



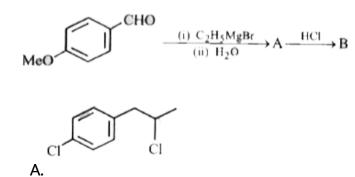
CHEMISTRY

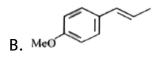
BOOKS - DISHA PUBLICATION CHEMISTRY (HINGLISH)

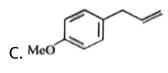
ALDEHYDES, KETONES AND CARBOXYLIC ACIDS

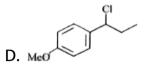
Jee Main 5 Years At A Glance

1. The major product B formed in the following reaction sequence is :









Answer: D



2. Which one of the following will most readily be dehydrated in

acidic condition?

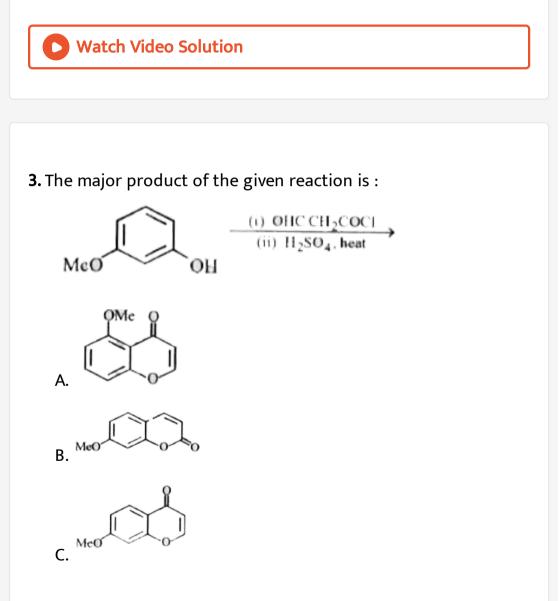
A. 4 -Hydroxypentan -2- one

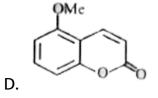
B. 3 - Hydroxypentan -2- one

C. 1 -Pentanol

D. 2 - Hydroxycyclopentanone

Answer: A

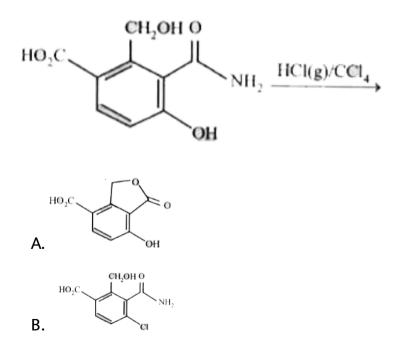


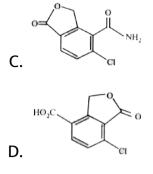


Answer: B



4. The major product expected from the following reaction is :



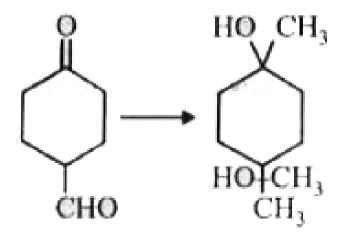


Answer: C



5. The correct sequence of reagents for the following conversion

will be :



A. $[Ag(NH_3)_2]^+OH^-, H^+/CH_3OH, CH_3MgBr$ B. $CH_3MgBr, H^+/CH_3OH, [Ag(NH_3)_2]^+OH^-$ C. $CH_3MgBr, [Ag(NH_3)_2]^+, H^+/CH_3OH$ D. $[Ag(NH_3)_2]^+OH^-, CH_3MgBr, H^+/CH_3OH$

Answer: A



6. Sodium salt of an organic acid 'X' produces effervescence with conc. H_2SO_4 . 'X' reacts with the acidified aqueous $CaCl_2$ solution to give a white precipitate which decolourises acidic solution of $KMnO_4$ 'X' is

A. C_6H_5COONa

 $\mathsf{B}.\,HCOONa$

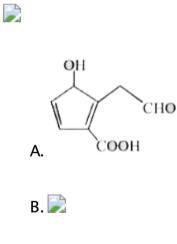
 $\mathsf{C.}\,CH_4COONa$

 $\mathsf{D.}\, Na_2C_2O_4$

Answer: D

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7. The major product obtained in the following reaction is :







Answer: B



8. Bouveault - Blanc reduction reaction involves :

A. Reduction of an acyl halide with $H_2 \,/\, Pd$

B. Reduction of an anhydride with $LiAlH_4$

C. Reduction of an ester with $Na \, / \, C_2 H_5 OH$

D. Reduction of a carbonyl compound with

Na/Hg and HCl.

Answer: C

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- **9.** The correct statement about the synthesis of erythritol $(C(CH_2OH)_A)$ used in the preparation if PETN is :
 - A. The synthesis requires three aldol condensation and one

Cannizzaro reaction.

