CHEMISTRY

BOOKS - BRILLIANT PUBLICATION

ALDEHYDES AND KETONES

Level I Homework

1. On reductive ozonolysis one molecule of a hydrocarbon produces two molecules of ethanal and one molecule of ethane dial. The hydrocarbon could be:

A. hexa-1, 3-diene

B. hexa-2, 4-diene

C. cyclohexa-1, 4-diene

D. cyclohexa-1, 3-diene

Answer:

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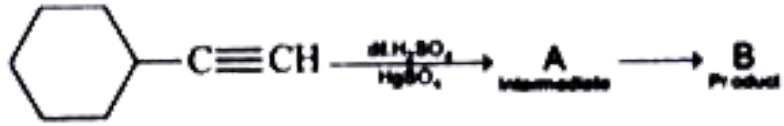
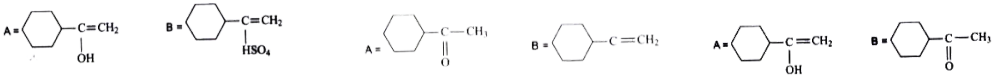
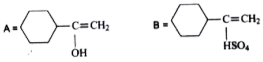
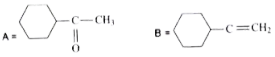
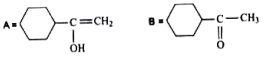
2. Predict the correct intermediate and product in the following reaction sequence:

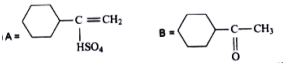




A. 

B. 

C. 

D. 

Answer: D

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3. By which of the following methods ketones cannot be prepared?

A. hydration of alkynes

B. hydrolysis of gem-dihalides

C. dry distillation of calcium carboxylates

D. Stephen's reduction

Answer:

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4. Compunds A and C in the following reaction are:

$$CH_3CHO \xrightarrow[(ii)\,H_2O]{(i)\,CH_3MgBr} A \xrightarrow{\text{conc.}H_2SO_4\,/\,\Delta} B \xrightarrow[(ii)\,H_2O_2\,/\,OH^-]{(i)\,B_2H_6} C$$

A. identical

B. functional isomers

C. position isomers

D. optical isomers

Answer:

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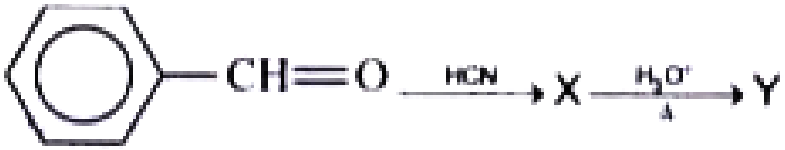
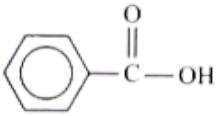
5. The product of the given reaction sequence is



A.



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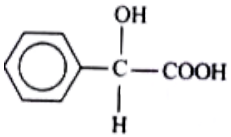

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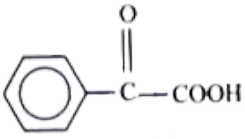
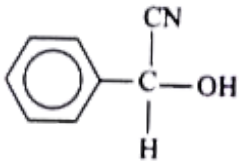


D. 

Answer:

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6. Which of the following statements regarding carbonyl group is not correct? The carbon atom of the carbonyl group in aldehydes and ketones is sp^2 hybridised, The carbon atom of the carbonyl group in the transition state formed during the addition reaction across it sp^3 hybridised, An aryl group stabilizes an aldehyde more than the transition state, The aryl group in aromatic aldehydes speeds up the addition reaction across the carbonyl group

A. The carbon atom of the carbonyl group in aldehydes and ketones is sp^2 hybridised

B. The carbon atom of the carbonyl group in the transition state formed during the addition reaction across it sp^3 hybridised

C. An aryl group stabilizes an aldehyde more than the transition state

D. The aryl group in aromatic aldehydes speeds up the addition reaction across the carbonyl group

Answer:

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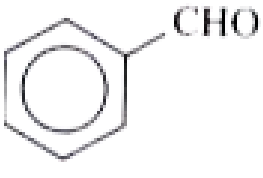
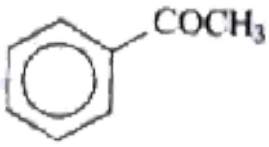
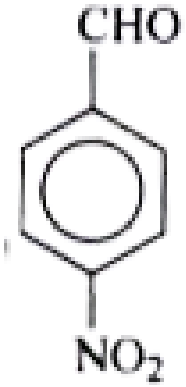
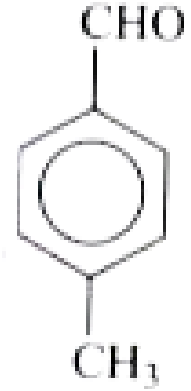
7. Which of the following molecules is more reactive towards nucleophilic addtion?

A. 

B. 



C.



D.

Answer:

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8. In the following reaction sequence, the product B is

$$C_6H_5COC_6H_5 \xrightarrow{NH_2OH} A \xrightarrow{PCl_5} B$$

A. $C_6H_5 - \underset{\underset{N-OH}{||}}{C} - C_6H_5$

B. $C_6H_5\underset{\underset{N}{|||}}{C}C_6H_5$

C. $C_6H_5CONHC_6H_5$

D. $C_6H_5 - \underset{\underset{OH}{|}}{CH} - NHC_6H_5$

Answer:

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9. Complete the following table

n	$n!$	$(n-1)!$	$(n-2)!$
4	-----	-----	-----
5	-----	-----	-----
6	-----	-----	-----
7	-----	-----	-----

A. IV $<$ I $<$ II $<$ III

B. III $<$ II $<$ I $<$ IV

C. IV < III < I < II

D. IV < III < II < I

Answer:

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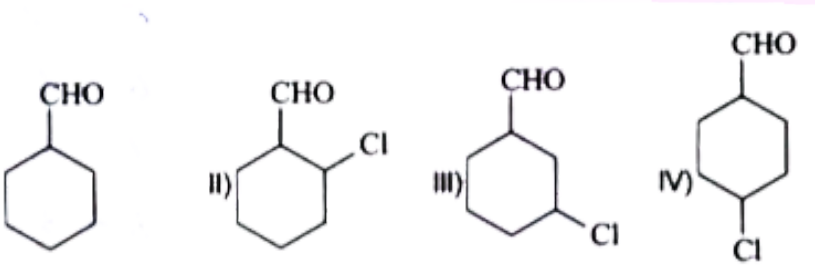
10. Give the decreasing order of the following carbonyl compounds towards nucleophilic substituition.



A. IV > III > II > I

B. II > III > IV > I

C. I > II > III > IV

D. I > IV > III > II

Answer:

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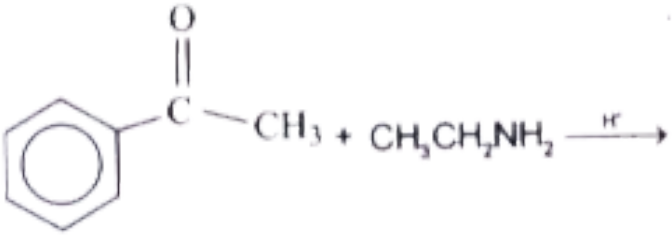
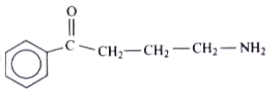
11. Predict the product of the following reaction



A.



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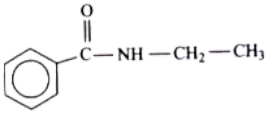
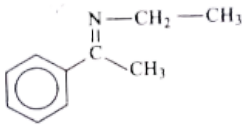
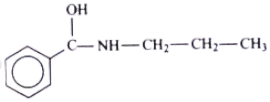


C.



D.



Answer:

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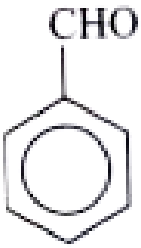
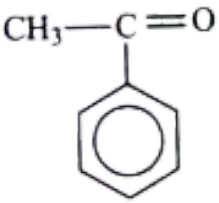
12. Which of the following carbonyl compounds undergo nucleophilic addition with ammonia forming aldimine?

A. HCHO



B.



C.

D. $CH3CHO$

Answer:

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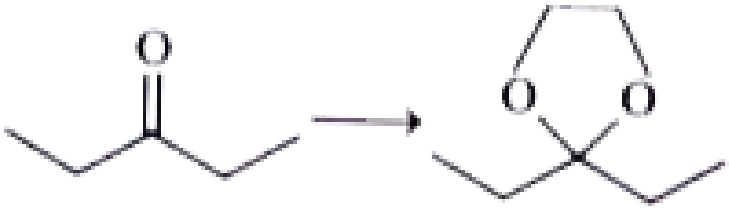
13. Which of these reagents can be used for the following conversion?



A. $RMgX / H_2O$

B. $\begin{array}{l} CH_2OH \\ | \\ CH_2OH \end{array}$ & dry HCl

C. Dry ether

D. ROH % dry HCl

Answer:

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14. Which of the following reagents is used to reduce acetone to isopropyl alcohol?

A. $LiAlH_4$

B. $NaBH_4$

C. H_2 / Ni, Pt or Pd

D. Any of these

Answer:

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15. In the conversion of Grignard reagent into higher aldehydes, the other compound that can be used is : Ethyl formate, Ethyl acetate, HCN, Both (1) and (3)

A. Ethyl formate

B. Ethyl acetate

C. HCN

D. Both (1) and (3)

Answer:

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16. Match the following transformations with the reagents required:

(A), p-nitrotoluene to p-nitrobenzaldehyde, (a), $B_2H_6\&H_2O_2/OH^-$), (B $-3-e \neq -1-ol \rightarrow Pent-3-enal$,(d),$dil.$ H_(2)SO_(4)%HgSO_(4

A. $\frac{\mathrm{ABCDE}}{\mathrm{edacb}}$

B. $\frac{\mathrm{ABCDE}}{\mathrm{abcde}}$

C. $\frac{\mathrm{ABCDE}}{\mathrm{eabdc}}$

D. $\frac{\mathrm{ABCDE}}{\mathrm{ebdca}}$

Answer:

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17. Arrange the following compounds in the increasing order of their reactivity in nucleophilic addition reaction

A) Acetophenone B) Benzaldehyde C) Formaldehyde D) Acetone

A. A, B, D, C

B. A, B, C, D

C. C, D, B, A

D. D, A, B, C

Answer:

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18. The reagent with which both hexanal and hexan-2-one can react is

A. Fehlings solution

B. NaOl

C. Grignard reagent

D. Tollen's reagent

Answer:

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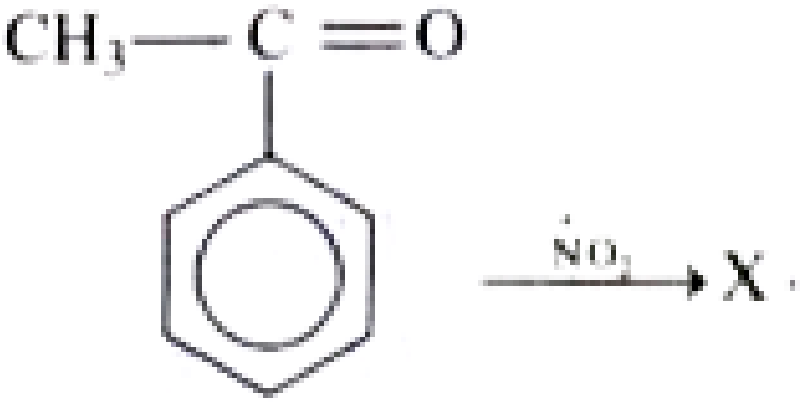

19. X can be

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20. In the following sequency of reactions, the final product (E) is

$$CaC_2 \xrightarrow{H_2O} A \xrightarrow[Hg^{2+}]{\text{dil.}H_2SO_4} B \xrightarrow{\text{Oxidation}} C \xrightarrow{\text{Ca(OH)}_2} D \xrightarrow{\Delta} E$$

A. Acetaldehyde

B. Acetone

C. Formic acid

D. Acetic acid

Answer:

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21. Which of the following aldehydes do not undergo Cannizzaro reaction?

A. $(CH_3)_2CH - CHO$

B. $CH_3 - CH_2 - CH_2 - CHO$

C. $(CH_3)_3C - CHO$

D. $H - CHO$

Answer:

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22. Treatment of a carbonyl compound with hydrazine produces hydrazone in presence of glycol as the solvent. Which of the following statements are correct about this reaction?

The reaction involves nucleophilic addition followed by elimination of water

Hydrazone is an intermediate in Wolff-Kishner reduction

The reaction is carried out in freebly acidic medium

1, 2, and 3

A. The reaction involves nucleophilic addition followed by elimination of water

B. Hydrazone is an intermediate in Wolff-Kishner reduction

C. The reaction is carried out in freebly acidic medium

D. 1, 2, and 3

Answer:

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23. An organic compound of M.F. C_8H_8O forms 2, 4-DNP derivative, reduces. Tollens reagent and undergoes Cannizzaro reaction. On vigorous oxidation it gives Benzene-1, 2-dicarboxylic acid. The compound is

A. 2-methyl benzaldehyde

B. 2-ethyl benzaldehyde

C. 3-methyl benzaldehyde

D. phenyl ethanal

Answer:

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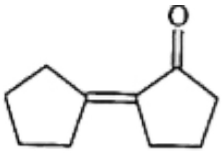
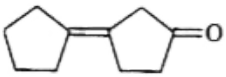
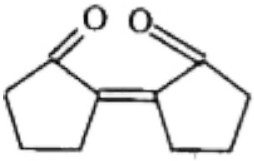
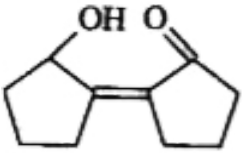
24. Of the following, which is the product formed when cyclopentanone undergoes aldol condensation followed by heating?

A. 

B. 

C. 

D. 

Answer: D

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25. Fehlings solution is a mixture of $CuSO_4(A)$ and an alkaline solution of sodium potassium tartrate (B), providing $Cu^{2+}\&OH^-$. The role of sodium Potassium tartrate is (1) Provides OH- (2) Provides H+ (3) Complexing agent (4) All of these

A. Provides OH^-

B. Provides H^+

C. Complexing agent

D. All of these

Answer:

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26. Which of the following reagents is used to separate and purify an aldehyde from a mixture of it with a high ketone. : HCN, $ROH \& dry HCl$, NH_2OH, Saturated solution of $NaHSO_3$

A. HCN

B. ROH & dry HCl

C. NH_2OH

D. Saturated solution of $NaHSO_3$

Answer:

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27. In which of the following reactions either the cleavage or formation of a carbon-carbon bond does not take place?

A. Aldol condensation

B. Cannizzaro reaction

C. Kolbe reaction

D. Reimer-Tiemann reaction

Answer:

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28. Write structural formulas and names of four possible aldol condensation products from propanal and butanal. In each case, indicate which aldehyde acts as nucleophile and which as electrophile.

A. hex-3-en-2-one

B. 2, 3-dimethylbut-2-enal

C. 2-methylpent-2-enal

D. None of these

Answer:

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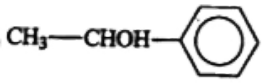
29. Which one of the following is not expected to undergo iodoform reaction?

