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CHEMISTRY · JEE MAIN

Aldehydes, Ketones & Carboxylic Acids

Previous Year Questions with answers

265 questions · **158** papers · **2002–2026** · newest paper first

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What is in this PDF: every Aldehydes, Ketones & Carboxylic Acids question we hold from past JEE Main and AIEEE papers, with its options and answer. Where an answer comes from a source other than the official final key, it says so next to the answer.

Step-by-step solutions for every question are free in the EdLoop JEE app (Google Play) and on app.edloop.in. More chapters: pyq.edloop.in/free-pdfs/

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Chapter at a glance

4.7%
of Chemistry questions, 2019–2026

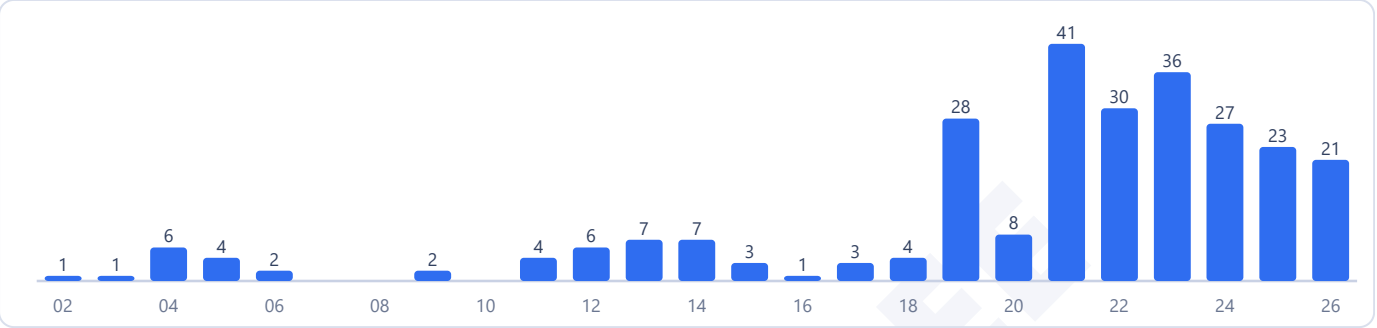
265
questions, 2002–2026

129 of 162
papers asked it, 2019–2026

245 / 20
MCQ / numerical, 2002–2026

Trend. Steady: 1.2 questions per paper in 2024–2026 against 1.4 in 2019–2023.

Questions per year



Counts are the questions we hold: 265 in 158 papers. No question in this chapter was found repeated across papers.

Most-asked topics in this chapter (2002–2026)

Nucleophilic Addition Reactions	78
Alpha-Hydrogen & Named Reactions	70
Carboxylic Acids	40
Acid Derivatives	30
Preparation of Aldehydes & Ketones	29

How often it comes up

Aldehydes, ketones and carboxylic acids forms the core carbonyl unit under Unit 17: Organic Compounds Containing Oxygen in the Class 12 curriculum, holding rank 5 of 31 chapters with a 4.7% share of the chemistry section. In the 2019 to 2026 test timeframe, Aldehydes, Ketones & Carboxylic Acids produced 214 questions across 162 exam papers, making up 4.7% of the chemistry section and holding rank 5 of 31 chapters. During the 2002 to 2018 period, it accounted for 51 questions across 38 papers with a 3.8% share. Over the recent 2024 to 2026 window, the chapter yielded 71 questions across 58 papers, capturing a 4.6% share. Comparing 2002 to 2018 against 2024 to 2026, the trend is up, whereas comparing 2019 to 2026 against 2024 to 2026, its testing share has remained about the same.

The chapter has appeared every year from 2019 to 2026. Students faced an average of 1.3 questions per paper across 2019 to 2026, and 1.2 questions per paper in the 2024 to 2026 cycle. Twenty numerical answer questions were set between 2019 and 2026.