- B. Alpha hydrogens of ethanol and methanol are involved in this reaction.
- C. The synthesis required two aldol condensations and two

Cannizzaro reactions.

D. The synthesis requires four aldol condensations between

methanol and ethanol.

Answer: A

10. In the presence of a small amount of phosphorous, aliphatic carboxylic acids react with chlorine or bromine to yield a compound in which α - hydrogen has been replaced by halogen. This reaction is known as :

A. Wolff - Kishner reaction

B. Rosenmund reaction

C. Etard reaction

D. Hell - Volhard - Zelinsky reaction

Answer: D

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11. In the reaction sequences

 $2CH_3CHO \stackrel{OH^-}{\longrightarrow} A \stackrel{\Delta}{\longrightarrow} B$ the product B is

A.
$$CH_3-CH_2-CH_2-CH_2-OH$$

$$B. CH_3 - CH = CH - CHO$$

$$\mathsf{C.}\,CH_\# - cH_2 - CH_2 - CH_3$$

D.
$$CH_3 - \overset{|\,|}{C} - CH_3$$

0

Answer: B

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12. Which compund will yield 5-keto -2 methyl hexanal upon treatment with O_3 ?









Answer: D



13. Which one of the following reactions will not result in the formation of carbon - carbon bond?

A. Reimer - Tieman reaction

B. Friedel Craft's acylation

C. Wurtz reaction

D. Cannizzaro reaction

Answer: D



14. Which is the major product formed when acetone is heated

with iodine and potassium hydroxide ?

A. Iodoacetone

B. Acetic acid

C. lodoform

D. Acetophenone

Answer: C

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15. Tischenko reaction is a modification of

A. Aldol condensation

B. Claisen condensation

- C. Cannizzaro reaction
- D. Pinacol pinacolon reaction

Answer: C

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16. Phthalic acid reacts with resorcinol in the presence of concentrated H_2SO_4 to give:

A. Phenolphthalein

B. Alizarin

C. Coumarin

D. Fluorescein

Answer: D





17. In the reaction

 $CH_3COOH \xrightarrow{LiAlH_4} A \xrightarrow{PCl_5} B \xrightarrow{Alc.KOH} C$

The product C is

A. Acetaldehyde

B. Acetylene

C. Ethylene

D. Acetyl chloride

Answer: C



Exercise 1 Concept Builder Topicwise Topic 1 Methods Of Preparation Of Carbonyl Compounds 1. Calcium acetate on heating gives

A. acetic anhydride

B. acetone

C. acetaldehyde

D. ethyl alcohol

Answer: B

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2. Benzaldehyde can be prepared by the hydrolysis of

A. benzal chloride

B. benzotrichloride

C. benzyl chloride

D. benzonitrile

Answer: A



3. The orbital picture of a singlet carbene (CH_2) can be drawn

as







D. none of these

Answer: A



4. Which of the following is an example of nucleophilic addition ?

$$\stackrel{O}{\texttt{A.}} C_6H_5\overset{|\,|}{C}CH_3 \xrightarrow{NH_2NH_2\,,H^+} C_6H_5\overset{NNH_2}{C}CH_3$$

$$\overset{O}{\overset{||}{\text{\mathsf{B}}}}_{\text{\mathsf{B}}}\overset{O}{\overset{C}{\text{\mathsf{C}}}}_{\text{\mathsf{5}}}\overset{O}{\text{\mathsf{C}}}_{\text{\mathsf{C}}}H_3 \xrightarrow{LiAlH_4} \overset{O}{\underset{\text{\mathsf{C}}}}^{OH}_{\text{\mathsf{6}}}\overset{O}{\underset{\text{\mathsf{H}}}}_{\text{\mathsf{5}}}\overset{O}{\text{\mathsf{CH}}}_{\text{\mathsf{6}}}H_3$$

C. Both (a) & (b)

D. None of these

Answer: C

D Watch Video Solution

5. In the Cannizzaro reaction given below

 $2C_6H_5CHO \xrightarrow{OH^-} C_6H_5CH_2OH + C_6H_5COO^-$

the slowest step is

A. attack of OH^{-} at the carbonyl group.

B. transfer of hydride ion to the carbonyl group.

C. abstraction of proton from the carboxylic acid.

D. feprotonation of $C_6H_5CH_2OH$.

Answer: B



6. Which of the following acts as a nucleophilie in the Cannizzaro

reaction involving benzaldehyde?