A. $CH_3 - CHOH - COOH$

B. $CH_3 - \overset{\overset{O}{||}}{C} - COOH$

C. $CH_3 - \overset{\overset{O}{||}}{C} - OH$

D. 

Answer:

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30. Predict the major product obtained by the crossed Cannizzaro reaction between 2, 2-dimethyl propanal and 4-methyl benzaldehyde on heating with 50% NaOH

A. 4-methyl sod. Benzoate & 2, 2-dimethyl propan-1-ol

B. 2, 2-dimethyl sod. Propanoate & 4-methyl benzyl alcohol

C. Both 1 and 2

D. None of these

Answer:

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Level Ii

1. The general formula of aliphatic saturated aldehydes and ketones is:

A. $C_nH_{2n}O_2$

B. $C_nH_{2n}O$

C. $C_nH_{2n+2}O$

D. $C_nH_{2n+1}OH$

Answer:

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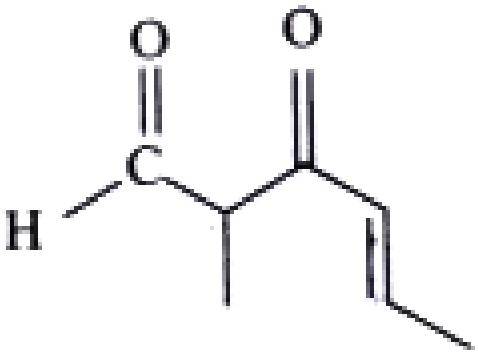
2. The IUPAC name of the compound



is .....

A. 5-formyl hex-2-en-3-one

B. 5-methyl-4-oxo hex-2-en-5-al

C. 2-methyl-3-oxo hex-4-enal

D. 3-keto-2-methyl hex-4-enal

Answer:

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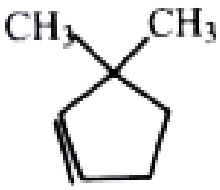
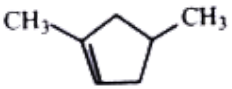
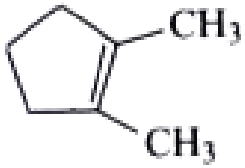
3. A single compound of the structure : $OHC-CH_2-\overset{CH_3}{\overset{|}{C}}H-CH_2-\overset{CH_3}{\overset{|}{C}}=O$ is obtainable by the reductive ozonolysis of which of the following cyclic compounds?

A.

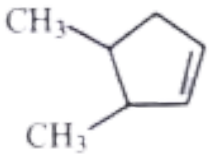


B.





C.



D.

Answer:

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4. Predict the correct intermediate and product in the following reaction:

$$CH_3 - C \equiv CH \xrightarrow[HgSO_4]{H_2O, H_2SO_4} \underset{(A)}{\text{Intermediate}} \rightarrow \underset{(B)}{\text{Product}}$$

A. $A: CH_3 - \underset{\underset{OH}{|}}{C} = CH_2 \quad B: CH_3 - \underset{\underset{SO_4}{|}}{C} = CH_2$

B. $A: CH_3 - \underset{\underset{O}{|}}{C} = CH_3 \quad B: CH_3 - C \equiv CH$

C. $A: CH_3 - \underset{\underset{OH}{|}}{C} = CH_2 \quad B: CH_3 - \underset{\underset{O}{||}}{C} - CH_3$

D. $A: CH_3 - \underset{\underset{SO_4}{|}}{C} = CH_2 \quad B: CH_3 - \underset{\underset{O}{||}}{C} - CH_3$

Answer:

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5. The reaction temperature of the preparation of butanal by the oxidation of butan-1-ol using acidifed $K_2Cr_2O_7$ is (Given : b.p. of butanal = 349 K, b.p. of butan-1-ol = 391 K)

A. 392 K

B. 345 K

C. 340 K

D. 352 K

Answer:

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6. The most suitable oxidising agent for the conversion of cyclohex-2-en-1-ol to cyclohex-2-en-1-one is

A. $CrO_3 / \text{conc.} H_2SO_4$

B. $K_2Cr_2O_7 / H^+$

C. PCC

D. $KMnO_4 / OH^-$

Answer:

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7. Which one of the following on alkaline hydrolysis produces a ketone? Isobutylidene chloride, Ethylidene chloride, Benzylidene chloride, Secondary butylidene chloride

A. Isobutylidene chloride

B. Ethylidene chloride

C. Benzylidene chloride

D. Secondary butylidene chloride

Answer:

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8. The compound which is formed during the dry distillation of calcium benzoate is

A. Benzoic acid

B. Acetophenone

C. Benzophenone

D. Benzamide

Answer:

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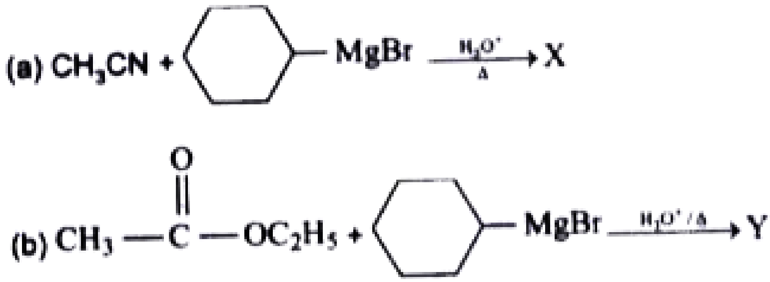
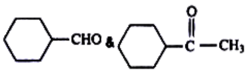
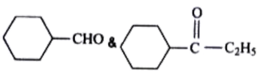
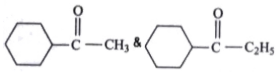
9.

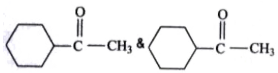


X & Y are respectively

A. 

B. 

C. 

D. 

Answer:

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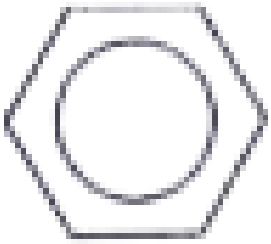
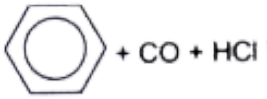
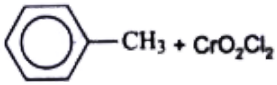
10. The reaction by which benzaldehyde cannot be prepared is

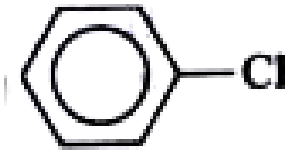
A.  $CH_3 - \overset{\overset{O}{||}}{C} - Cl$ in presence of anhydrous $AlCl_3$

B. 

in presence of anhydrous $AlCl_3$

C. 

$CH_3 + CrO_2Cl_2$ in CS_2 followed by hydrolysis

D. 

$CH_3 + Ac_2O + CrO_3 \xrightarrow[\Delta]{H_3O^+}$

Answer:

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11. Which of the following pathways does not produce hexan-2-one?

A. Hex-1-yne is treated with dil. H_2SO_4 in presence of Hg^{2+}

B. Hex-1-yne is treated with diborane followed by oxidation with alkaline H_2O_2

C. 3-methyl hept-2-ene is subjected to reductive ozonolysis

D. Acetaldehyde is treated with n-butyl magnesium bromide followed by hydrolysis and oxidation

Answer:

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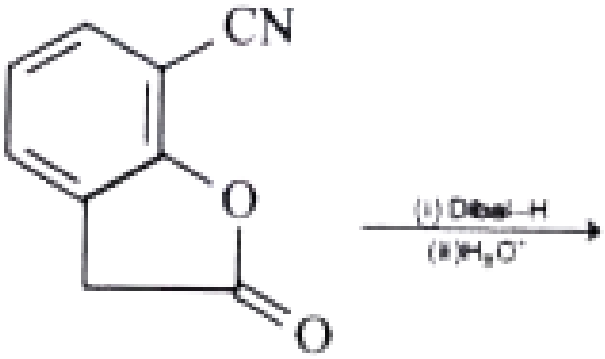
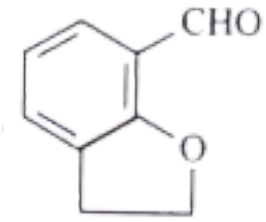
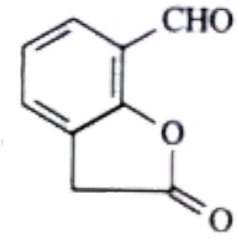
12. The major product of the following reaction is:



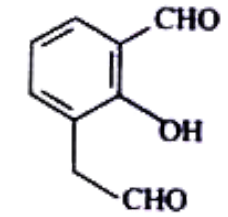
A.



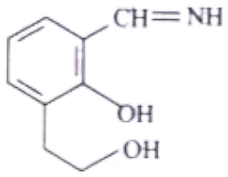
B.



C.



D.



Answer:

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13. In the following reaction: Aldehyde + Alcohol $\xrightarrow{\text{Dry HCl}}$ Acetal

Aldehyde	Alcohol
HCHO	t-BuOH
CH_3CHO	Me OH

The best combination is (1) HCHO and MeOH (2) HCHO and t- BuOH

CH3CHO CHO and MeOH (4)CH3CHO CHO and t-BuOH

A. HCHO and MeOH

B. HCHO and t-BuOH

C. CH_3CHO and MeOH

D. CH_3CHO and t-BuOH

Answer:

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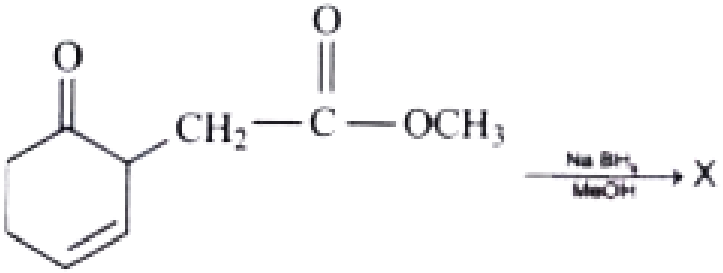
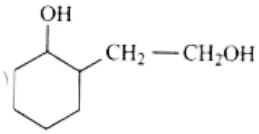
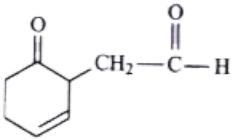
14. The major product X formed in the following reaction is



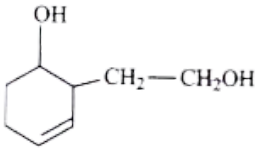
A.



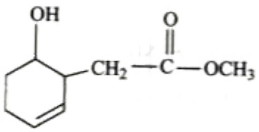
B.



C.



D.



Answer:

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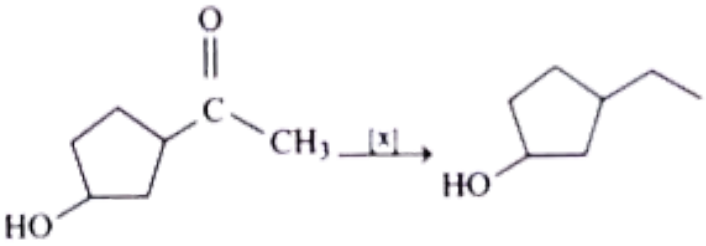
15. 

The reagent 'X' to be used for this conversion is

A. $LiAlH_4$

B. Zn/Hg and conc. HCl

C. $NH_2 - NH_2$ in glycol/KOH

D. Either 2 or 3

Answer:

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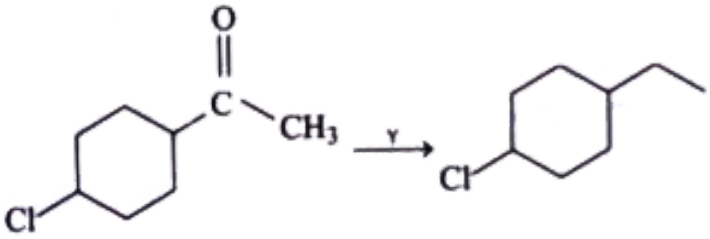
16. The most suitable reagent (Y) for the following conversion is



A. Zn/Hg conc. HCl

B. $NaBH_4$

C. N_2H_4/glycol & KOH/Δ

D. Either 1 or 3

Answer:

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17. Under Clemmensen or Wolff-Kishner conditions of reduction, the conversions which may be brought about are:

A. Benzophenone to Diphenyl methane

B. Cyclopentanone to cyclopentane

C. Cyclohexane Carbaldehyde to methyl cyclohexane

D. All of these

Answer:

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18. Compound 'X' (C_3H_8O) is treated with acidified $K_2Cr_2O_7$ to form product 'Y' (C_3H_6O) 'Y' does not form silver mirror with ammoniacal $AgNO_3$ but when treated with semicarbazide in feebly acidic medium gives:

A. $CH_3 - \underset{\underset{CH_3}{|}}{C} = N - NH - CO - NH_2$

B. $CH_3 - \underset{\underset{CH_3}{|}}{C} = N - CO - NH - NH_2$

C. $CH_3 - CH_2 - CH = N - NH - CO - NH_2$

D. $CH_3 - CH_2 - CH = N - CO - NH - NH_2$

Answer:

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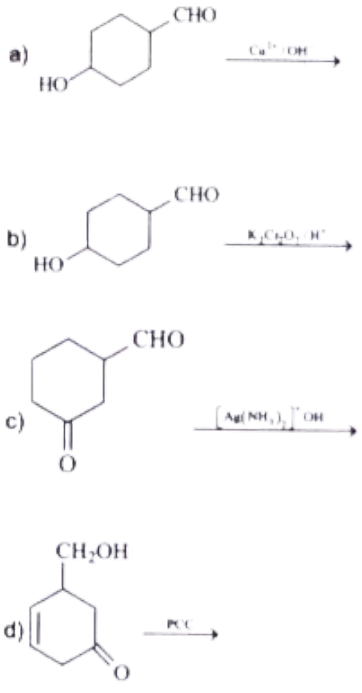
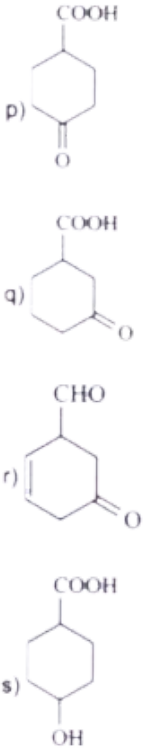
19. Match the following:

Column-I



Column-II



A. a $\rightarrow$ p, b $\rightarrow$ q, c $\rightarrow$ r, d $\rightarrow$ s

B. a $\rightarrow$ s, b $\rightarrow$ q, c $\rightarrow$ p, d $\rightarrow$ r

C. a $\rightarrow$ s, b $\rightarrow$ p, c $\rightarrow$ q, d $\rightarrow$ r

D. a $\rightarrow$ q, b $\rightarrow$ p, c $\rightarrow$ s, d $\rightarrow$ r

Answer:

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20. When pentan-2-one is treated with conc. HNO_3 at elevated temperature, the products obtained are

A. Butanoic acid and methanoic acid

B. Ethanoic acid and propanoic acid

C. Butanoic acid, CO_2 and water

D. None of these

Answer:

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21. Which is the most suitable reagent for the following transformation?

$$CH_3 - CH = CH - CH_2 - \overset{OH}{\overset{|}{C}}H - CH_3 \rightarrow CH_3 - CH = CH - CH_2 -$$

A. Alkaline $KMnO_4$

B. $l_2 / NaOH$

C. Tollen's reagent

D. CrO_2 / CS_2

Answer:

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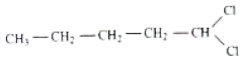
22. A dihalide $C_5H_{10}Cl_2$(X) on alkaline hydrolysis gives $C_5H_{10}O$, which reacts with 2, 4-DNP, does not give silver mirror test but answers iodoform test. Which of the following is X?