Most-asked topics

The syllabus organizes across six key topics:

- Nucleophilic Addition Reactions: The leading topic with 78 total questions (64 in 2019 to 2026), examined continuously through 2026. Evaluates nucleophilic addition of HCN, sodium bisulfite, Grignard reagents, alcohols forming hemiacetals and acetals, and ammonia derivatives (hydroxylamine, hydrazine, semicarbazide, and 2,4-dinitrophenylhydrazine).
- Alpha-Hydrogen & Named Reactions: Produced 70 total questions (57 in 2019 to 2026), tested through 2026. Centers on aldol and cross-aldol condensations with enolate intermediates, Cannizzaro disproportionation of non-enolizable aldehydes in concentrated alkali, and the haloform reaction on methyl ketones.

- Carboxylic Acids: Contributed 40 total questions (26 in 2019 to 2026), evaluated through 2026. Focuses on acid strengths, resonance stabilization of carboxylate anions, Hell-Volhard-Zelinsky (HVZ) alpha-bromination, and soda lime decarboxylation.
- Acid Derivatives: Yielded 30 total questions (26 in 2019 to 2026), active through 2026. Evaluates nucleophilic acyl substitution on acid chlorides, anhydrides, esters, and amides, alongside Hofmann bromamide degradation.
- Preparation of Aldehydes & Ketones: Accounted for 29 total questions (26 in 2019 to 2026), tested through 2026. Covers Rosenmund reduction of acyl chlorides, Stephen reduction of nitriles, Etard reaction using chromyl chloride, and Gattermann-Koch formylation.
- Oxidation & Distinguishing Tests: Contributed 18 total questions (15 in 2019 to 2026), active through 2026. Evaluates silver mirror Tollens test, red cuprous oxide precipitation with Fehling solution, and Schiff's reagent tests.

What the questions look like

Examiners emphasize multi-step roadmap puzzles. A typical problem presents an unknown organic formula, states that it forms a 2,4-DNP derivative and gives a positive haloform test, but gives a negative Tollens reaction, pinpointing a methyl ketone.

In named reactions, questions frequently test cross-aldol condensation between two different carbonyls, asking students to determine the maximum count of possible aldol products or identify the major product formed when one partner lacks alpha-hydrogens (such as benzaldehyde reacting with acetophenone).

How to practise it

Because this unit ranks fifth in chemistry weight, organize revision around reaction mechanisms:

1. Master addition-elimination mechanisms: Understand how ammonia derivatives (NH_2–G) condense with carbonyls to form imines, oximes, hydrazones, and semicarbazones under weakly acidic conditions. 2. Differentiate Aldol from Cannizzaro: Aldehydes and ketones with alpha-hydrogens undergo aldol condensation; aldehydes lacking alpha-hydrogens (like benzaldehyde and formaldehyde) undergo Cannizzaro disproportionation in concentrated alkali. 3. Understand haloform requirements: Compounds containing a CH_3–C=O group or a CH_3–CH(OH) group oxidize with halogen and alkali to yield yellow iodoform (CHI_3) precipitate. 4. Compare reducing agents: Clemmensen reduction uses zinc amalgam and concentrated hydrochloric acid (avoid with acid-sensitive groups); Wolff-Kishner reduction uses hydrazine and potassium hydroxide in ethylene glycol (avoid with base-sensitive groups). 5. Review Hell-Volhard-Zelinsky bromination: Red phosphorus and bromine selectively substitute the alpha-hydrogen of aliphatic carboxylic acids.