(i) OH^{-} (ii) C_6H_4COH

(iii) $C_6H_5CH(OH)O^-$ (iv) H_2O :

A. (i) and (iv)

B. (i) and (ii)

C. (i) and (iii)

D. only (i)

Answer: C

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7. In the following sequence of reaction, the end product is :

$$HC \equiv CH \stackrel{Hg^{2+} \, / \, H_2SO_4}{\longrightarrow} (A) \stackrel{CH_3MgX}{\longrightarrow} (B) \stackrel{[O]}{\longrightarrow} (C)$$

A. acetic acid

B. isopropyl alcohol

C. acetone

D. ethanol

Answer: C





8. Acid catalysed hydrolysis of the cyclic acetal gives



A. ethanal and 2 - chlorocyclohexanol

B. ethanol and 2 - chlorocyclohexanol

C. 1, 2 - ethanediol and 2 - chlorocyclohexanone

D. 1, 2 - ethanediol 2 - chlorocyclohexanol

Answer: C



9. What is the product of the following reaction?



- A. 2 methyl -1- pentene
- B. 4 methyl 1 pentene
- C. 2 methyl 2 propyloxirane
- D.1-pentene

Answer: A

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Exercise 1 Concept Builder Topicwise Topic 2 Properties Of Carbonyl Compounds

1. Which of following compound is hemiacetal ?







D. all of these

Answer: D

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$$\textbf{2.} CH_3 CHO \xrightarrow{10\,\%\,NaOH} \xrightarrow{heat} \xrightarrow{H_2} (A),$$

Product (A) of the reaction is

A. propanol

B. ethanol

C. butanol

D. pentanol

Answer: C



3. The presence of unsaturation in organic compounds can be tested with

A. Schiff's reagent

B. Tollens' reagent

C. Fehling's reagent

D. Baeyer's reagent

Answer: D



4. Which carbon atoms are most susceptible to nucleophilic

attack?

$$CH_3 - CH = CH - CH = CH - D = CH_3$$

A. A and B

B. B and C

C. B and D

D. A and D

Answer: C

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5.
$$2CH_3CHO \xrightarrow{OH^-} X o Y \xrightarrow{H_2-Pd/C} Z, Z$$
 is

A. $CH_3CH = CHCH_2OH$

 $\mathsf{B.}\, CH_3CH_2CH_2CH_2OH$

 $\mathsf{C.}\,CH_3CH_2CH_2CHO$

 $\mathsf{D}.\,CH_3CH=CHCHO$

Answer: C



6.
$$CH_3COCH_2Cl \xrightarrow{OH^-, Cl_2}$$
 Product P is

A. $ClCH_2COCH_2Cl$

B. $CH_3COCHCl_2$

C. both a and b

D. $ClCH_2COOH + CH_3Cl$

Answer: B



7. Formalin is an aqueous solution of

A. flurescein

B. formic acid

C. formaldehyde

D. furfuraldehyde

Answer: C

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8.
$$(CH_3)_2 C = CHCOCH_3$$
 can be oxidised to $(CH_3)_2 C = CHCOOH$ by

A. Chromic acid

$\mathsf{B.}\,NaOI$

C. Cu at $300^{\circ}C$

D. $KMnO_4$

Answer: B

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9. Aldehydes and ketones will not form crystalline derivatives with

- A. sodium bisulphite
- B. phenylhydrazine
- C. semicarbazide hydrochloride
- D. dihydrogen sodium phosphate.

Answer: D



10. Which of the following compounds will undergo self aldol condensation in the presence of cold dilute alkali ?

A. $CH_2 = CH - CHO$

 $\mathsf{B}.\,CH\equiv C-CHO$

 $\mathsf{C.}\, C_6H_5CHO$

D. CH_3CH_2CHO .

Answer: D



11. Appropriate reducing agent for the following conversion is -

$$CH_2=CH-CH_2-\overset{O}{C}-H
ightarrow CH_3-CH_\circ-CH_2-CH_2OH$$

A. $LiAlH_4/H_2O$

 $\operatorname{B.} \operatorname{NaBH}_4/\operatorname{H}_2O$

 $\mathsf{C.}\,Na+C_2H_5OH$

D. $B_2 H_6 \,/\, H^{\,+}$

Answer: D

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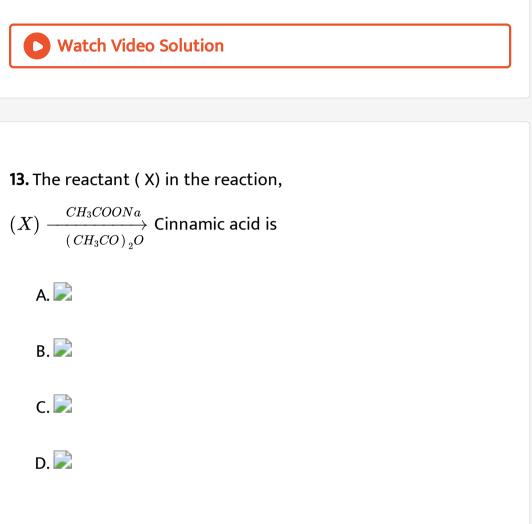
12. Which of the following is a disproportionation reaction ?