A. 

B. $CH_3 - \underset{Cl}{\underset{|}{CH}} - \underset{Cl}{\underset{|}{CH}} - CH_2 - CH_3$

C. $CH_3 - \overset{\overset{Cl}{|}}{\underset{\underset{Cl}{|}}{C}} - CH_2 - CH_2 - CH_3$

D. $CH_3 - CH_2 - \overset{\overset{Cl}{|}}{\underset{\underset{Cl}{|}}{C}} - CH_2 - CH_3$

Answer:

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23. An organic compound $C_5H_{12}O$ (X) on oxidation gives $C_5H_{10}O(Y)$. Y reacts with hydroxylamine to form an oxime, answer Schiff's test and undergoes Cannizzaro reaction. Compound 'X' is

A. $CH_3 - CH_2 - \overset{\overset{OH}{|}}{CH} - CH_2 - CH_3$

B. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2 - CH_2OH$

C. $CH_3 - CH_2 - CH_2 - \overset{\overset{OH}{|}}{CH} - CH_3$

D. $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH_2OH$

Answer:

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24. Identify the combination of compounds that undergo aldol condensation followed by dehydration to produce 4-methylpent-3-en-2one

A. Ethanal and butanone

B. two moles of propanone

C. two moles of propanal

D. propanal and propanone

Answer:

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25. The IUPAC name of the crossed aldol condensation product formed between propanal and butanal, where the former acting as the nucleophile and the latter acting as the electrophile is

A. 3-hydroxy-2-methyl pentanal

B. hept-3-enal

C. 2-methyl hex-2-enal

D. hept-2-enal

Answer:

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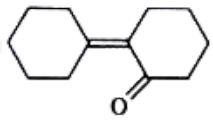
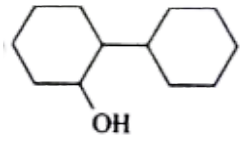
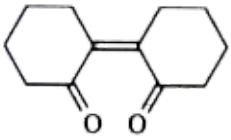
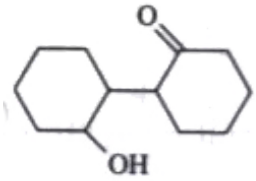
26. Of the following, which is the product formed when cyclopentanone undergoes aldol condensation followed by heating?

A.



B. 

C. 

D. 

Answer:

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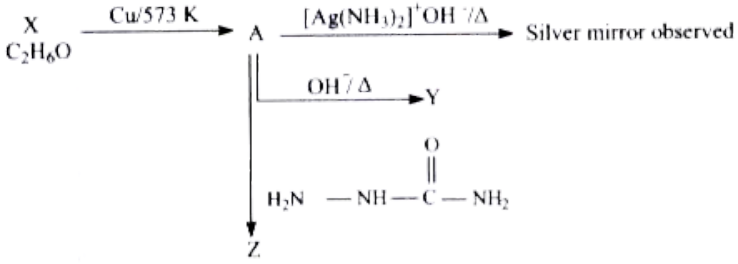
27. Consider the reactions:



Identify A, X, Y and Z

A. A-Methoxy methane, X-Ethanol, Y-Ethanoic acid, Z-Semicarbazone

B. A-Ethanal, X-Ethanol, Y-But-2-enal, Z-Semicarbazone

C. A-Ethanol, X-Acetaldehyde , Y-Butanone, Z-Hydrazone

D. A-Methoxy ethane, X-Ethanoic acid, Y-Acetate ion, Z-Hydrazine

Answer:

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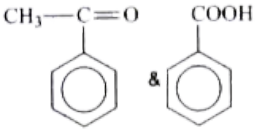
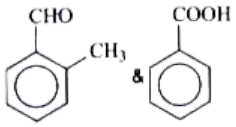
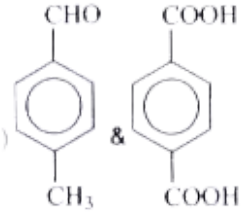
28. An organic compound 'X' C_8H_8O forms an orange-red precipitate of 2, 4-DNP and gives yellow precipitate with iodine and aqueous sodium carbonate on heating. It neither reduces Tollens or Fehlings reagent, nor does it decolourise bromine water or Baeyers reagent. On drastic oxidation wtih chromic acid, it gives a carboxylic acid 'Y' $(C_7H_6O_2)$. Compounds X and Y are

A. 

B. 

C. 

D.

$$CH_2 = CH - C \equiv C - CH = CH - \overset{\overset{O}{||}}{C} - CH_3 \& CH_2 = CH - C \equiv$$

Answer:

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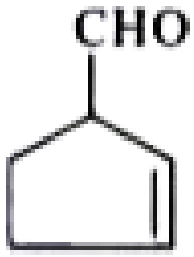
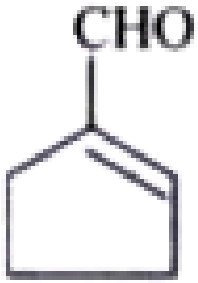
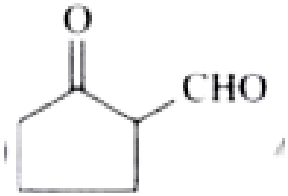
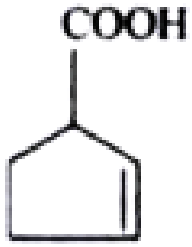
29. Cyclohexene, on reductive ozonolysis gives a compound, which one heating with dil.NaOH gives which of the following cyclic compounds?

A. 

B. 

C. 

D. 

Answer:

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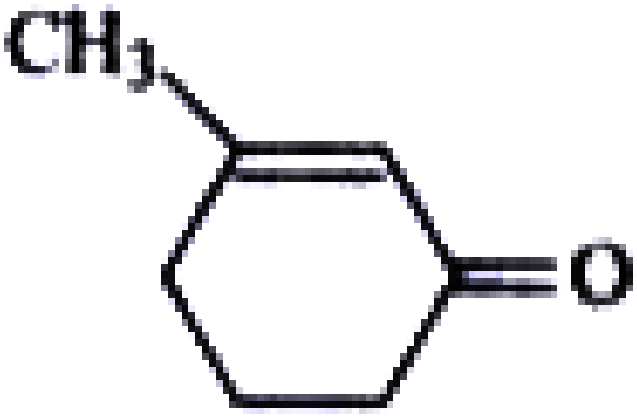
30. Which of the following carbonyl compounds, on intramolecular aldol condensation produces the final product of the structure given as:



A. $CH_3 - CO - CH_2 - CH = CH - CO - CH_3$

B. $CH_3 - CH_2 - CO - CH_2 - CO - CH_2 - CH_3$

C. $CH_3 - CO - CH_2 - CH_2 - CH_2 - CO - CH_3$

D. $CH_3 - CH_2 - CH_2 - CO - CH_2 - CO - CH_3$

Answer:

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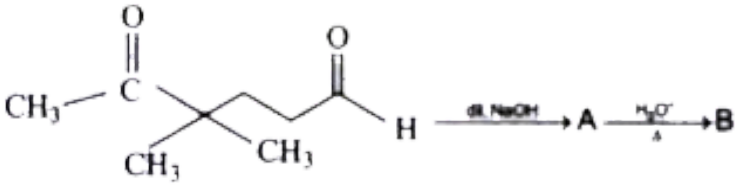
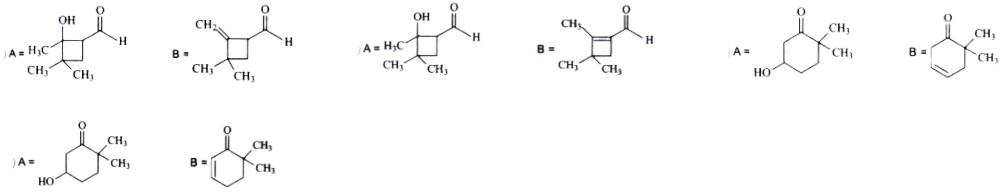
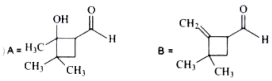
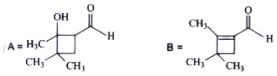
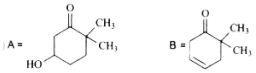
31. In the following reactions, products A and B are:

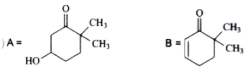




A. 

B. 

C. 

D. 

Answer:

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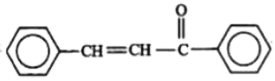
32. When a mixture of benzaldehyde and acetophenone is treated with dil.NaOH and heated to form an α, β-unsaturated carbonyl compound, which of the following statements are correct about this reaction?

A. The IUPAC name of the product is : 1, 3-diphenyl prop-2-en-1-one

B. The product has the structure : 

C. This reaction is a modification of Claisen - Schmidt condensation

D. All the statements are correct

Answer:

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33. An organic compound of molecular formula $C_9H_{10}O$ forms 2, 4-DNP, reduces Tollens reagent and undergoes Cannizzaro reaction. On vigorous oxidation it gives phthalic acid. The compound is:

A. 2-methyl benzaldehyde

B. phenyl propanal

C. 2-ethyl benzaldehyde

D. 2-methyl acetophenone

Answer:

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34.

In this Cannizzaro reaction, the rate determining step is:

A. The nucleophilic addition of OH^- on one molecule of the aldehyde

B. The transfer of hydride ion from the first molecule to the carbonyl group of the second molecule

C. The shift of proton from the acid formed

D. The protonation of the alkoxide ion

Answer:

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35. A mixture of benzaldehyde and formaldehyde is heated with 50% NaOH forms ?

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36.  $\xrightarrow[\Delta]{50\%\ \mathrm{KOH}}\ 'X' + 'Y'$, Which of the following are X & Y?

A. 

B. 

C. 

D. 

Answer:

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37. $\begin{matrix} CH{=}O \\ | \\ CH{=}O \end{matrix} \xrightarrow[\Delta]{OH^-} X$, X is

Glyoxal

A. $\begin{matrix} COO^- \\ | \\ CH_2O^- \\ COO^- \end{matrix}$

B. $\begin{matrix} | \\ COO^- \\ COO^- \end{matrix}$

C. $\begin{matrix} | \\ CH_2OH \\ CH_2O^- \end{matrix}$

D. $\begin{matrix} | \\ CH_2O^- \end{matrix}$

Answer:

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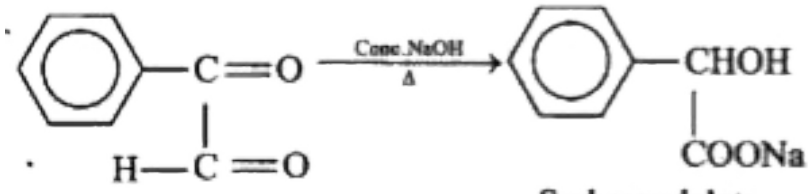
38. 

Phenyl glyoxal

Sod.mandalate

The reaction given above is an example of:

A. Self Cannizzaro reaction

B. Crossed Cannizzaro reaction

C. Intramolecular Cannizzaro reaction

D. Intramolecular Crossed Cannizzaro reaction

Answer:

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39. Assertion : The reaction of acetyl chloride with dimethyl cadmium gives acetone but with methyl magnesium chloride tertiary butyl alcohol is formed.

Reason : The C-Mg bond in CH_3MgCl is more ionic than the C-Cd bond in $(CH_3)_2$Cd. So $(CH_3)_2$Cd does not react by nucleophilic addition unlike CH_3MgCl.

A. If both A & R are true and R is the correct explanation of A

B. If both A & R are true and R is not the correct explanation of A

C. If A is true but R is false

D. If both A & R are false

Answer:

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40. Assertion : Higher ketones do not react with a saturated solution of sodium bisulphite.

Reason : Crowding around carbonyl carbon cause steric hinderance to nucleophilic attack by the bulkier nucleophile.

A. If both A & R are true and R is the correct explanation of A

B. If both A & R are true and R is not the correct explanation of A

C. If A is true but R is false

D. If both A & R are false

Answer:

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41. Assertion : Benzaldehyde is less reactive than ethanal towards nucleophilic attack.

Reason : All the carbon atoms of benzaldehyde are sp^2 hybridised.

A. If both A & R are true and R is the correct explanation of A

B. If both A & R are true and R is not the correct explanation of A

C. If A is true but R is false

D. If both A & R are false

Answer:

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42. Assertion : Acetone can be used to distinguish cis-cyclopentane-1, 2-diol from its trans isomer.

Reason : The cis isomer forms a cyclic ketal with acetone, where as the trans isomer cannot, as it has the -OH groups in opposite directions.

A. If both A & R are true and R is the correct explanation of A

B. If both A & R are true and R is not the correct explanation of A

C. If A is true but R is false

D. If both A & R are false

Answer:

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43. Which of the following is correct regarding the reaction of ketones with ethylene glycol in the presence of dry HCl? The product obtained is ethylene glycol hemi-ketal, In this reaction, electrophilicity of carbonyl carbon decreases, HCl protonates the oxygen of the carbonyl group, The product thus obtained is cyanohydrin

A. The product obtained is ethylene glycol hemi-ketal

B. In this reaction, electrophilicity of carbonyl carbon decreases

C. HCl protonates the oxygen of the carbonyl group

D. The product thus obtained is cyanohydrin

Answer: C

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44. Which of the following statements $\mathrm{is/are}$ correct?

A. Aldehydes are generally oxidised under vigorous conditions

B. Ketones are easily oxidised to carboxylic acids even under mild oxidising agents

C. Oxidation of ketone involves carbon-carbon bond cleavage to give a mixture of carboxylic acids having lesser number of C-atoms than the parent ketones

D. All of the above

Answer: C

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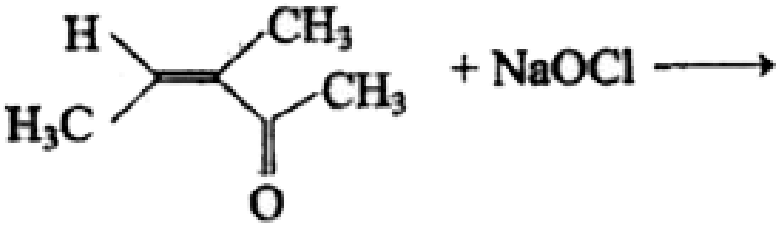
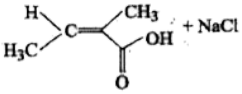
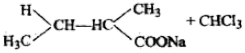
45. Identify the product formed in the given reaction,



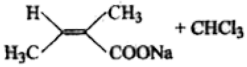
A.



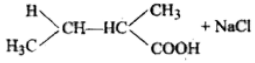
B.



C.



D.



Answer: C

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46. Which of the following statements $\mathrm{is/are}$ correct about the aldol reaction?