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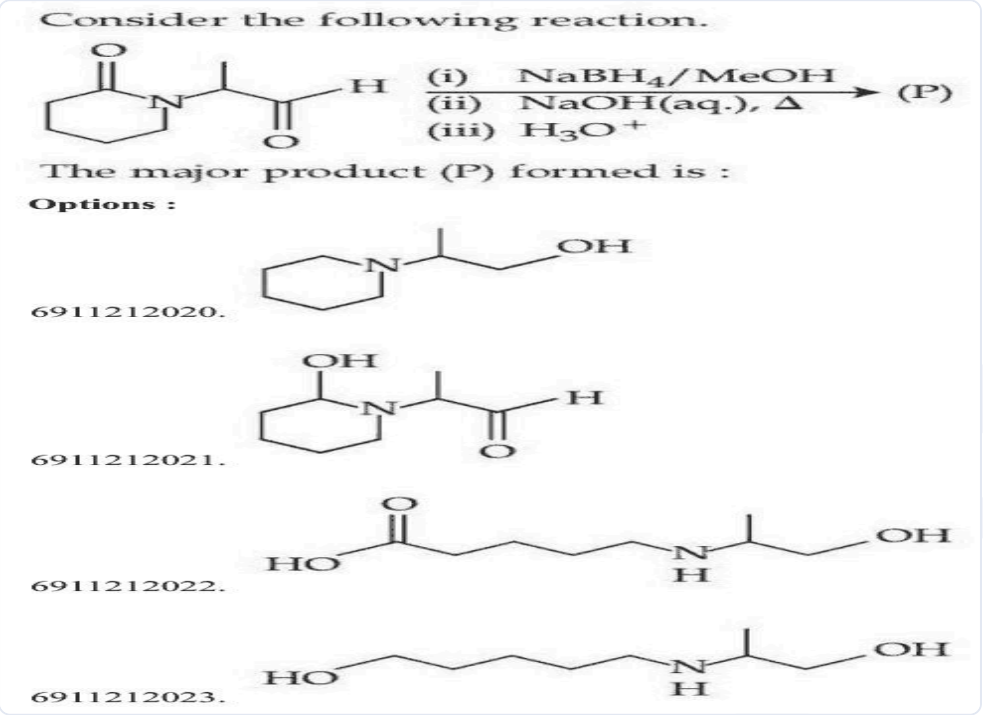
Q1 JEE Main 2026 · 8 Apr · Shift 2 MCQ

Consider the following reaction.

(see the figure above)

The major product (P) formed is :



(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (C) · Official NTA final key

Q2 JEE Main 2026 · 8 Apr · Shift 2 Numerical

'x' is the product which is obtained from benzene by reacting it with carbon monoxide and hydrogen chloride in the presence of cuprous chloride. 'y' is the major product obtained from the benzene by reacting it with ethanoyl chloride in the presence of anhydrous $AlCl_3$. Product (major) obtained by heating x and y in the presence of alkali is z. Total number of π (pi) electrons in z is _____.

Numerical value type: the answer is a number.

Answer: 16. · Official NTA final key

Q3 JEE Main 2026 · 6 Apr · Shift 2 MCQ

'x' is the product which is obtained by the hydrolysis of prop-1-yne in the presence of mercuric sulphate under dilute acidic medium at 333 K. 'y' is the product which is obtained by the reaction of ethane nitrile with methyl magnesium bromide in dry ether followed by hydrolysis. IUPAC name of product obtained from 'x' and 'y' in the presence of barium hydroxide followed by heating is :

(A) 2 - Methylpent-4-en-3-one
(B) 4 - Methylpent-3-en-2-one
(C) 4 - Methylpent-1-ene
(D) 2 - Methylpent-3-one