A. 2HCHO
$$\xrightarrow{NaOH} CH_3OH + HCOONa$$

B. 2CH₃CHO $\xrightarrow{NaOH} CH_3CHCH_2CHO$
 \downarrow_{OH}
C. \bigcirc

D. Both (a) & (b)

Answer: A



Answer: B

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14.
$$C_{16}H_{16} \xrightarrow{O_3} (B) \xrightarrow[C_8H_8O]{NH_2 - NH_2} \bowtie$$

Reactant (A) in this reaction is :

A. 📄



C. 📄

D. both (b) and (c)

Answer: D

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15.
$$Ph - \overset{O}{\overset{||}{C}} - OH \overset{SOCl_2}{\longrightarrow} (A) \overset{H_2}{\overset{Pd - BaSO_4}{\longrightarrow}} (B)$$

Product (B) is:

A.
$$Ph - \overset{O}{\overset{||}{C}} - H$$

$$\mathsf{B}. Ph - CH_2 - OH$$

$$\mathsf{C.}\,Ph-CH_2-Cl$$

 $\mathsf{D}. Ph - CH = CH_2$

Answer: A

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16. Arrange the followoing carbonyl compounds in decreasing order of their reactivity in nucleophilic addition reaction.

A.
$$(ii) > (iii) > (i) > (iv)$$

$$\texttt{B.}\,(ii)>(i)>(iv)>(iii)$$

$${\sf C}.\,(iii)>(ii)>(i)>(iv)$$

 ${\sf D}.\,(iii)>(i)>(iv)>(ii)$

Answer: B

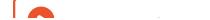




In the above reaction, product (B) is :



Answer: B



18. Which of the major product of the following reaction?

$$CH_3 - \overset{O}{\overset{||}{C}} - CI \overset{H_2S}{\longrightarrow} ext{ product}$$

A.
$$CH_3 - \frac{|}{|}^{OH} \mathrm{C} - Cl$$

B. $CH_3 - \frac{|}{C} - SH$

C.
$$CH_3 - \overset{||}{C} - Cl$$

D.
$$CH_3 - \overset{O}{\overset{||}{C}} - S - \overset{O}{\overset{||}{C}} - CH_3$$

Answer: B

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19. Arrange the following compounds in order of their reactivity toward $LiAlH_4$.

A. I < ii < iiiB. I < iii < iiC. ii < i < iiiD. ii < iii < i

Answer: D

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20. Which one of the following compounds will be most readily dehydrated?

A.	
B.	





Answer: D



21. Acetone is treated with excess of ethanol in the presence of

hydrochloric acid. The product obtained is

A.
$$CH_3CH_2CH_2-\overset{O}{\overset{||}{C}}-CH_3$$

B. $CH_3CH_2CH_2-\overset{O}{\overset{||}{C}}-CH_2CH_2CH_3$



Answer: D



22. Consider the reaction

 $RCHO + NH_2NH_2
ightarrow R - CH = NNH_2$

What sort of reaction is it?

A. Electrophilic addition - elimination reaction

B. Free radical addition - elimination reaction

C. Electrophilic substitution - elimination reaction

D. Nucleophilic addition - elimination reaction

Answer: D



- **23.** Which of the following compounds will give a yellow precipitate with iodine and alkali?
- (i) Acetophenone
- (ii) Acetamide
- (iii) Methyl acetate (iv) 2- Hydroxypropane
 - A. (i), (ii) and (iii)
 - B. (i) and (iv)
 - C. (ii) and (iv)
 - D. (i), (iii) and (iv)

Answer: B



24. The order of stability of the following tautomeric compounds

is

(i).
$$CH_2 = \overset{OH}{C}H - CH_2 - \overset{OH}{C} - CH_3 \Leftrightarrow$$

(ii). $CH_3 - \overset{OH}{C} - CH_2 - \overset{OH}{C} - CH_3 \Leftrightarrow$
(iii). $CH_3 - \overset{OH}{C} = CH - \overset{OH}{C} - CH_3$

A.
$$III > II > I$$

B. $II > I > III$
C. $II > III > I$
D. $I > II > III$

Answer: A

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25. Which one is most reactive towards nucleophilic addition reaction?