A. Aldehydes and ketones having at least one β-hydrogen

B. The reaction is carried out in the presence of concentrated alkali

C. The product formedis β-hydroxy aldehydes (aldol) or β-hydroxy ketone (ketol)

D. All of the above

Answer: C

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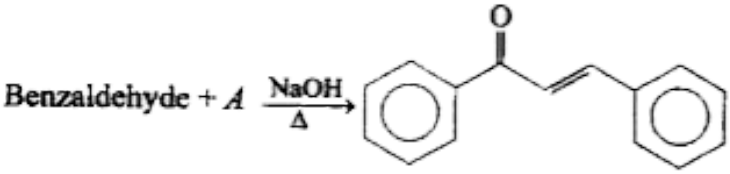
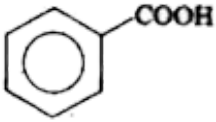
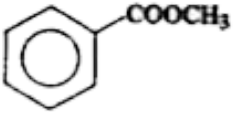
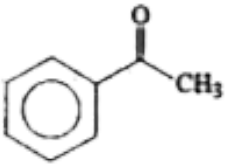
47. The reactant 'A' in the given reaction is



A. 

B. 

C. 

D. 

Answer: D

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48. An organic compound 'A' has the molecular formula C_3H_6O, it undergoes iodoform test. Wheir saturated with dil. HCl it gives 'B' of molecular formula $C_9H_{14}O$. A and B respectively are

A. Propanal and mesitylene

B. Propanone and mesityl oxide

C. Propanone and 2,6-dimethyl-2,5-heptadien-4-one

D. Propanone and mesitylene oxide

Answer: C

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49. Grignard's reagent reacts with ethanal (acetaldehyde) and propanone to give

A. Higher aldehydes with ethanal and higher ketones with propanone

B. Primary alcohols with ethanal and secondary alcohols with propanone

C. Ethers with ethanal and alcohols with propanone

D. Secondary alcohols with ethanal and tertiary alcohols with propanone

Answer: D

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50. By Oxo-process $(CH_3)_2C = CH_2 + CO + H_2 \rightarrow A$. A formed is

A. $(CH_3)_2CHCH_2CHO$

B. $(CH_3)_2CH\overset{\overset{O}{||}}{C}CH_3$

C. $(CH_3)_2CHCH_2CH_3$

D. $(CH_3)_2CH\underset{\underset{CH_3}{|}}{C}HCH_3$

Answer: A

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51. Identify X and Y respectively in the following reaction:

$$CH_3CH_2\overset{\overset{O}{||}}{C}CH_3 \xrightarrow{C_6H_5CO_3H} \xrightarrow{H_3O^+} X + Y$$

: CH_3CH_2COOH, CH_3OH; CH_3COOH, CH_3CH_2OH; CH_3COOH, CH_3OH; CH_3COOH, CH_3COOH

A. CH_3CH_2COOH, CH_3OH

B. CH_3COOH, CH_3CH_2OH

C. CH_3COOH, CH_3OH

D. CH_3COOH, CH_3COOH

Answer: B

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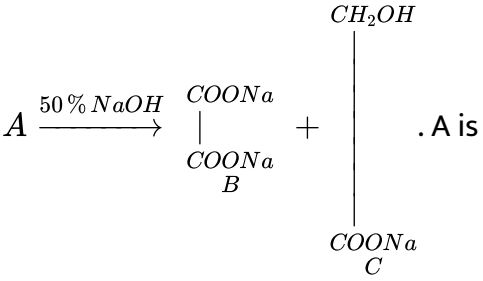
52. By Cannizzaro reaction A changes to B and C as given



. A is

A. 

B. 

C. 

D. 

Answer: A

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53. An olefin on ozonolysis yields a mixture of acetone and methyl ethylketone. The possible structure of the olefin is

A. $CH_3\overset{CH_3}{\underset{|}{C}} = \overset{CH_3}{\underset{|}{C}}CH_3$

B. $C_2H_5\overset{C_2H_5}{\underset{|}{C}} = CH_2$

C. $CH_3\overset{CH_3}{\underset{|}{C}} = \overset{CH_3}{\underset{|}{C}}CH_2CH_3$

D. $CH_3CH = CHCH_3$

Answer: C

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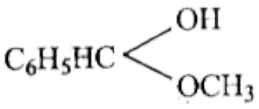
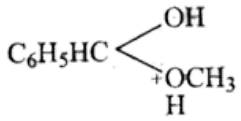
54. Which of the following species is the conjugate acid of the hemiacetal formed by reaction of benzaldehyde with methanol containing a trace of acid?

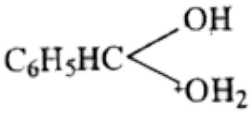
A. 

B. $C_6H_5CH = \overset{+}{O}CH_3$

C.



D.



Answer: C

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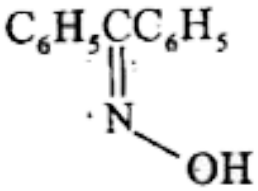
55. In the following reaction sequence, the product B is

$$C_6H_5COC_6H_5 \xrightarrow{NH_2OH} A \xrightarrow{PCl_5} B$$

A.



B. $C_6H_5\underset{\underset{N}{|||}}{C}C_6H_5$

C. $C_6H_5CONHC_6H_5$

D. $C_6H_5\underset{\underset{OH}{|}}{C}H - NHC_6H_5$

Answer: C

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56. m-Chlorobenzaldehyde on reaction with concentrated KOH at room temperature gives

A. potassium m-chlorobenzoate and m-hydroxybenzaldehyde

B. m-hydroxybenzaldehyde and m-chlorobenzyl alcohol

C. m-chlorobenzyl alcohol and m-hydroxybenzyl alcohol

D. potassium m-chlorobenzoate and m-chlorobenzyl alcohol

Answer: D

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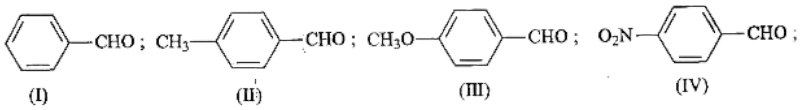
57. The increasing order of rate of Cannizzaro reaction for the following compounds is:



A. $IV < I < II < III$

B. $III < II < I < IV$

C. $IV < III < II < I$

D. $IV < III < I < II$

Answer: B

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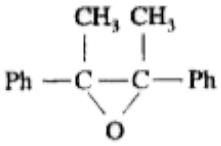
58. $Ph - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - Ph \xrightarrow{\text{conc. } H_2SO_4} A$, the product A is

A. $Ph - \overset{\overset{CH_3}{|}}{C} = \overset{\overset{CH_3}{|}}{C} - Ph$

B. 

C. $Ph - \underset{\underset{Ph}{|}}{\overset{CH_3}{\overset{|}{C}}} - \overset{O}{\overset{||}{C}} - CH_3$

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

Answer: C

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59. Compounds A and C in the following reaction are

$$CH_3CHO \xrightarrow[ii)\ H_2O]{i)CH_3MgBr} (A) \xrightarrow{H_2SO_4,\ \Delta} (B) \xrightarrow[ii)\ \text{Oxilation}]{i)\ \text{Hydroboration}} (C)$$

A. identical

B. positional isomers

C. functional isomers

D. optical isomers

Answer: B

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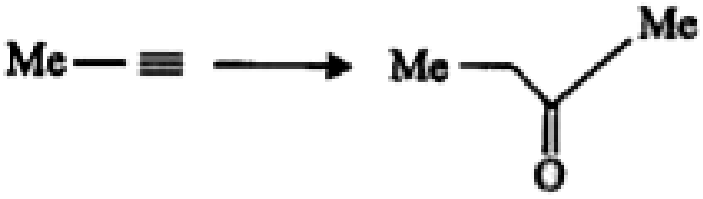
60. The reagents to carry out the following conversion are:



A. $HgSO_4 / \text{dil.} H_2SO_4$

B. $BH_3, H_2O_2 / NaOH$

C. OsO_4, HIO_4

D. $NaNH_2 / CH_3I, HgSO_4 / \text{dil.} H_2SO_4$

Answer: D

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61. $C_6H_5COCH_3$ is not formed in

A. reaction of benzene and acetyl chloride in the presence of $AlCl_3$

B. reaction of acetonitrile with phenylmagnesium bromide in ether followed by hydrolysis

C. treatment of acetyl chloride with dibenzylcadmium

D. addition of water to phenylacetylene in the presence of mercuric sulphate and dilute sulphuric acid

Answer: C

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62. A carbonyl compound react with HCN to form a cyanohydrin which on hydrolysis forms a racemic mixture of alpha- hydroxy acids. The carbonyl compound is

A. formaldehyde

B. acetaldehyde

C. acetone

D. diethyl ketone

Answer: B

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63. The major product H of the given reaction sequence is

$$CH_3 - CH_2 - CO - CH_3 \xrightarrow{CN^-} G \xrightarrow[\text{Heat}]{95\%\, H_2SO_4} H$$

A. $CH_3 - CH = \underset{\underset{CH_3}{|}}{C} - COOH$

B. $CH_3 - CH = \underset{\underset{CH_3}{|}}{C} - CN$

C. $CH_3CH_2 - \underset{\underset{CH_3}{|}}{\overset{\overset{OH}{|}}{C}} - COOH$

D. $CH_3CH = \underset{\underset{CH_3}{|}}{C} - CONH_2$

Answer: B

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

A. 3-pentanone

B. n-amyl alcohol

C. pentanal

D. 2-pentanone

Answer: A

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65. The smallest ketone and its next homologue are reacted with NH_2OH to form oxime.

A. Two different oximes are formed

B. Three different oximes are formed

C. Two oximes are optically active

D. All oximes are optically active

Answer: B

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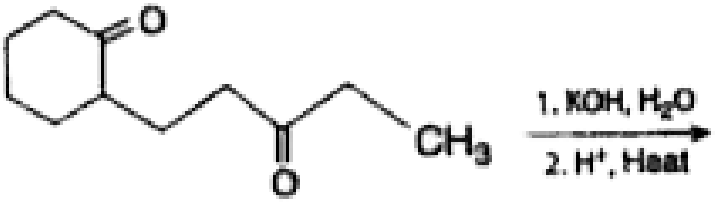
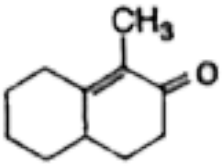
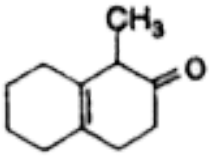
66. The product of the following reaction is,



A.

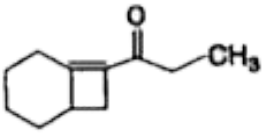


B.



C.

D.



Answer: A

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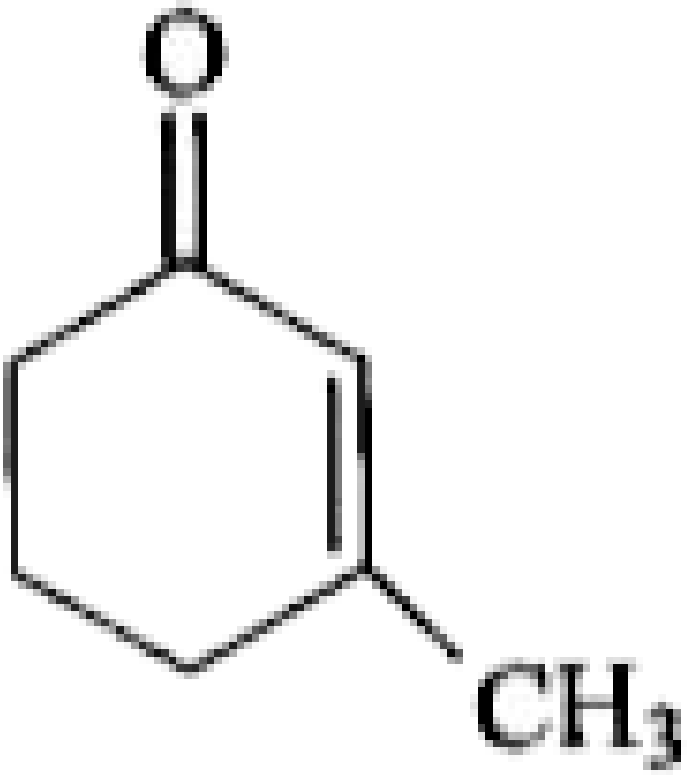
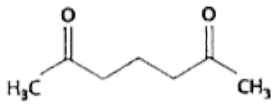
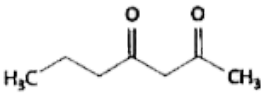
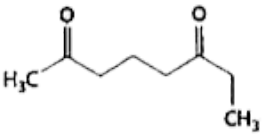
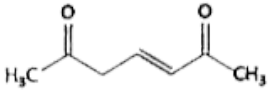


67. is the final product obtained when one of the following compounds react with base. Which is the compound?

A. 

B. 

C. 

D. 

Answer: A

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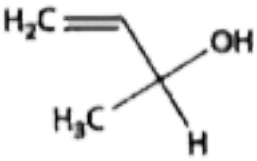
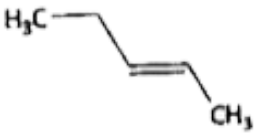
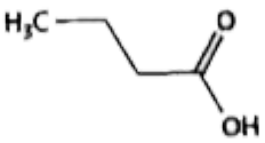
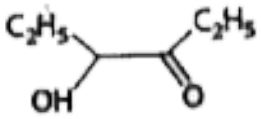
68. $CH_3MgBr + CH_2 = CH - \overset{O}{\overset{||}{C}} - H \xrightarrow{H_3O^+}$ Product Identify the product formed.

A. 

B. 

C. 

D. 

Answer: A

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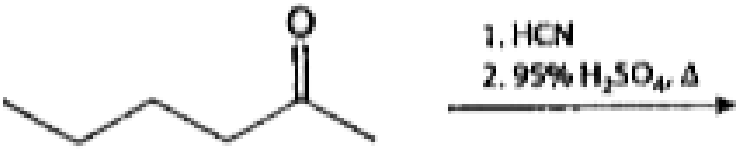
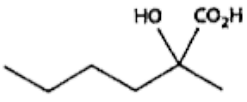
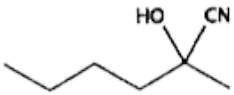
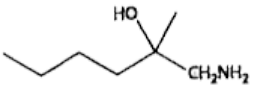
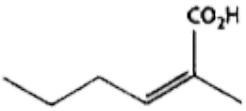
69. What is the product of the following reaction?



A. 

B. 

C. 

D. 

Answer: D

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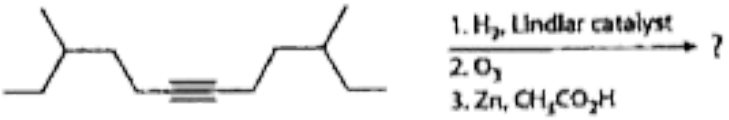
70. Select the structure of the major product in the following reaction.