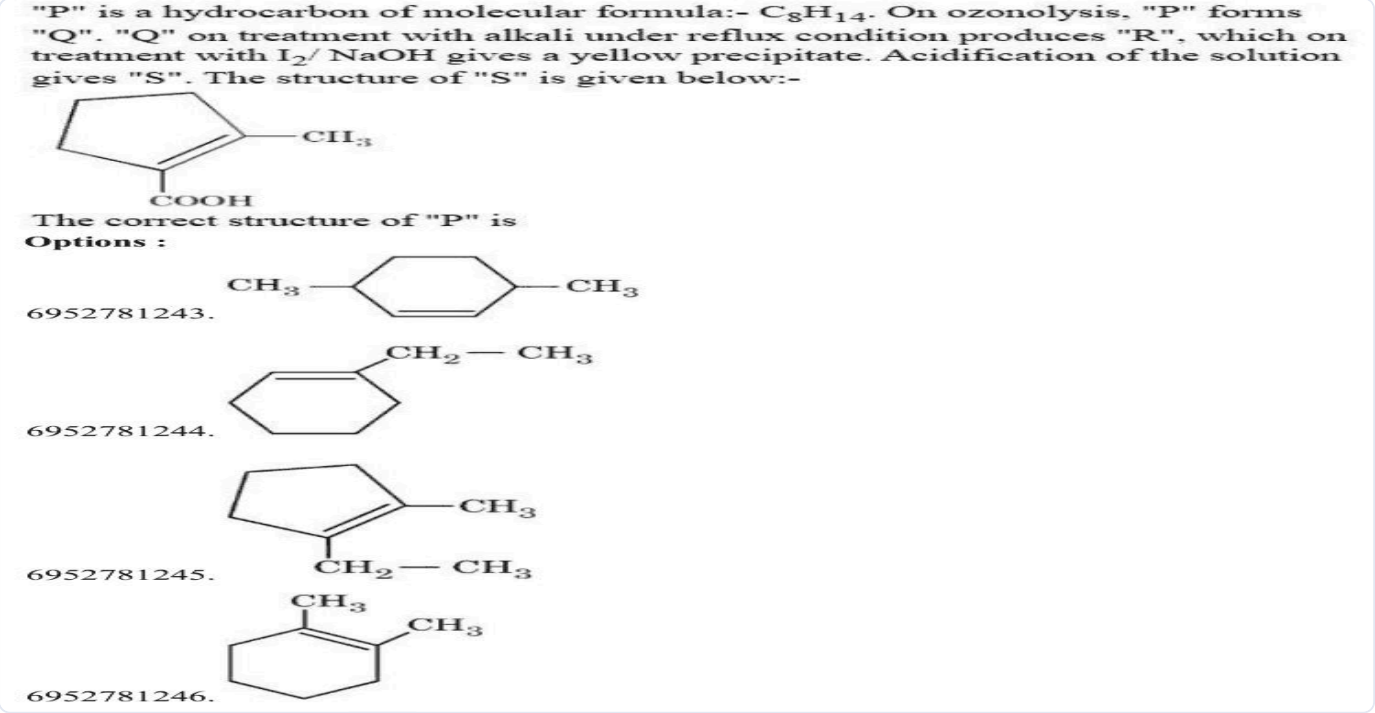
Answer: (B) 4 - Methylpent-3-en-2-one · Official NTA final key

Q4 JEE Main 2026 · 5 Apr · Shift 1 MCQ

"P" is a hydrocarbon of molecular formula:- C_8H_{14}. On ozonolysis, "P" forms "Q". "Q" on treatment with alkali under reflux condition produces "R", which on treatment with I_2/ NaOH gives a yellow precipitate. Acidification of the solution gives "S". The structure of "S" is given below:-

(see the figure above)

The correct structure of "P" is



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

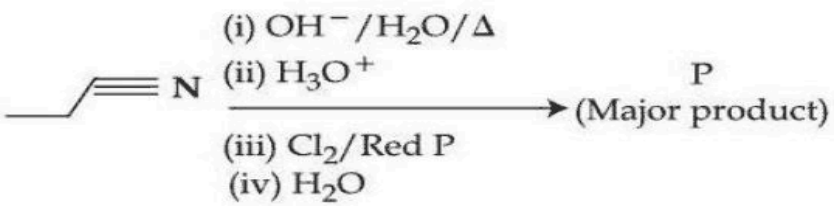
Answer: (D) · Official NTA final key

Q5 JEE Main 2026 · 5 Apr · Shift 2 MCQ

Complete the following reaction sequence and give the name of major product 'P'.

(see the figure above)

Complete the following reaction sequence and give the name of major product 'P'.



Options :

6911211757. 2-Chloropropanoic acid

6911211758. 3-Chloropropanoic acid

6911211759. 1-Chloropropane

6911211760. 2-Chloropropane

(A) 2-Chloropropanoic acid
(B) 3-Chloropropanoic acid
(C) 1-Chloropropane
(D) 2-Chloropropane

Answer: (A) 2-Chloropropanoic acid · Official NTA final key

Q6 JEE Main 2026 · 5 Apr · Shift 2 MCQ

Given below are two statements :

Statement I : The condensation reaction between $CH_3-CH=O$ and $H_2N-N-C-NH_2$ (the N bearing an H below it and the C bearing an =O below it) under optimum pH will produce $CH_3-CH=N-C-N-NH_2$ (the C bearing an =O below it and the second N bearing an H above it).

Statement II : The molecule, $Ph-CH$ with an $O-H$ and an $O-CH_3$ attached to the CH, will generate $Ph-CH=O$ in the presence of dilute acid.