Answer: D



26. An organic compound 'X' having molecular formula $C_5H_{10}O$ yield phenylhydrazone and gives negative response to the iodoform test and Tollens test . It produces n-pentane on reduction. 'X' could be

A. 2 - pentanone

B. 3 - pentanone

C. n - amyl alcohol

D. pentanal

Answer: B



27. Reaction of carbonyl compound with one of the following reagents involves nucleophilic addition followed by elimination of water. The reagent is:

A. a Grignard reagent

B. hydrazine in presence of feebly acidic solution

C. hydrocyanic acid

D. sodium hydrogen sulphite

Answer: B



28. Of the following which is the product formed when cyclohexanone undergoes aldol condensation followed by heating?

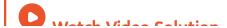








Answer: A



29. Which of the following pairs of reactants is most effective in

forming an enamine ?

$$\stackrel{O}{\overset{||}{C}}{\mathsf{C.}} (CH_3)_3 \stackrel{O}{CCH}{CCH} + (CH_3)_2 NH$$

D. None of these form an enamine.

Answer: C



30.
$$\Longrightarrow$$
 $\xrightarrow{NH_2OH}$ (A) $\xrightarrow{H^+}$ (B) \xrightarrow{LAH} (C) , Product (C) of the

reaction is :

A.	

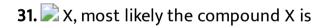
в. 📄





Answer: B













Answer: B



32. The compound shown below is the cyclic hemiacetal of

A. 5 - hydroxyheptanal

B. 6 - hydroxy - 3 - heptanone

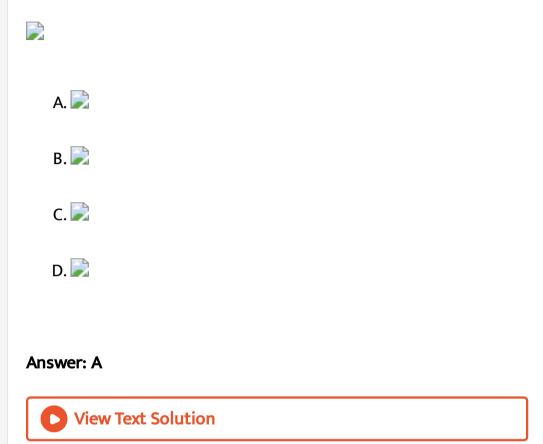
C. 5 - hydroxy - 2 - heptanone

D. 6 - hydroxy heptanal

Answer: C

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33. What is the product of the following reaction ?



34. The reagents employed to carry the following transformation

A. $LiAlH_4, H_2SO_4$ / heat

B. PCC/CH_2Cl_2 followed by HIO_4

C. $NaBH_4 \,/\, CH_3 OH$ followed by HIO_4

D. O_3 followed by $(CH_3)_2S$

Answer: C

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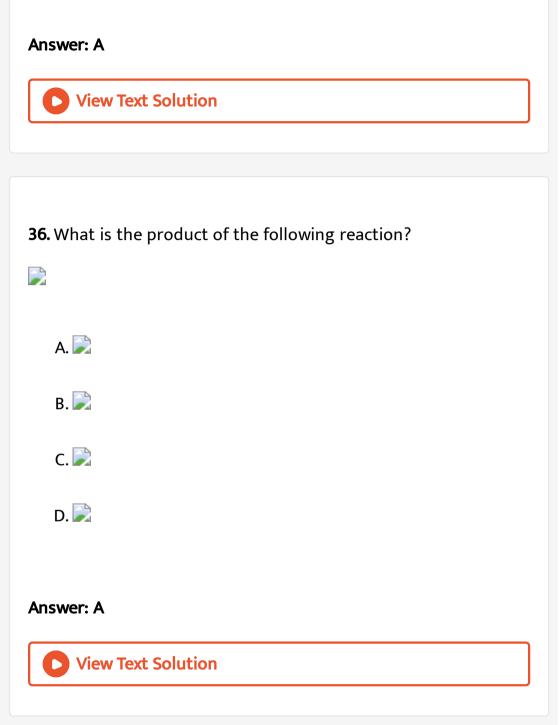
35. The most acidic hydrogen for the following compound

A. 2

B. 1

C. 4

D. 3



Exercise 1 Concept Builder Topicwise Topic 3 Preparation And Properties Of Carboxylic Acids

1. 📄

In the above sequence of reaction X and Y are respectively

A. $H_2/Pt, Br_2$

B. $KMnO_4, H_2 / Pt$

C. $KMnO_4(aq), HI/P$

D. $NH_2 - NH_2 / KOH, HI / P$

Answer: C

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2. Hydrolysis of an ester may be achived under acidic as well as basic conditions. Pick up the correct statement regarding this

A. Acidic hydrolysis is faster than alkaline hydrolysis.

B. Alkaline hydrolysis is faster than acidic hydrolysis.

C. Both occur at the same rate.

D. In both, the first step is protonation of the -OH part of

the -COOH group.