A. 4-Methylhexanal

B. 3-Methylhexanal

C. 4-Methyl-1-hexanol

D. 4, 10-Dimethyldodecane-6, 7-dione

Answer: A

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71. A certain compound has a formula C_3H_6O. It combines with hydroxylamine to form two compounds which are geometrical isomers of each other. It is

A. HCHO

B. CH_3CH_2CHO

C. CH_3COCH_3

D. $CH_2 = CHCH_2OH$

Answer: B

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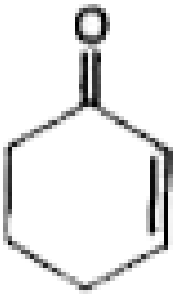
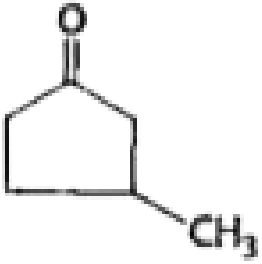
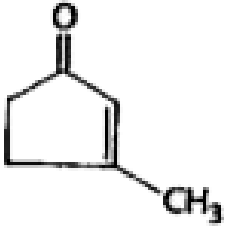
72. The diketone $CH_3 - CO - (CH_2)_2 - CO - CH_3$ on intramolecular aldol condensation gives the final product as



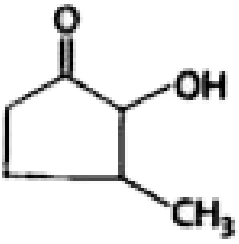
A.



B.



C.



D.

Answer: C

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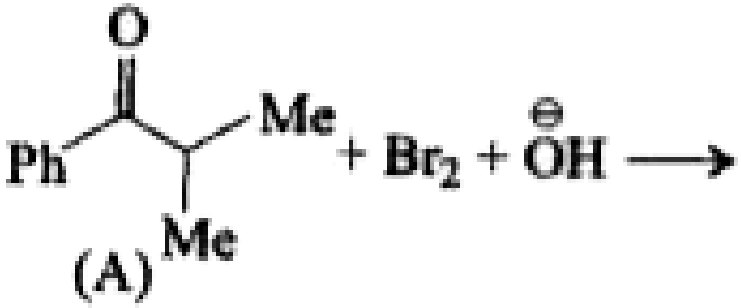
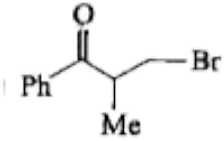
73. The major product of the reaction is :



A.



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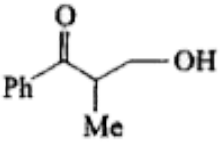
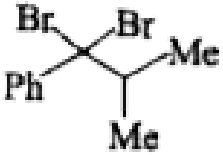
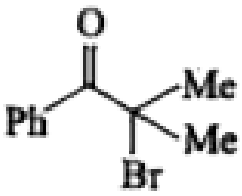


C.





D.

Answer: D

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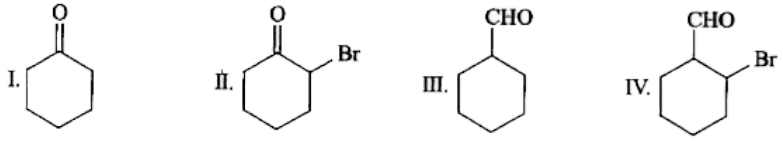
74. Give the decreasing order of the following in the extent of hydration or towards NA (nucleophilic addition) reaction.



A. $(IV) > (III) > (II) > (I)$

B. $(I) > (II) > (III) > (IV)$

C. $(IV) > (II) > (III) > (I)$

D. $(I) > (III) > (II) > (IV)$

Answer: A

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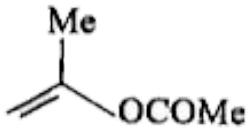
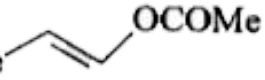
75. How will you distinguish the products obtained by acidic hydrolysis of

I. 

and II. 

A. Fehiling's solution

B. $NaHSO_3$

C. Brady's reagent

D. Lucas test

Answer: A

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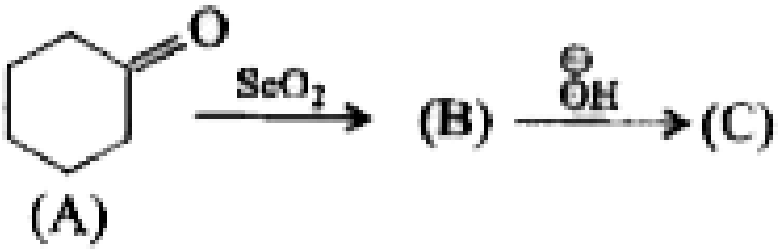
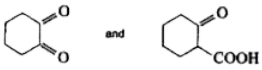
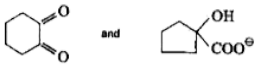
76.

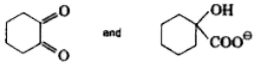


Compounds (B) and (C), respectively, are:

A. 

B. 

C. 

D. 

Answer: C

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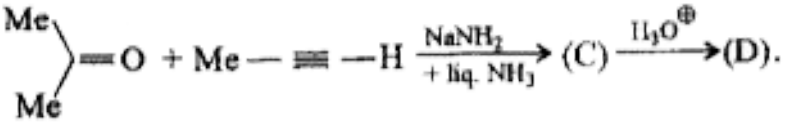
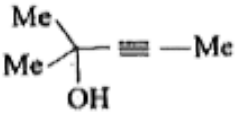
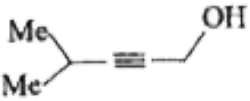
77.  . The final

product (D) is :

A. 

B. 

C. 

D. All

Answer: A

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78. $\underset{\text{Hydride donor}}{RCHO} + \underset{\text{Hydride Acceptor}}{R'CHO} \rightarrow R - \overset{O}{\overset{||}{C}} - O^{\ominus} + R'CH_2OH.$ Select the correct statement.

A. Oxidation number of C in RCHO increases and that of R'CHO decreases.

B. Oxidation number of C in RCHO decreases and that of R'CHO increases.

C. Oxidation number of C remains unchanged in both but that of oxygen is affected.

D. In CH_3CHO and C_6H_5CHO, the former can act as RCHO (hydride donor).

Answer: A

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79. When diethyl cadmium $\left[(C_2H_5)_2Cd\right]$ is treated with acetyl chloride $[CH_3COCl]$, the main product is likely to be:

A. Acetone

B. Ethyl methyl ketone

C. Diethyl ketone

D. Acetaldehyde

Answer: B

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80. Which of the following will not be formed when calcium formate is disilled with calcium acetate?

A. Acetone

B. Propanal

C. Ethanal

D. Methanal

Answer: B

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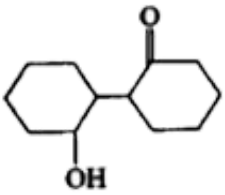
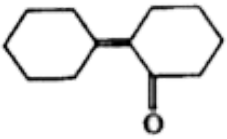
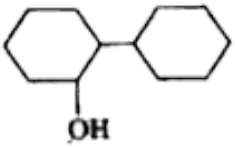
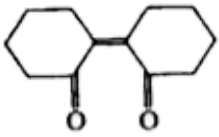
81. What is the product formed when cyclohexanone undergoes aldol condensation followed by heating?

A. 

B. 

C. 

D. 

Answer: B

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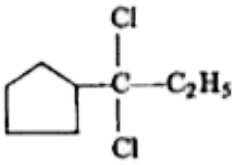
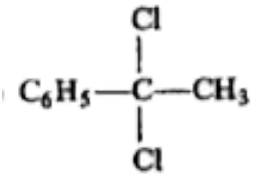
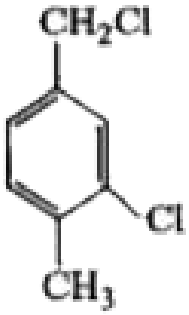
82. Structure of $C_8H_8Cl_2$, which on treatment with aqueous alkali followed by dehydration gives a product which does not give positive iodoform test, but gives silver mirror test, is:

A. 

B. 



C.

D. $C_6H_5CH_2CHCl_2$

Answer: D

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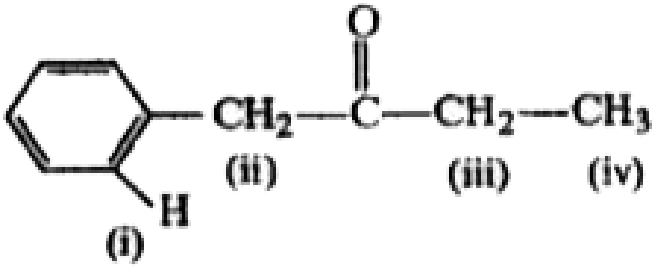
83. Which of the following four hydrogens is most acidic?



A. (i)

B. (ii)

C. (iii)

D. (iv)

Answer: B

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84. $CH_3 - \overset{\overset{O}{||}}{C} - CH_2 - CH_3 \xrightarrow{CH_2N_2} \text{A(Major)} \xrightarrow{CH_3CO_3H} \text{B(Major)}.$

Product B is

A. $CH_3 - O - \overset{\overset{O}{||}}{C} - CH_2 - CH_2 - CH_3$

B. $CH_3 - \overset{\overset{O}{||}}{C} - O - CH_2 - CH_2 - CH_3$

C. $CH_3 - CH_2 - \overset{\overset{O}{||}}{C} - O - CH_2 - CH_3$

D. $CH_3 - \overset{\overset{O}{||}}{C} - O - CH_2 - CH_3$

Answer: B

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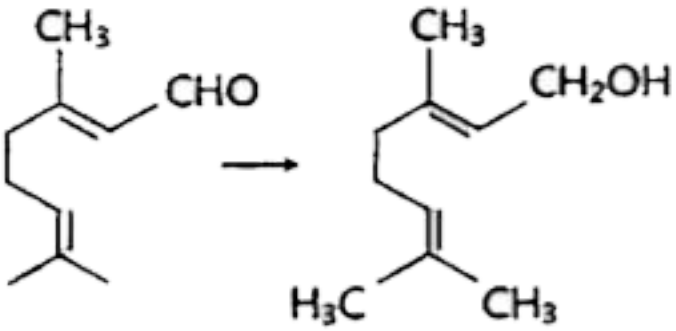
85. Citral can be converted into geraniol by the use of which reagent



A. $H_2 / Pd - C$

B. $LiAlH_4$

C. $H_2 / Pd - BaSO_4 - CaCO_3$

D. $BaSO_4$

Answer: C

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86. Ozonolysis of an organic compound gives formaldehyde as one of the products. This confirm the presence of

A. Two ethylenic double bonds

B. A vinyl group

C. An isopropyl group

D. An acetylenic triple bond

Answer: B

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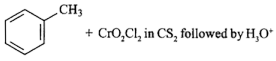
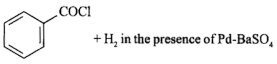
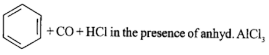
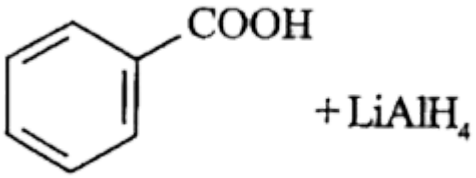
87. Reaction by which benzaldehyde cannot be prepared is

A. 

B. 

C. 

D. 

Answer: D

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88. Choose the correct option regarding the comparison of reactivity of benzaldehyde and propanal.

A. Benzaldehyde is less reactive in electrophilic addition reactions than propanal

B. Benzaldehyde is more reactive in nucleophilic addition reactions than propanal

C. Benzaldehyde is less reactive in nucleophilic addition reactions than propanal

D. Benzaldehyde is equally reactive in nucleophilic addition reactions than propanal

Answer: C

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Level I

1. Acetophenone is prepared by the reaction of which of the following in the presence of $AlCl_3$ catalyst?Phenol and acetic acid Benzene and acetone Benzene and acetyl chloride Phenol and acetone

A. Phenol and acetic acid

B. Benzene and acetone

C. Benzene and acetyl chloride

D. Phenol and acetone

Answer: C

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2. Which of the following compound gives a kctone with Grignard reagent?Formaldehyde Ethyl alcohol Methyl cyanide Methyl iodide

A. Formaldehyde

B. Ethyl alcohol

C. Methyl cyanide

D. Methyl iodide

Answer: C

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3. Benzoin is Compound containing an aldehyde and a ketonic group α , β -unsaturated acid α -hydroxyaldehyde α -hydroxyketone

A. Compound containing an aldehyde and a ketonic group

B. α, β-unsaturated acid

C. α-hydroxyaldehyde

D. α-hydroxyketone

Answer: D

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4. The reagent used in Gatterman Koch aldehyde synthesis isP d / B a S O 4 alkaline K M n O 4 acidic K M n O 4 C O + H C l

A. $Pd/BaSO_4$

B. alkaline $KMnO_4$

C. acidic $KMnO_4$

D. $CO + HCl$

Answer: D

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5. The reaction in which sodium cyanide is used is Perkin reaction Reimer-Tiemann reaction Benzoin condensation Rosenmundrcaction

A. Perkin reaction

B. Reimer-Tiemann reaction

C. Benzoin condensation

D. Rosenmundrcaction

Answer: C

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6. Which of the following nitriles will form aldehyde on reaction with Grignard reagent?

A. HCN

B. CH_3CN

C. $(CH_3)_2CHCN$

D. $CH_2 = CHCN$

Answer: A

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7. Which is the incorrect reaction?

A. $CH_3CH = CH_2 \xrightarrow{\text{Oxp method}} CH_3CH_2CH_2CHO$

B. $RCN \xrightarrow{\text{DIBALH}} RCHO$

C. $(HCOO)_2Ca \xrightarrow{\Delta} HCHO$

D. $CH_3\overset{O}{\overset{||}{C}}Cl \xrightarrow{(CH_3)_2CuLi} CH_3CH_2\overset{O}{\overset{||}{C}}CH_3$

Answer: D

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8. Reagents used in Clemmensen reduction and Wolff-Kishner reduction are respectively Z n (H g) – conc. H C l , N 2 H 4 – glycol, O H – L i A l H 4 , N a B H 4 N a B H 4 , L i A i H 4 P d – C / H 2 , L i / N H 3

A. $Zn(Hg) - \text{conc.} \quad HCl, N_2H_4 - \text{glycol}, \quad OH^-$

B. $LiAlH_4, NaBH_4$

C. $NaBH_4, LiAiH_4$

D. $Pd - C/H_2, Li/NH_3$

Answer: A

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9. Select the incorrect statement.

A. Carbonyl compounds are atttacked by nucleophiles

B. An aldehyde has a greater partial positive charge on its carbonyl carbon

C. Protonation of a carbonyl compound decreases electrophilic nature and thus, nucleophilic attack is retarded

D. Hydration of CCl_3CHO is more than that of CH_3CHO

Answer: C

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10. Maximum hydration takes place that of

A. $CF_3\overset{\overset{O}{||}}{C}CF_3$

B. $CH_3\overset{\overset{O}{||}}{C}CH_3$

C. $CH_3\underset{\underset{Cl}{|}}{CH}\overset{\overset{O}{||}}{C}CH_3$

D. $C_6H_5\overset{\overset{O}{||}}{C}C_6H_5$

Answer: A

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11. The reaction $C_6H_5CH=CHCHO$ with $NaBH_4$ yields

A. $C_6H_5CH_2CH_2CH_2OH$

B. $C_6H_5CH=CHCH_2OH$

C. $C_6H_5CH_2CH_2CHO$

D. $C_6H_5CH_2CHOHCH_3$

Answer: B

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12. Urotropine is obtained when

A. urea reacts with formalin

B. urea reacts with ammonia

C. formaldehyde reacts with ammonia

D. acetone reacts with ammonia

Answer: C

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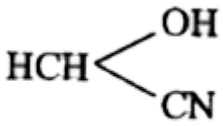
13. HCHO reacts with a mixture of NH_4Cl and NaCN, then end product is

A. $CH_2 = \overset{\oplus}{N}H_2$

B. NH_2CH_2CN

C. $CH_2 = N - CH_2CN$

D.