In the light of the above statements, choose the **correct** answer from the options given below :

(see the figure above)

Given below are two statements :

Statement I : The condensation reaction between $CH_3-CH=O$ and $H_2N-\underset{\underset{H}{|}}{N}-\overset{\overset{O}{||}}{C}-NH_2$ under optimum pH will produce $CH_3-CH=N-\overset{\overset{O}{||}}{C}-\overset{H}{\underset{|}{N}}-NH_2$

Statement II : The molecule, $Ph-CH\begin{matrix}O-H\\O-CH_3\end{matrix}$ will generate $Ph-CH=O$ in the presence of dilute acid.

In the light of the above statements, choose the **correct** answer from the options given below :

Options :

6911211761. Both **Statement I** and **Statement II** are true

6911211762. Both **Statement I** and **Statement II** are false

6911211763. **Statement I** is true but **Statement II** is false

6911211764. **Statement I** is false but **Statement II** is true

(A) Both **Statement I** and **Statement II** are true
(B) Both **Statement I** and **Statement II** are false
(C) **Statement I** is true but **Statement II** is false
(D) **Statement I** is false but **Statement II** is true

Answer: (D) Statement I is false but **Statement II** is true · Official NTA final key

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Q7 JEE Main 2026 · 2 Apr · Shift 2 MCQ

An organic compound "x" where molar ratio of C, O and H are equal, on treatment with 50% KOH under reflux followed by acidification produced "y". The most likely structure of "y" is :
[Molar mass of 'x' is 58 g mol^{-1}]

(A) $CH_2=CH-C(=O)-OH$
(B) $CH_3-CH=CH-CH=O$
(C) $O=C-OH$ with CH_2-OH attached below the carbon (drawn vertically)
(D) $CH_3-C(=O)-OH$

Answer: (C) $O=C-OH$ **with** CH_2-OH **attached below the carbon (drawn vertically)** · Official NTA final key

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Q8 JEE Main 2026 · 2 Apr · Shift 2 MCQ

A molecule (X) with following structure under mild acidic condition is hydrolysed to produce (Y) and (Z). Identify the correct statements about (Y) and (Z).

(see the figure above)

A. Both (Y) and (Z) have same molar mass.

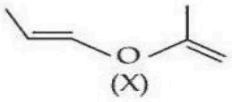
B. (Y) and (Z) can be distinguished from each other by $NaHCO_3$.

C. (Y) and (Z) react with HCN with same rates.

D. (Y) and (Z) undergo addition reaction with 2,4-DNP.

Choose the **correct** answer from the options given below :

A molecule (X) with following structure under mild acidic condition is hydrolysed to produce (Y) and (Z). Identify the correct statements about (Y) and (Z).



(X)

A. Both (Y) and (Z) have same molar mass.
B. (Y) and (Z) can be distinguished from each other by $NaHCO_3$.
C. (Y) and (Z) react with HCN with same rates.
D. (Y) and (Z) undergo addition reaction with 2,4-DNP.

Choose the **correct** answer from the options given below :

Options :

691121745. A, B and C Only

691121746. B and C Only

691121747. C and D Only

691121748. A and D Only

(A) A, B and C Only
(B) B and C Only
(C) C and D Only
(D) A and D Only

Answer: (D) A and D Only · Official NTA final key

Q9 JEE Main 2026 · 28 Jan · Shift 2 MCQ

The correct order of acidic strength of the major products formed in the given reactions, is :

A. $PhNH_2 \xrightarrow[(3)\ H_3O^+/\Delta]{(1)\ NaNO_2+HCl\ (<5^\circ C),\ (2)\ CuCN}$ [A]

B. $CH_3CH_2CHO \xrightarrow[\Delta]{[Ag(NH_3)_2]^+,\ OH^-}$ [B]

C. $CH_4 + O_2 \xrightarrow[(ii)\ Na_2Cr_2O_7/H^+]{(i)\ Mo_2O_3}$ [C]

D. $PhCH_2MgBr + CO_2 \xrightarrow[H_3O^+]{\text{Dry ether}}$ [D]

Choose the **correct** answer from the options given below :