Answer: B



3. When propionic acid is treated with aqueous sodium bicarbonate, CO_2 is liberated. The carbon of CO_2 comes from

A. methyl group

- B. carboxylic acid group
- C. methylene group
- D. bicarbonate

Answer: D



- 4. Formic acid is obtained when :
 - A. calcium acetate is heated with conc. H_2SO_4
 - B. calcium formate is heated with calcium acetate
 - C. glycerol is heated with oxalic acid at 373 K
 - D. acetaldehyde is oxisised with $K_2Cr_2O_7$ and H_2SO_4 .

Answer: C

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5. an ester is boiled with KOH. The product is cooled and acidified with conc. HCl. A white crystalline acid separates . The ester is

A. methyl acetate

B. ethyl acetate

C. ethyl formate

D. ethyl benzoate

Answer: D

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6. Cyanohydrin of the following compound on hydrolysis gives optically active product:

A. diethyl ketone

B. formaldehyde

C. acetaldehyde

D. acetone

Answer: C



7. The compound B is :

 $CH_3CH_2COOH \xrightarrow[redP]{Cl_2} A \xrightarrow[redP]{Alc.KOH} B$

A. CH_3CH_2COCl

B. CH_3CH_2CHO

 $\mathsf{C}.\,CH_2=CHCOOH$

D. $ClCH_2CH_2COOH$.

Answer: C



8. Acetic anhydride reacts with diethyl ether in presence of anhydrous $AICI_3$ to form

A. CH_3CH_2COOH

 $\mathsf{B.}\,CH_3CH_2COOC_2H_5$

C. CH_3COOCH_3

D. $CH_3COOC_2H_5$

Answer: D

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9. $CH_3COOH \xrightarrow{\Delta} CH_3COCl$, What is A?

A. PCl_5

 $\mathsf{B.}\,Cl_2$

 $\mathsf{C}.\,HCl$

D. $COCl_2$

Answer: A



10. The compound which is not soluble in acetic acid is

A. $CaCO_3$

 $\mathsf{B.}\, CaO$

 $\mathsf{C.}\, CaC_2O_4$

 $\mathsf{D.}\, Ca(OH)_2$

Answer: C

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11. In the following reaction

 $RCH_2COOH \stackrel{Br_2/P}{\longrightarrow} X \stackrel{ ext{excess} \quad NH_3}{\longrightarrow} Y$

The major compounds X and Y are

A. $RCH(Br)CONH_2, RCH(NH_2)COOH$

B. RCH(Br)COOH, $RCH(NH_2)COOH$

C. RCH_2COBr, RCH_2COONH_4

D. $RCH(Br)COOH, RCH_2CONH_2$

Answer: B



12. Iodoform reaction is given by

A. CH_3COOCH_3

B. $CH_3COOC_2H_5$

 $\mathsf{C.}\, C_6H_5COOCH_3$

D. $CH_3COOC_6H_5$

Answer: B



13. Silver benzonate will react with bromine in acetone to give



14. An ester $A(C_9H_{10}O_2)$ with excess of CH_3MgBr upon hydrolysis and then with conc. H_2SO_4 gives an olefin (B). Ozonolysis of (B) gave a ketone (C_8H_8O) which gave +veiodoform test. What is A?







Answer: B



15. Which one of the following is not resonance form of the enolate ion formed aceto acidic ester?









Answer: B



16. (a) Give the Claisen ester condensation product of ethyl butanoate.

(b) Why does the Claisen ester condensation of ethyl-2-methyl propanoate $\left(I
ight)$ not take place ?

(c) Why does Claisen condensation of $\left(I
ight)$ take place by the use

of $Ph_3C^{\,\Theta}Na^{\,\oplus}$ as a base ?



Answer: A Watch Video Solution

17. Identify the missing reagent in the reaction given below

A. Diethyl carbonate $(EtO)_2 C = O$

B. Ethyl acetate CH_3COOEt

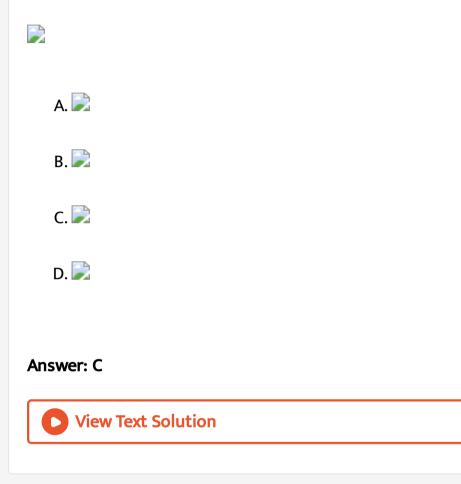
C. Ethyl formate *HCOOEt*

D. Diethyl oxalate Et. OOC. COOEt

Answer: A

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18. Which lactone is formed by heating the following hydroxy acid?