Answer: C

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14. Which of the following has the most acidic hydrogen?

A. 3-Hexanone

B. 2, 4-Hexanedione

C. 2,5-Hexanedione

D. 2, 3-Hexanedione

Answer: B

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15. Which of the following statements regarding CO group is not correct?

A. The carbon atom of CO group in aldehydes is sp^2 hybridized

B. The carbon atom of CO group in the transition state formed during the addition reaction across the CO group is sp^3 hybridized

C. The aryl group in aromatic aldehydes speeds up the addition reaction across the CO group

D. An aryl group stabilises an aldehyde more than the transition state

Answer: C

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16. The reduction reaction $R - COCl \xrightarrow[\text{xylene}]{H_2 / Pd / BaSO_4} RCHO$ is known as

A. Clemmensen reduction

B. Wolff-Kishner reduction

C. Rosenmund reduction

D. Catalytic reduction

Answer: C

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17. The reduction of $CH_2 = CH - CHO$ by if (i) $Zn - Hg / HCl$ and (ii) H_2NNH_2 / OH^- , respectively, yield

A. $CH_2 = CHCH_3$ and $CH_2 = CHCH_3$

B. CH_3CH_2CHO and $CH_3CH_2CH_3$

C. $CH_3CH_2CH_3$ and $CH_2 = CHCH_3$

D. CH_3CH_2CHO and CH_3CH_2CHO

Answer: C

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18. The reagent that can be used to convert butane -2-one to propanoic acid is

A. $NaOH, NaI / H^+$

B. Fehling solution

C. Tollens reagent

D. $NaOH, I_2 / H^+$

Answer: D

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19. The Cannizzaro reaction is not given by

A. trimethylacetaldehyde

B. benzaldehyde

C. acetaldehyde

D. formaldehyde

Answer: C

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20. In the Cannizzaro reaction $2Ph + CHO \xrightarrow{\overset{\Theta}{OH}} Ph - CH_2OH + PhCOO$ the slowest step is : the attack of $-OH$ at the carbonyl group, the transfer of hydride ion to the carboxylic acid, the abstraction of proton from the carboxylic acid, the deprotonation of the $PhCH_2OH$

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

B. the transfer of hydride to the carbonyl group

C. the abstraction of proton from the carboxylic acid

D. the deprotonation of $Ph - CH_2OH$

Answer: B

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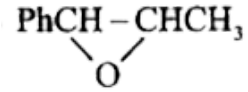
21. In the reaction $PhCH(OH)CH(OH)CH_3 \xrightarrow{H^+} D$, the compound D is

A. $PhCH_2CH_2OH$
$|$
CH_3

B. $PhCH_2COCH_3$

C. 

D. $PhCOCOCH_3$

Answer: B

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22. The compound that will not give iodoform on treatment with alkali and iodine is acetone ethanol diethyl ketone isopropyl alcohol

A. acetone

B. ethanol

C. diethyl ketone

D. isopropyl alcohol

Answer: C

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23. $CH_3 - C \equiv CH \xrightarrow[1\%\, HgSO_4]{40\%\, H_2SO_4} A \xrightarrow{\text{Isomerisation}} CH_3 - \underset{\underset{O}{||}}{C} - CH_3$

Structure of 'A' and type of isomerism in the above reaction are respectively.

A. Prop-1-en-2-ol, metamerism

B. Prop-1-en-1-ol, tautomerism

C. Prop-2-en-2-ol, geometrical isomerism

D. Prop-1-en-2-ol, tautomerism

Answer: D

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24. Acetic acid is treated with $Ca(OH)_2$ and the product so obtained is subjected to dry distillation. The final product is

A. propanal

B. ethanol

C. ethanal

D. propanone

Answer: D

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25. Which of the folowing is the industrial method of preparation of acetaldehyde?

A. $CH_3CN \xrightarrow[HCl]{SnCl_2} CH_3CH = NH \xrightarrow{H_3O^+} CH_3CHO$

B. $CH_3COCl + H_2 \xrightarrow[BaSO_4]{Pd} CH_3CHO + HCl$

C. $CH_2 = CH_2 + H_2O \xrightarrow{Pd^{2+}} CH_3CHO$

D. All of these

Answer: C

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26. $CH_3CH_2 - C \equiv N \xrightarrow{X} CH_3CH_2 - CHO$

The reagent / s X is (are)

A. $SnCl_2 / HCl, H_2O / \text{boil}$

B. $H_2 / Pd - BaSO_4$

C. $LiAlH_4 / \text{ether}$

D. $NaBH_4 / \text{ether}, \quad H_3O^+$

Answer: A

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27. By which of the following methods ketones cannot be prepared?

A. Hydration of alkynes

B. Hydrolysis of gem-dihalides

C. Dry distillation of calcium carboxylates

D. Stephen's reaction

Answer: D

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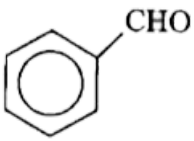
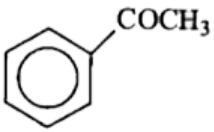
28. Which one is most reactive towards nucleophilic addition reaction?

A. 

B. 

C. 

D. 

Answer: D

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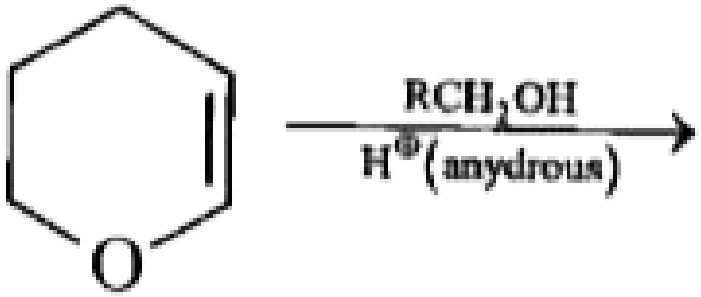
29. The major product of the following reaction is



A. a hemiacetal

B. an acetal

C. an ether

D. an ester

Answer: B

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30. Benzaldehyde and acetone can be best distinguished usingFehling's solution Sodium hydroxide solution 2, 4-DNP Tollens' reagent

A. Fehling's solution

B. Sodium hydroxide solution

C. 2, 4-DNP

D. Tollens' reagent

Answer: D

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31. C_3H_6O did not give a silver mirror with Tollens' reagent, but gave an oxime with hydroxylamine. It can give positive iodoform test Fehling's test Schiff's test Carbylamine test

A. iodoform test

B. Fehling's test

C. Schiff's test

D. Carbylamine test

Answer: A

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32. Treatment of cyclopentanone with methyl lithium gives which of the following species?Cyclopentanonyl radical Cyclopentanonyl biradical Cyclopentanonyl anion Cyclopentanonyl cation

A. Cyclopentanonyl radical

B. Cyclopentanonyl biradical

C. Cyclopentanonyl anion

D. Cyclopentanonyl cation

Answer: C

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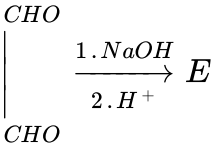
33. In the following reaction, the product E is



A. 

B. 

C. 

D. 

Answer: C

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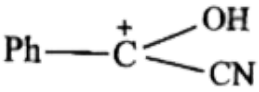
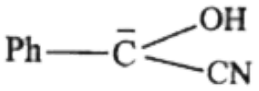
34. In the following species, the one which is likely to be intermediate during benzoin condensation of benzaldehyde is

A. $Ph - C \equiv \overset{+}{O}$

B. 

C. 

D. $Ph - \overline{C} = O$

Answer: C

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35. The major product H of the given reaction sequence is

$$CH_3 - CH_2 - CO - CH_3 \xrightarrow{CN^-} G \xrightarrow[\text{Heat}]{95\%\, H_2SO_4} H$$

A. $CH_3 - CH = \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}} - COOH$

B. $CH_3 - CH = \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}} - CN$

C. $CH_3 - CH_2 - \underset{\displaystyle CH_3}{\overset{\displaystyle OH \\ |}{C}} - COOH$

D. $CH_3 - CH = \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}} - CO - NH_2$

Answer: A

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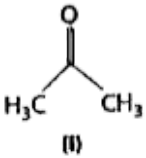
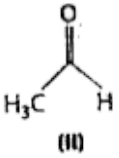
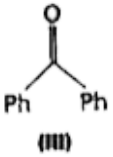
36. The order of reactivity of phenyl magnesium bromide with the following compounds is



(I)



(II)



(III)

A. $II > III > I$

B. $I > III > II$

C. $II > I > III$

D. All these react with the same rate

Answer: C

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37. Which of the following does not react with Fehling's solution?

A. CH_3CHO

B. C_6H_5CHO

C. $C_6H_{12}O_6$

D. HCOOH

Answer: B

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38. Which of the following will react with acetone to give a product containing C=N- ?

A. $C_6H_5NHCH_3$

B. $(CH_3)_3N$

C. $C_6H_5NHC_6H_5$

D. $C_6H_5NHNH_2$

Answer: D

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39. In the reaction

$CH_3 - CH = CH - CHO \xrightarrow[\text{agent}]{\text{oxidizing}} CH_3 - CH = CH - COOH,$ the oxidizing agent can be

A. Alkaline $KMnO_4$

B. Acidified $K_2Cr_2O_7$

C. Benedict's solution

D. All of the above

Answer: C

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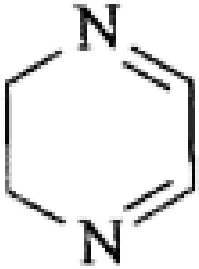

40. A+B forms , A and B are

A. $H_2N - CH_2CH_2 - NH_2, CH_3CHO$

B. $CH_3CHO, NH_2 - NH_2$

C. $H_2N - CH_2CH_2 - NH_2, CHO - CHO$

D. $HCHO, CH_3NH_2$

Answer: C

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41. Under Wolff-Kishner reduction conditions, the conversion which may be brought about is

A. benzaldehyde into benzyl alcohol

B. cyclohexanol into cyclohexanone

C. cyclohexanone into cyclohexanol

D. benzophenone into diphenylmethane

Answer: D

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42. The crossed-aldol product formed when propanal acts as the electrophile and butanal as nucleophile is

A. 3-hydroxy-2-methylpentanal

B. 3-hydroxy-2-methylhexanal

C. 2-ethyl-3-hydroxypentanal

D. 2-ethyl-3-hydroxyhexanal

Answer: C

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43. Which of the following aldehydes contains α - carbon atom but does not have any $\alpha - H$ atom?

A. Propionaldehyde

B. Furfural

C. Isobutyraldehyde

D. Formaldehyde

Answer: B

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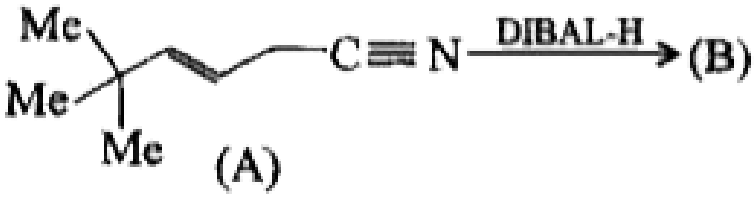
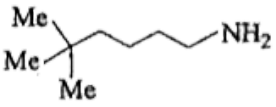
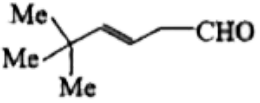
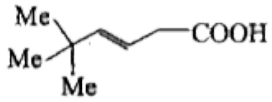
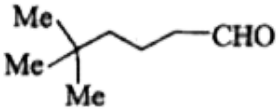
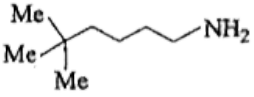
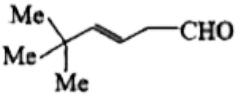
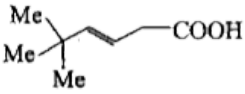
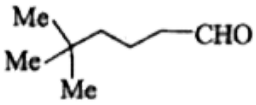


44. . Product (B) is:  ,  ,   ,

A. 

B. 

C. 

D. 

Answer: B

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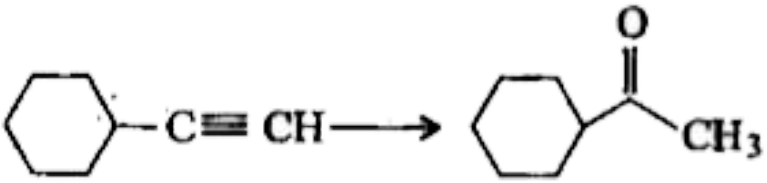
45. The reagents used to convert



are:

A. i. O_3 / Red. ii. $AlCl_3$ iii. $MeCOOH$

B. i. $H_2SO_4 + HgSO_4$ ii. H_2O, heat

C. i. $O_3 / Zn - AcOH$ ii. $H_2SO_4 + HgSO_4$ iii. H_2O, heat

D. i. CH_3COOH ii. $H_2O_2 + OH / H_2O$

Answer: B

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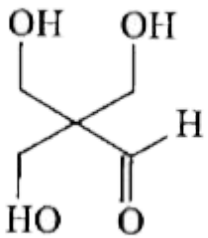
46. Compound (A) given below can undergo Cannizzaro reaction itself and crossed Cannizzaro, reaction with HCHO. It is because of:



A. It has three $(-CH_2OH)$ groups

B. It has an aldehyde group

C. It has non-enolisable $\alpha - C$

D. It has a keto group

Answer: C

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47. Clemmensen's reduction will convert cyclohexanone into:

A. Cyclopentanone

B. Cyclohexane

C. n-Hexane

D. Benzene

Answer: B

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48. The chemical reaction of acetaldehyde and ammonia results in:

A. Ethylamine

B. Hexamethylene tetra amine

C. Acetic acid

D. Acetaldehyde armonia trimer

Answer: D

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49. Which is the Wacker process?