(A) C > A > D > B
(B) C > B > A > D
(C) A > D > C > B
(D) A > D > B > C

Answer: (A) C > A > D > B · Official NTA final key

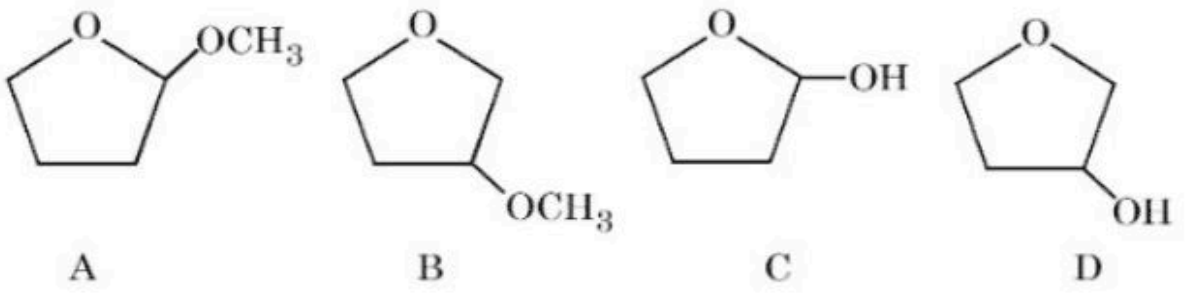
Q10 JEE Main 2026 · 24 Jan · Shift 1 MCQ

A student is given one compound among the following compounds that gives positive test with Tollen's reagent.

(see the figure above)

The compound is :

Q.66 A student is given one compound among the following compounds that gives positive test with Tollen's reagent.



A B C D

The compound is :

Options
1. B
2. A
3. C
4. D

(A) B
(B) A
(C) C
(D) D

Answer: (C) C · Official NTA final key

Q11 JEE Main 2026 · 24 Jan · Shift 2 MCQ

Given below are two statements:

Statement I: Cross aldol condensation between two different aldehydes will always produce four different products.

Statement II: When semicarbazide reacts with a mixture of benzaldehyde and acetophenone under optimum pH, it forms a condensation product with acetophenone only.

In the light of the above statements, choose the *__correct__* answer from the options given below

(A) Statement I is false but Statement II is true
(B) Both Statement I and Statement II are false
(C) Statement I is true but Statement II is false
(D) Both Statement I and Statement II are true

Answer: (B) Both Statement I and Statement II are false · Official NTA final key

Q12 JEE Main 2026 · 24 Jan · Shift 2 MCQ

The unsaturated ether on acidic hydrolysis produces carbonyl compounds as shown below:-

$CH_3 - CH = CH - O - CH = CH_2$

$\downarrow H_3O^{(+)}$

$CH_3 - CH_2 - CH = O$ and $O = CH - CH_3$

Based on this, predict the solution/reagent that will help to distinguish "P" and "Q" obtained in the following reaction:-

$$CH_3 - CH = CH - O - \underset{CH_3}{\overset{|}{C}} = CH_2 \xrightarrow[\Delta]{H_3O^{(+)}} P + Q$$

(A) 2, 4 - DNP reagent
(B) Saturated $NaHSO_3$ solution
(C) Fehling solution
(D) Lucas reagent

Answer: (C) Fehling solution · Official NTA final key

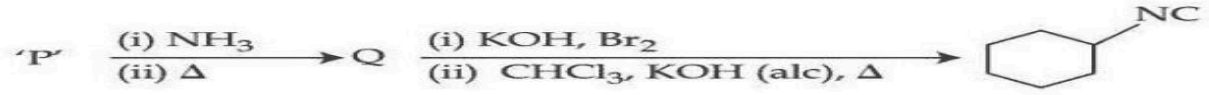
Q13 JEE Main 2026 · 23 Jan · Shift 1 MCQ

Compound 'P' undergoes the following sequence of reactions :

(see the figure above)

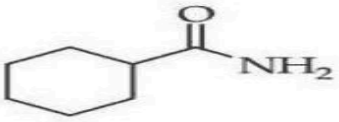
'P' is :

Q.61 Compound 'P' undergoes the following sequence of reactions :



'P' is :

Options

1. 

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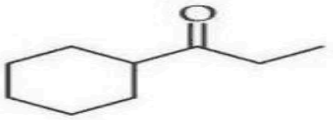
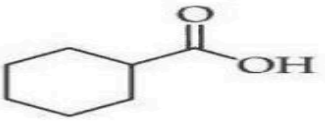
3. 