19. The compound condensation of

A. ethyl - 2 - methyl pentanoate

- B. ethyl 5 methyl hexanoate
- C. ethyl 4 methyl pentanoate
- D. ethyl 3, 3 dimethyl butanoate

Answer: C



20. The correct product of the following reactions



- A. 2, 2 dimetyl propane diol
- B. 2 methyl -1 propanol
- C. 2, 2 dimethyl propanedioic acid
- D. 2 methyl propanoic acid

Answer: A

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X and Y respectively are

A. 5 - bromosalicylic acid and 5 - nitrosalicylic acid

B. o - bromophenol and o - nitro - phenol

C. 2, 4, 6 - tribromophenol and picric acid

D. 3, 5 - dibromo salicylic acid and 3, 5 - dinitro salicylic acid

Answer: C

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Exercise 2 Concept Applicator



Product (B) is :



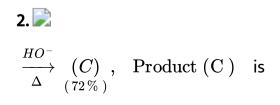






Answer: B





Product (C) is :



D. 📄

Answer: C

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$$egin{aligned} &(Q) \xrightarrow{BOH} Ph - CH_2 - OH + Ph - CO_2 \ & \Delta & O_3 \ & O_3 \ & P + Q ext{, Structure of (R) is} \end{aligned}$$

A. Ph - CH = CH - CH



$${f C.} \begin{array}{c} CH_3 \ ert \ Ph - {f C} \ ert \ = CH - CH_3 \ ert \ GH_3 \ ert \ D. \ Ph - {f C} \ ert \ ert \ = CH_2 \end{array}$$

Answer: B





The respectively compounds A and B are









Answer: C





From the ozonolysis products, the two isomers A and B can be

distinguished with the help of

A. Fehling solution

B. Tollen's reagent

C. Haloform test

D. only spectroscopy

Answer: C





Above compounds can be differentiated by following reagent :

A. 2 - 4 DNP (Brady reagent)

B. Tollen's reagent

C. Lucas reagent

D. $NaHSO_3$

Answer: B

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Product (B) in this reaction is :









Answer: C





The product formed in the reaction is -



B.
$$Me-\overset{O}{\overset{O}{\overset{}}_{\scriptstyle \parallel}}\overset{O}{\overset{\scriptstyle \parallel}_{\scriptstyle \parallel}}\overset{O}{\overset{\scriptstyle \parallel}_{\scriptstyle \parallel}}$$

C.
$$Me - \stackrel{|}{\underset{Ph}{C}} - COOH$$

D. $Ph - \stackrel{|}{\underset{C}{C}} - C - O - Me$

Answer: C



$$\mathbf{9.} (A) \xrightarrow{HgSO_4} (B) \xrightarrow{LiAlH_4} (C)$$

$$\xrightarrow{\operatorname{dil}.H_2SO_4} (B) \xrightarrow{\operatorname{LiAlH_4}} (C)$$

∴ reactant (A) is :

A.
$$CH_3 - C \equiv CH$$

 $\mathsf{B}.\,HC\equiv CH$

$$\mathsf{C}.\,CH_3-C\equiv C-CH_3$$

 $\mathsf{D}. Ph - CH = CH_2$

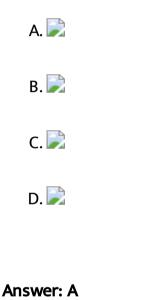
Answer: C

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$$\stackrel{PCC}{\longrightarrow} (C) \stackrel{HO^-}{\longrightarrow} (D)$$

What is the final product (D) of the sequence?







Identify correct combination :

$$CH_2-H$$
A. $(A)=ert$
 CH_2-SH
B. $(B)=NaBH_4$
C. $(C)=KMnO_4$
D. $(D)=H_3O^\oplus$

Answer: D

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12. Which of the following is the product of aldol condensation?



Answer: B Watch Video Solution

13. Which of the following reagent(s) used for the conversion?

A. glycol $/LiAlH_4/H_3O^+$

B. glycol/ NaH/H_3O^+

 $\mathsf{C.}\,LiAlH_4$

D. $NaBiH_4$

Answer: A

14. Which of the following reaction with $(CH_3CH_2)_2NH$ to give

the compound?

 $CH_3CH_2CH = CHN(CH_2CH_3)_2$

A. $CH_{3}CH_{2}CH_{2}CH_{2}Br$ B. $CH_{3}CH_{2} - \overset{O}{C} - CH_{3}$ C. $CH_{3} - CH_{2}CH_{2} - \overset{O}{C} - H$ D. $CH_{3}CH_{2}CH_{2} - \overset{O}{C} - OH$

Answer: C

15.

$$CH_3-\overset{O}{C}-CH_2-CH_3+CH_3MgBr o X \xrightarrow{H_3O^+} Y \xrightarrow{H_2SO_4}_{170\,^\circ C} Z.$$
What is Z ?