A. $2CH_3CH_2OH + O_2 \xrightarrow[\text{High temp.}]{\text{Agcat}} 2CH_3CHO + 2H_2O$

B. $CH_3CH_2OH \xrightarrow[300^\circ C]{Cn} CH_3CHO + H_2$

C. $C_2H_2 + H_2O \xrightarrow{H_2SO_4, HgSO_4} CH_3CHO$

D. $C_2H_4 + PdCl_2 + H_2O \xrightarrow{CuCl_2} CH_3CHO + Pd + 2HCl$

Answer: D

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50. Cyclohexanone is subjected to reduction by, $NaBH_4$. The product formed is:

A. Cyclohexane

B. Cyclohexanal

C. Cyclohexadiene

D. Cyclohexanol

Answer: D

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Level Iii Single Correct Answer Type

1. $\underset{(A)}{C_5H_{10}Cl_2} + NaOH \rightarrow \underset{(B)}{C_5H_{10}O}$. B is an aldehyde with no α - hydrogen. Thus, A is

A. $(CH_3)_3CCHCl_2$

B. $CH_3CH_2\underset{\displaystyle CH_3}{\underset{|}{C}}HCHCl_2$

C. $CH_3\underset{\displaystyle Cl}{\underset{|}{\overset{\displaystyle CH_3}{\overset{|}{C}}}}HCH_2CHCI_2$

D. $CH_3\underset{\displaystyle Cl}{\underset{|}{C}}CH_2CH_2CH_3$

Answer: A

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2. Compound $A(C_5H_{10}O)$ gives yellow precipitate on heating with $Ca(OH)_2$ and I_2, calcium salt thus, formed forms B $\left((CH_3)_2CH\underset{\underset{O}{||}}{C}CH(CH_3)_2\right)$ on heating. Thus, A is

A. $(CH_3)_2CH\overset{\overset{O}{||}}{C}CH_3$

B. $(CH_3)_2CHCH_2CHO$

C. $CH_3CH_2\overset{\overset{O}{||}}{C}CH_2CH_3$

D. $CH_3\overset{\overset{O}{||}}{C}CH_2CH_2CH_3$

Answer: A

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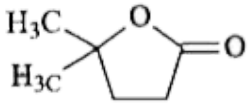
3. $CH_3\overset{O}{\overset{||}{C}}CH_2CH_2\overset{O}{\overset{||}{C}}OCH_2CH_3 \xrightarrow{\text{i) } CH_3MgBr(\text{one mole})} A$, A formed in this reaction is

A. $CH_3\overset{OH}{\overset{|}{\underset{CH_3}{\underset{|}{C}}}}CH_2CH_2\overset{O}{\overset{||}{C}}OCH_2CH_3$

B. $CH_3\overset{O}{\overset{||}{C}}CH_2CH_2\overset{O}{\overset{||}{C}}CH_3$

C. 

D. $CH_3\overset{CH_3}{\overset{|}{\underset{OH}{\underset{|}{C}}}}CH_2CH_2\overset{CH_3}{\overset{|}{\underset{OH}{\underset{|}{C}}}}CH_3$

Answer: C

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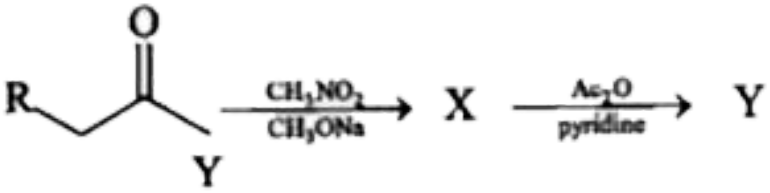
4. Consider the following transformation,

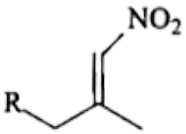


, X and Y are

A. 

B. 

C. 

D. 

Answer: A

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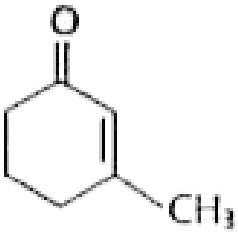
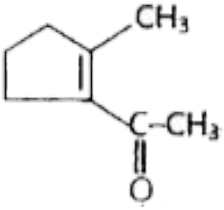
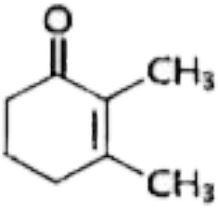
5. $CH_3 - \overset{O}{\overset{||}{C}} - CH_2 - CH_2 - CH_2 - CH_2 - \overset{O}{\overset{||}{C}} - CH_3 \xrightarrow[KOH]{Br_2}$, Possible products are:

A. 

B. 

C. 

D. Both (B) and (c)

Answer: D

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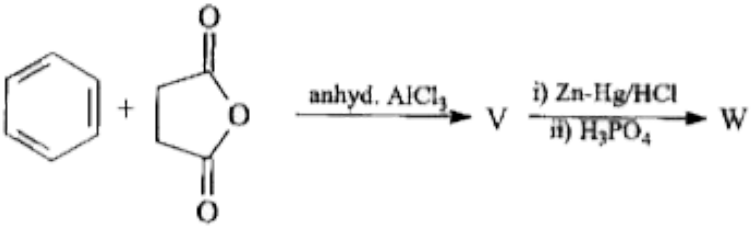
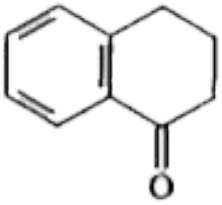
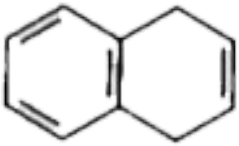
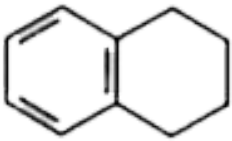
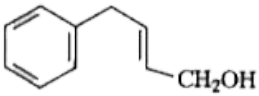
6. The final product 'W' in the following reaction sequence is



A. 

B. 

C. 

D. 

Answer: A

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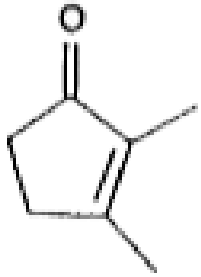
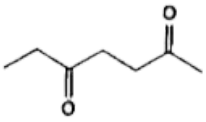
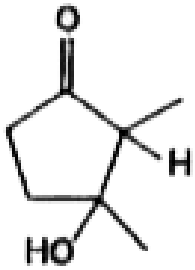
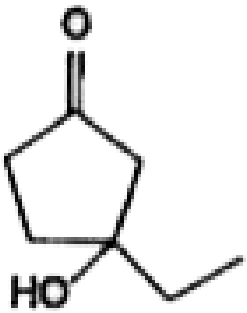
7. Find the final product in the following given reaction.

A. 

B. 

C. 

D. 

Answer: B

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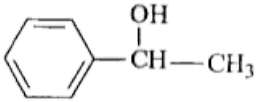
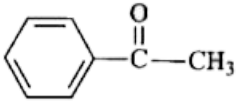
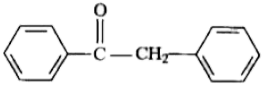
8. Which the following will not give yellow colouration with NaOI?

A. 

B. 

C. $CH_3 - \overset{\overset{O}{\|}}{C} - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH_3$

D. 

Answer: D

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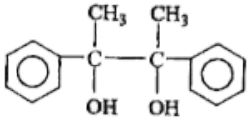
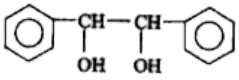
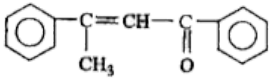
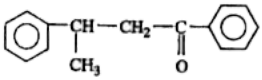
9. Acetophenone when reacted with a base, C_2H_5ONa, yields a stable compound which has the structure

A. 

B. 

C. 

D. 

Answer: C

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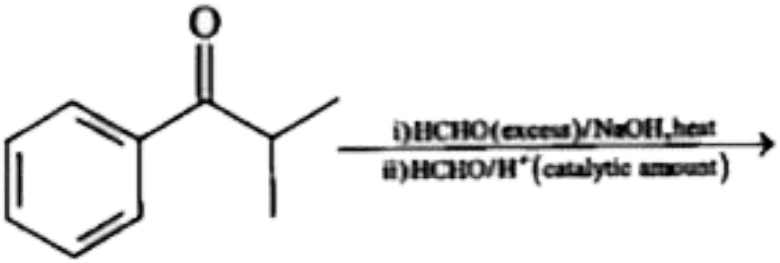
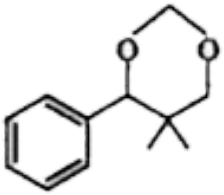
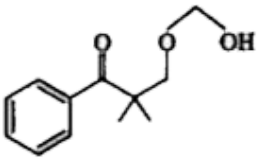
10. The major product of the following reaction sequence is,



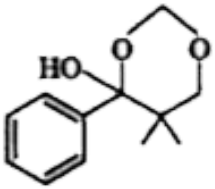
A.



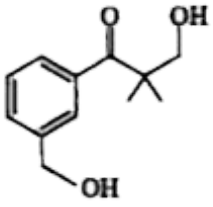
B.



C.



D.



Answer: A

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Level Iii Multiple Correct Answer Type

1. Acetophenone can be prepared by

A. Oxidation of l-phenylethanol

B. Reaction of benzylethanol with methyl magnesium bromide

C. Friedel Craft's reaction ofbenzene with acetyl chloride

D. Distillation of calcium benzoate

Answer: A::C

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2. Which of the following will give aldol condensation?

A. Acetaldehyde

B. Propanaldehyde

C. Acetone

D. Benzaldehyde

Answer: A::B::C

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3. In which of the following reactions only aldehyde can be formed not ketone?

A. Rosenmund reduction

B. Stephen's reduction

C. Dry distillation of Ca salts of acids

D. Reaction of aromatic hydrocarbons except benzene with chromylchloride

Answer: A::B::D

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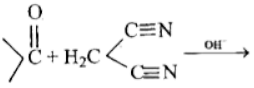
4. Which of the following reactions involves/involve carbanion as the reaction intermediate?

A. $H_3C - \underset{\underset{O}{||}}{C} - H \xrightarrow{OH^-}$

B. $H - \underset{\underset{O}{||}}{C} - H \xrightarrow[\text{conc.}]{OH^-}$

C. 

D. $H_3C - \underset{\underset{O}{||}}{C} - H \xrightarrow{Al(OEt)_3}$

Answer: A::C

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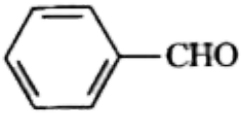
5. Which of the following compounds do not undergo aldol condensation?

A. $CH_3 - CHO$

B. 

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

D. $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - CHO$

Answer: B::D

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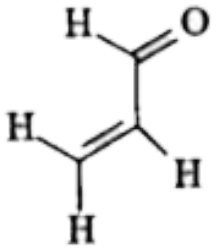
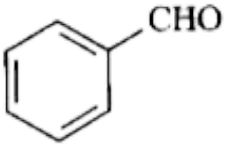
6. Positive Tollens' test is observed for

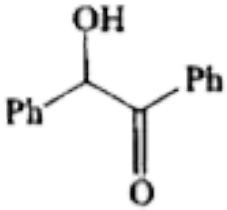
A.



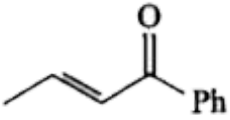
B.



C.



D.



Answer: A::B::C

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7. Which of the following statements about benzaldehyde $\mathrm{is/are}$ true?

A. Reduces Tollens' reagent

B. Undergoes aldol condensation

C. Undergoes Cannizzaro reaction

D. Does not form an addition compound with sodium hydrogen sulphite

Answer: A::C

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8. Which of the following reagents is used to identify carbonyl group from other functional group?

A. Schiff reagent

B. Fehling solution

C. 2,4-dinitrophenylhydrazine

D. Tollen's reagent

Answer: A::B::C::D

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9. Keto-enol tautomerism is observed in

A. $H_5C_6 - \overset{\overset{O}{||}}{C} - H$

B. $H_5C_6 - \overset{\overset{O}{||}}{C} - CH_3$

C. $H_5C_6 - \overset{\overset{O}{||}}{C} - C_6H_5$

D. $H_5C_6 - \overset{\overset{O}{||}}{C} - CH_2 - CH_3$

Answer: B::D

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10. Which of the following reactions would give propanal?

A. Ethyl propanoate+DIBAL-H(diisobutyl aluminium hydride).[$(i-C_4H_9)_2AlH$]at-$70^\circ C$, followed by hydrolysis.

B. Propyl propanoate+DIBAL-H/H_2O

C. Ethyl cyanide + DIBAL-H

D. Propanoyl chloride + $LiAlH(O-t-Bu)_3$

Answer: A::B::C::D

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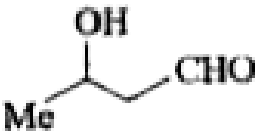
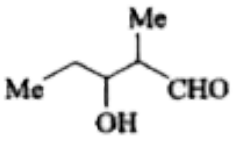
11. Which of the following are crossed aldol products in the given reaction? $MeCHO + MeCH_2CHO \xrightarrow[25^\circ C]{OH^-}$

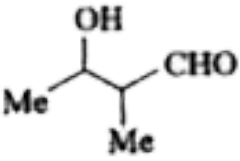
A.



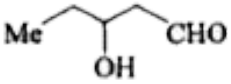
B.



C.



D.



Answer: C::D

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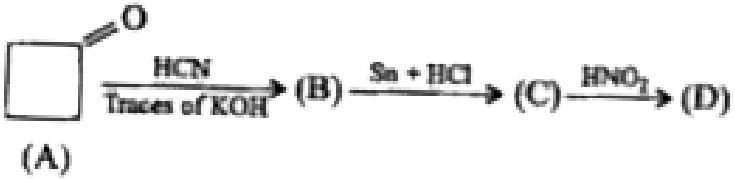
12. Which of the following statements are correct about the reaction given below?



A. In the formation of (D) from (C), ring expansion takes place

B. The product (D) is cyclopentanone

C. The product (D) is α, β- unsaturated cyclopentanone

D. Conversion of (B) to (C) can also be carried out with LAH

Answer: A::B::D

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Level Iii Numerical Type

1. How many crossed aldol products would be obtained when a mixture of formaldehyde, acetaldehyde and benzaldehyde is mixed with dilute alkali?

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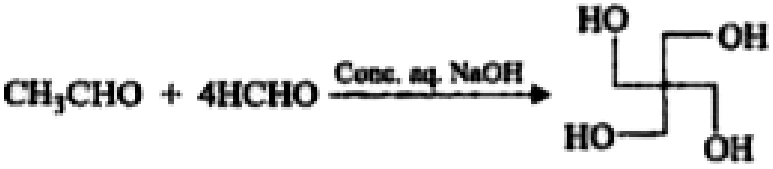
2. The number of aldol reaction(s) that occurs in the given transformation is



A. 3

B. 5

C. 4

D. 6

Answer: 3

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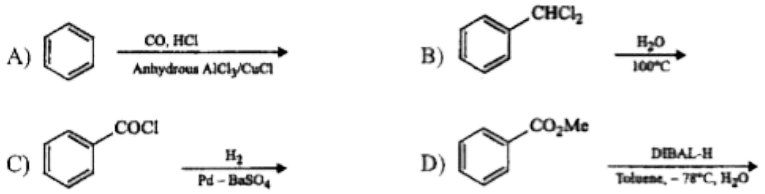
3. Among the following, the number of reaction(s) that produce(s) benzaldehyde is



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4. Consider all possible isomeric ketones, including stereoisomers of MW = 100. All these isomers are independently reacted with $NaBH_4$ (Stereoisomers are also reacted seperately). The total number of ketones that give a racemic product(s) is.....

A. 4

B. 5

C. 6

D. 3

Answer: 5

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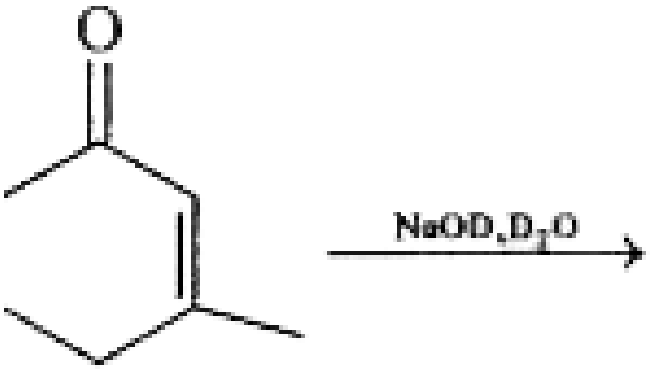
5. Consider the reaction given below, the maximum possible deuterium atoms found in the product of the reaction



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6. When CH_3CHO is treated with excess of HCHO in aqueous solution of Na_2CO_3, a product, used in making explosive, is obtained finally. Find the number of primary alcoholic groups present in one molecule of the product?

