan-2-one and Pentan-3-one (ii) Ethanal and Propanal</p>	2013(OD)
46.	<p>Write the products of the following reactions:</p> <p>(i) $\text{CH}_3 - \text{C} = \text{O} \xrightarrow{\text{Zn-Hg/concHCl}} ?$ $\quad \quad \quad$ $\quad \quad \quad \text{CH}_3$</p> <p>(ii) $\text{CH}_3 - \text{C} = \text{O} + \text{H}_2 \xrightarrow{\text{Pd-BaSO}_4} ?$ $\quad \quad \quad$ $\quad \quad \quad \text{Cl}$</p> <p></p>	2013(OD)
47.	<p>(a) Although phenoxide ion has more number of resonating structures than carboxylate ion, Carboxylic acid is a stronger acid than phenol. Give two reasons. (b) How will you bring about the following conversions? (i) Propanone to propane (ii) Benzoyl Chloride to benzaldehyde (iii) Ethanal to but-2-enal</p>	2013(D)
48.	<p>(a) Complete the following reactions:</p> <p>(i) $2\text{H} - \text{C} - \text{H} \xrightarrow{\text{Conc. KOH}}$ $\quad \quad \quad$ $\quad \quad \quad \text{O}$</p> <p>(ii) $\text{CH}_3\text{COOH} \xrightarrow{\text{Br}_2/\text{P}}$</p> <p>(iii) </p> <p>(b) Give simple chemical tests to distinguish between the following pairs of compounds: (i) Ethanal and Propanal (ii) Benzoic acid and Phenol</p>	2013(D)
49.	<p>(a) Write a suitable chemical equation to complete each of the following transformations: (i) Butan-1-ol to butanoic acid</p>	2012(OD)

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UNIT 12 ALDEHYDES, KETONES & CARBOXYLIC ACIDS
CLASS-12 (CBSE)

	(ii) 4-Methylacetophenone to benzene-1, 4-dicarboxylic acid (b) An organic compound with molecular formula $C_9H_{10}O$ forms 2,4-DNP derivative, reduces Tollen's reagent and undergoes Cannizzaro's reaction. On vigorous oxidation it gives 1,2-benzenedicarboxylic acid, Identify the compound.	
50.	(a) Give chemical tests to distinguish between (i) Propanol and propanone (ii) Benzaldehyde and acetophenone (b) Arrange the following compounds in an increasing order of their property as indicated: (i) Acetaldehyde, Acetone, Methyl tert-butyl ketone (reactivity towards HCN) (ii) Benzoic acid, 3,4-Dinitrobenzoic acid, 4-Methoxybenzoic acid (acid strength) (iii) $CH_3CH_2CH(Br)COOH$, $CH_3CH(Br)CH_2COOH$, $(CH_3)_2CHCOOH$ (acid strength)	2012(OD)
51.	Arrange the following compound in an increasing order of their reactivity in nucleophilic addition reactions: Ethanal, Propanal, butanone, propanone.	2012(D)
52.	Illustrate the following name reactions giving suitable example in each case: (i) Clemmensen reduction (ii) Hell-Volhard-Zelinsky reaction (b) How are the following conversions carried out? (i) Ethylcyanide to ethanoic acid. (ii) Butanol to Butanoic acid (iii) Benzoic acid to m-bromobenzoic acid	2012(D)
53.	(a) Illustrate the following reactions suitable example for each. (i) Cross aldol condensation (ii) Decarboxylation (b) Give simple tests to distinguish between the following pairs of compounds (i) Pentan-2-one and pentan-3-one (ii) Benzaldehyde and acetophenone (iii) Phenol and benzoic acid	2012(D)
54.	Name the reagents used in the following reactions: (i) Benzyl alcohol to benzoic acid. (ii) Dehydration of propan-2-ol to propene. (iii) Butan-2-one to butan-2-ol.	2011(OD)
55.	(a) Illustrate the following name reactions: (i) Cannizzaro's reaction (ii) Clemmensen reduction (b) How would you obtain the following: (i) But-2-enal from ethanal (ii) Butanoic acid from butanol (iii) Benzoic acid from ethylbenzene	2011(OD)
56.	(a) Give chemical tests to distinguish between the following: (i) Benzoic acid and ethyl benzoate (ii) Benzaldehyde and acetophenone. (b) Complete each synthesis by giving missing reagents or products in the following:  (i) (ii) $C_6H_5CHO \xrightarrow{H_2NCONHNH_2}$	2011(OD)
57.	Explain the following giving one example for each: (i) Reimer-Tiemann reaction (ii) Friedel Craft's acetylation of anisole.	2011(D)