 $egin{aligned} & OH \ \ & OH \ & OH$

D.
$$CH_2 = \mathop{\mathrm{C}}\limits_{\substack{|\ CH_3}} - CH_2 - CH_3$$

Answer: B

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$$\begin{array}{c} O & OH \\ | \\ | \\ \mathbf{16.} \ C_{6}H_{5}CCH_{3} + C_{6}H_{5}CHO \xrightarrow{H^{+}} C_{6}H_{5} - \stackrel{O}{C} - \stackrel{OH}{CH_{2}CHC_{6}}H_{5} \end{array}$$

The above aldol condensation does not involve the formation of

$$\begin{array}{c} \stackrel{OH}{=} & \stackrel{OH}{=} & \stackrel{OH}{=} & -CH_3 \\ \text{A.} \ C_6H_5 - \stackrel{OH}{\stackrel{+}{C}} & -CH_3 \\ \stackrel{OH}{=} & \stackrel{OH}{=} & -H \\ \text{B.} \ C_6H_5 - \stackrel{OH}{\stackrel{-}{C}} & -H \\ \stackrel{OH}{=} & -H \\ \text{C.} \ C_6H_5 - \stackrel{OH}{C} & -\overline{C}H_2 \end{array}$$

D. Both (a) and (b)

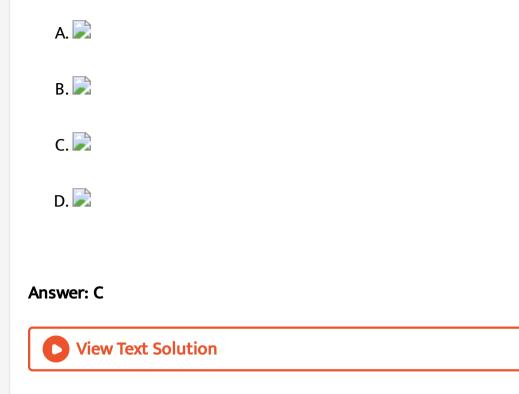
Answer: C



17. The structure of the compound Y in the following reactions

should be





18. Reaction of cyclohexanone with dimethylamine in the presence of catalytic amount of an acid forms a compound if water during the reaction is continously removed. The compound formed is generally known as

A. an amine an imine

B. an enamine

C. an enaine

D. a schiff's base

Answer: C

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19. The increasing order of the rate of HCN addition to compound A-D is

(A) HCHO

(B) CH_3COOH_3

(C) $PhCOCH_3$

(D) PhCOPh

A. D < C < B < A

 $\operatorname{B.} C < D < B < A$

 $\mathsf{C}.\, A < B < C < D$

 $\mathsf{D}.\, D < B < C < A$

Answer: A



20. Which of the following statement is incorrect about the reaction of ammonia derivatives with carbonyl compounds?

A. pH of solution is maintained between 4 to 5

- B. Addition of ammonia derivatives occurs followed by elimination of H2O
- C. At very low (less than 3) ammonia derivatives are

protonated and do not act as necleophile

D. At very high pH, reaction becomes explosive

Answer: D

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21. 📄			
A. 📄			
в. 📄			
С. 📄			
D. 📄			
Answer: A			



Product A is :



Answer: C





The compound (X) is

A. CH_3COOH

 $\mathsf{B.} BrCH_2 - COOH$

 $\mathsf{C}.\,(CH_3CO)_2O$

D. CHO - COOH

Answer: C



24. What is Z in the following sequence of reactions?

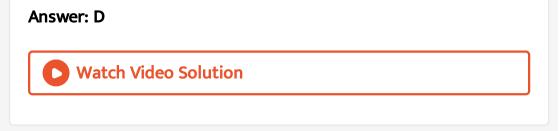
 $\begin{array}{c} \mathsf{Phenol} \xrightarrow{Zn} X \xrightarrow{CH_3Cl} Y \xrightarrow{\mathrm{Alkaline}} Z \operatorname{Phe} \\ \xrightarrow{\mathrm{dust}} X \xrightarrow{\mathrm{Alkyd.} AlCl_3} Y \xrightarrow{\mathrm{Alkaline}} Z \operatorname{Phe} \end{array}$

A. Benzene

B. Toluene

C. Benzaldehyde

D. Benzoic acid



25. Which β -keto acid shown will not undergo decarboxylation?





C.
$$Ph - \overset{O}{\overset{||}{C}} - CH_2 - CO_2H$$

D. $CH_2 - \overset{O}{\overset{||}{C}} - CH_2 - CO_2H$

Answer: B

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26. The reaction of sodium with acetyl chloride proceeds through

which of the following



Answer: C



27. Calculate number of molecules of Grignard reagent consumed by 1 molecule of following compound.



A. 5		
B. 2		
C. 3		
D. 1		

Answer: A