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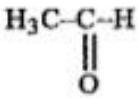
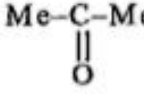
Level Iii Matching Column Type

1. Match the following columns:

Column-I		Column-II	
(a)		(p)	Water soluble
(b)	HCHO	(q)	Shows cannizaro reaction
(c)	PhCHO	(r)	Undergoes aldol reaction
(d)		(s)	Forms two oximes on reaction with H_2N - OH

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2. Match the following columns:

Column-I		Column-II	
(a)	Ph - CHO	(p)	Fehling solution
(b)		(q)	2, 4-DNP test
(c)		(r)	Tollen's reagent
(d)		(s)	Iodoform test

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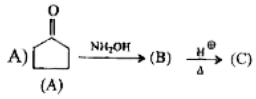
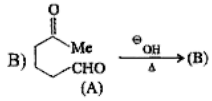
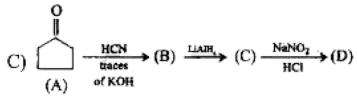
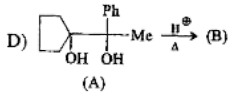
3. Match the following columns

Column I Reaction	Column II Products
A) 	p) Final product is α,β – unsaturated ketone or ketone
B) 	q) Formation of six-membered ring takes place
C) 	r) Final product will give positive Tollens test
D) 	s) Ring expansion takes place
	t) Final product gives test with Brady's reagent

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4. Match the following columns

Column I	Column II
A) Methanal disproportionates in the presence of conc. alkali	p) Benzoin condensation
B) $C_6H_5CHO \xrightarrow{KCN} C_6H_5CH(OH)COC_6H_5$	q) Acetaldehyde
C) Aldehyde which gives iodoform test	r) Wolff-Kishner reduction
D) $(CH_3)_2CO \xrightarrow{N_2H_4/(CH_3)_2CO^-K^+} (CH_3)_2CH_2$	s) Cannizzaro's reaction

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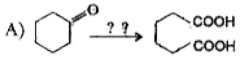
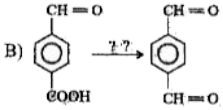
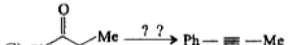
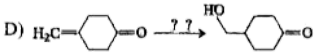
5. Match the following columns

Column I Reaction	Column II Reagent
A) 	p) i. Glycol + HCl; ii. $SOCl_2$; iii. DIBAL-H; iv. $H_3O^{\oplus}$
B) 	q) i. BH_3/THF; ii. H_2O_2/OH^-
C) 	r) i. $LiAlH_4$; ii. Conc. H_2SO_4/Δ, iii. O_3/Zn-AcOH
D) 	s) i. PCl_5; ii. $2NaNH_2$

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Level Iii Statement Type

1. This question contains two statements: Statement 1 and Statement 2. This question has four alternative choices, only one of which is the correct answer.

Statement 1: Benzaldehyde on heating with concentrated alkali give α, β-unsaturated carbonyl compound.

Statement 2 : Benzaldehyde do not have an α H-atom.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, Statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: D

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2. This question contains two statements: Statement 1 and Statement 2. This question has four alternative choices, only one of which is the correct answer.

Statement 1 : The reaction of aldehydes and ketones with pure HCN is very slow to yield cyanohydrin.

Statement 2 : The above reaction is catalysed by a base and generated

cyanide ion being a weaker nucleophile adds to carbonyl compounds to yield, corresponding cyanohydrin.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, Statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: C

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3. Statement 1: Ethyl benzoate, on treatment with di isobutlyl aluminum hydride, is reduced to benzaldehyde.

Statement 2: $\left\{(CH_3)_2CHCH_2\right\}_2AlH$ (diisobutyl aluminum hydride) is a weak reducing agent, can't reduces aldehyde further.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, Statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: A

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4. Statement 1: Treatment of 1-butyne with B_2H_6 / H_2O_2 (aq) gives butanal as major organic product.

Statement 2: Reaction involves a hydride transfer from boron to carbon in the intermediate step.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, Statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: B

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5. This question contains two statements: Statement 1 and Statement 2. This question has four alternative choices, only one of which is the correct answer.

Statement 1: The α-hydrogen atom in carbonyl compounds is basic.

Statement 1: The anion formed after the loss of α-hydrogen atom from carbonyl compound is resonance stabilised.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, Statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: D

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Level Iii Linked Comprehension Type

1. .

In the compound

the carbonyl carbon is joined to other atoms by

A. Two sigma and one pi bonds

B. One sigma and two pi bonds

C. Three sigma and one pi bonds

D. Two sigma and two pi bonds

Answer: B

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2. Which of the following types of isomerism is shown by pentanone?

A. Chain isomerism

B. Position isomerism

C. Functional isomerism

D. All of these

Answer: D

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3. Carbonyl compounds are

A. Ethers, aldehydes, ketones and carboxylic acids

B. Aldehydes, ketones and carboxylic acids

C. Aldehydes and ketones

D. Carboxylic acids

Answer: C

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4. Aldehydes and ketones are amphoteric. Thus they can react both as acids and bases. Under acidic conditions, the carbon of the protonated carbonyl group is much more electrophilic, reacting even with weak necleophile. Carbonyl compound gives nucleophilic addition reaction. In this reaction the nucleophilic attack precedes the electrophilic attack.

Which of the statements regarding nucleophilic addition to carbonyl compounds $\mathrm{is/are}$ correct?

A. Carbonyl compound is amphoteric in character

B. Acid catalyst makes the carbonyl carbon more electrophilic

C. Basic catalyst makes the nucleophilemore nucleophilic

D. All of these

Answer: D

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5. Aldehydes and ketones are amphoteric. Thus they can react both as acids and bases. Under acidic conditions, the carbon of the protonated carbonyl group is much more electrophilic, reacting even with weak necleophile. Carbonyl compound gives nucleophilic addition reaction. In this reaction the nucleophilic attack precedes the electrophilic attack.

Which of the statements regarding nucleophilic addition to carbonyl compounds is/are correct?

A. The rate determining step of nucleophilic addition reaction is the addition of nucleophile

B. The rate determining step is addition of electrophile

C. The reaction intermediate of the reaction is alkoxide ion

D. Bọth (A) and (c)

Answer: D

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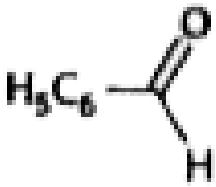
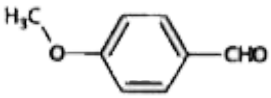
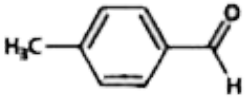
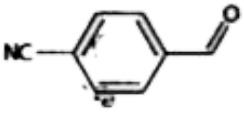
6.

Which one of the carbonyl compounds is more reactive towards $NaCN/H^+$?

A. 

B. 

C. 

D. 

Answer: D

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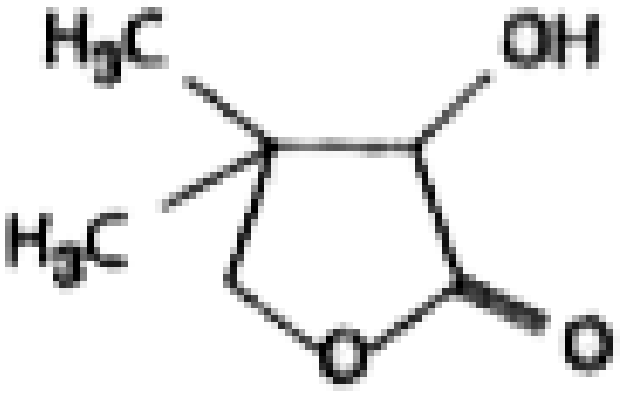
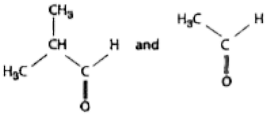
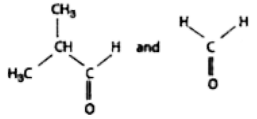
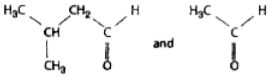
7. Two aliphatic aldehydes Pand Q react in the presence of K_2CO_3 to give compound R, which upon treatment with HCN provides compound S. On acidification and heating, S gives the products shown below.

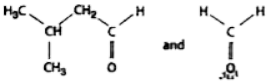


The compounds P and Q, respectively, are

A. 

B. 

C. 

D. 

Answer: B

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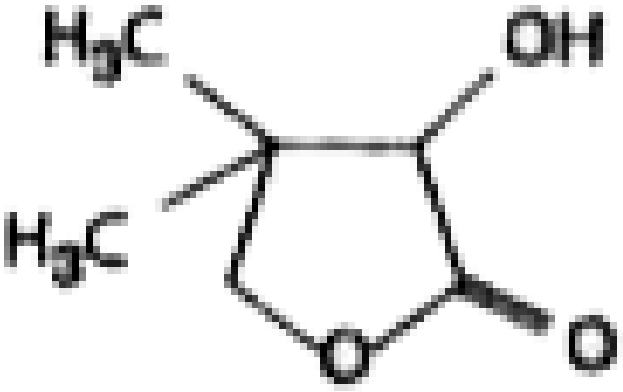
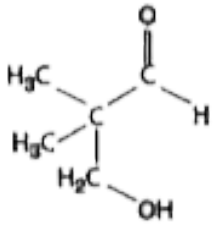
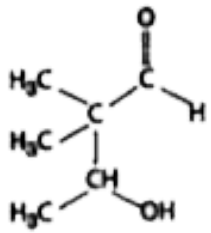
8. Two aliphatic aldehydes Pand Q react in the presence of K_2CO_3 to give compound R, which upon treatment with HCN provides compound S. On acidification and heating, S gives the products shown below.

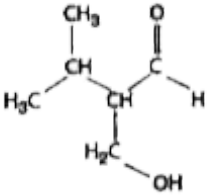


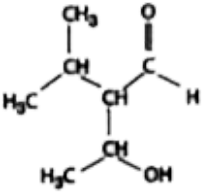
The compound R is

A.



B. 

C. 

D. 

Answer: A

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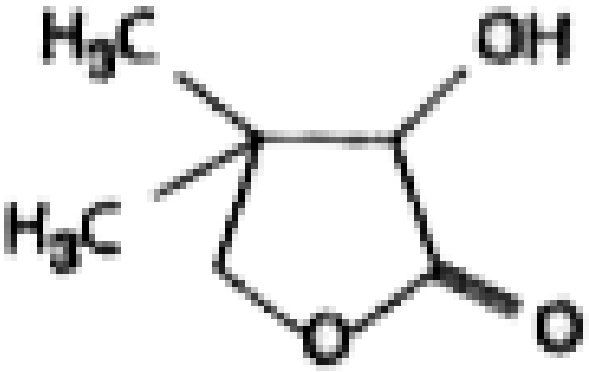
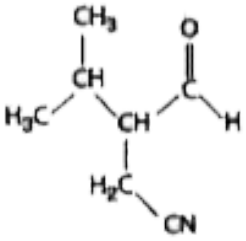
9. Two aliphatic aldehydes Pand Q react in the presence of K_2CO_3 to give compound R, which upon treatment with HCN provides compound S. On acidification and heating, S gives the products shown below.

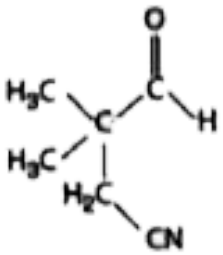


The compound S is

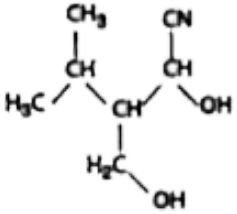
A.

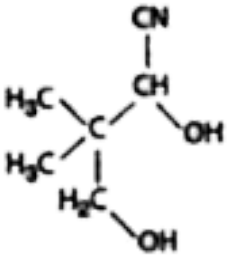


B.



C.



D. 

Answer: D

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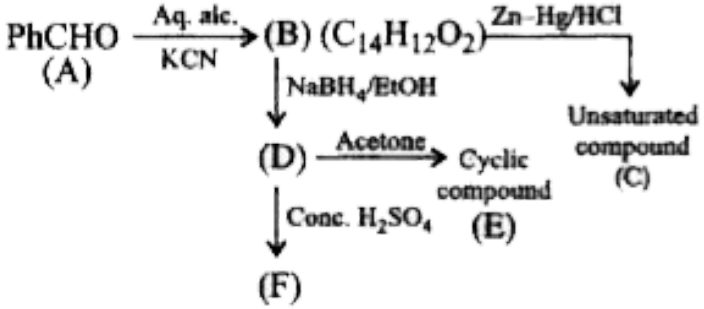

10.

The conversion of (A) to (B) is called:

A. Pinacol-Pinacolone rearrangement reaction

B. Benzoin condensation

C. Claisen Schmidt reaction

D. Cannizzaro reaction

Answer: B

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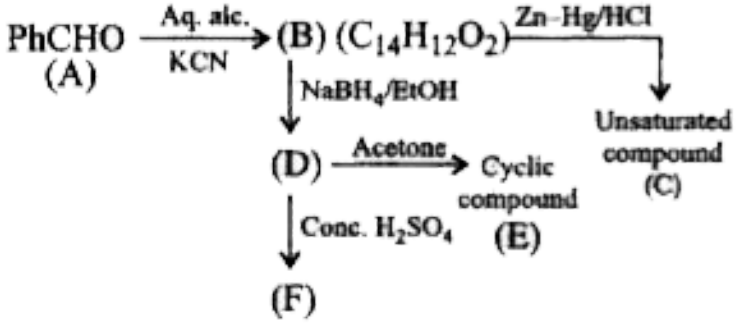
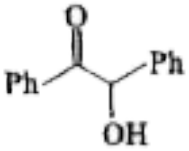
11.

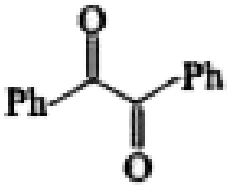


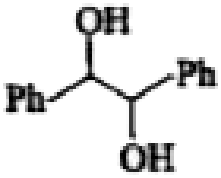
Compound (B) is:

A.



B.





C.

D. None

Answer: A

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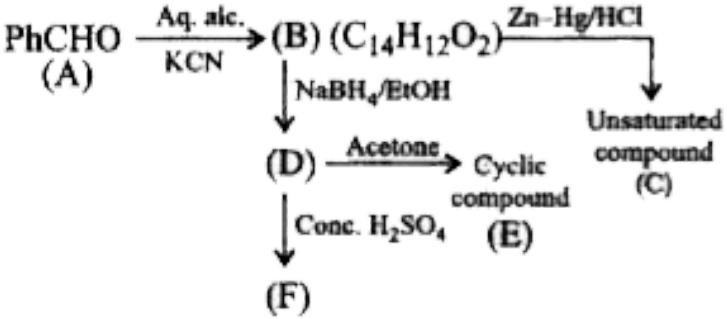

12.

Compound (F) is:

A.

B. 

C. Both (A) and (B)

D. None

Answer: A

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