4. 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Official NTA final key

Q14 JEE Main 2026 · 23 Jan · Shift 1 MCQ

'x' is the product which is obtained from propanenitrile and stannous chloride in the presence of hydrochloric acid followed by hydrolysis. 'y' is the product which is obtained from the but-2-ene by the ozonolysis followed by hydrolysis. From the following, which product is not obtained when one mole of 'x' and one mole of 'y' react with each other in the presence of alkali followed by heating ?

(A) Pent-2-enal
(B) 2-Methylpent-2-enal
(C) 3-Methylbut-2-enal
(D) 2-Methylbut-2-enal

Answer: (C) 3-Methylbut-2-enal · Official NTA final key

Q15 JEE Main 2026 · 23 Jan · Shift 2 MCQ

Which of the following statements are **TRUE** about Haloform reaction?:

A. Sodium hypochlorite reacts with KI to give KOI.

B. KOI is a reducing agent.

C. α, β-unsaturated methylketone $\left(\mathrm{CH_3-CH=CH-\overset{\overset{O}{\|}}{C}-CH_3}\right)$ will give iodoform reaction.

D. Isopropyl alcohol will not give iodoform test.

E. Methanoic acid will give positive iodoform test.

Choose the **correct** answer from the options given below:

(A) A, B & C Only
(B) B, D & E Only
(C) A & C Only
(D) A, C & E Only

Answer: (C) A & C Only · Official NTA final key

Q16 JEE Main 2026 · 22 Jan · Shift 1 MCQ

Match the **LIST-I** with **LIST-II**

List-I Reagents	**List-II Name of Reaction involving carbonyl compounds**
A. NH_2-NH_2, KOH	I. Tollen's Test
B. $Ag(NH_3)_2OH$	II. Clemmensen Reduction
C. Aq. $CuSO_4$, Sodium Potassium tartarate, KOH	III. Wolff - Kishner Reduction
D. Zn - Hg, HCl	IV. Fehling's Test

Choose the **correct** answer from the options given below:

(A) A-IV, B-III, C-II, D-I
(B) A-II, B-I, C-IV, D-III
(C) A-III, B-IV, C-I, D-II
(D) A-III, B-I, C-IV, D-II

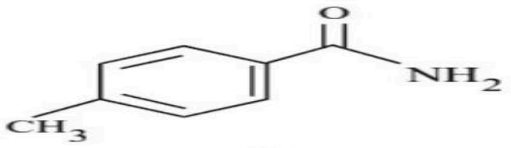
Answer: (D) A-III, B-I, C-IV, D-II · Official NTA final key

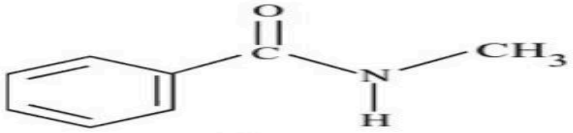
Q17 JEE Main 2026 · 22 Jan · Shift 1 MCQ

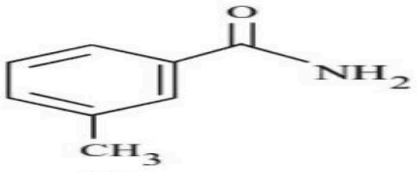
'A' is a neutral organic compound (M. F : C_8H_9ON). On treatment with aqueous $Br_2/HO^{(-)}$, 'A' forms a compound 'B' which is soluble in dilute acid. 'B' on treatment with aqueous $NaNO_2$ / HCl (0-5 °C) produces a compound 'C' which on treatment with CuCN/NaCN produces 'D'. Hydrolysis of 'D' produces 'E' which is also obtainable from the hydrolysis of 'A'. 'E' on treatment with acidified $KMnO_4$ produces 'F'. 'F' contains two different types of hydrogen atoms. The structure of 'A' is

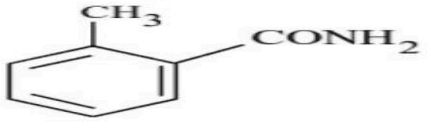
Q.70 'A' is a neutral organic compound (M. F : C_8H_9ON). On treatment with aqueous $Br_2/HO^{(-)}$, 'A' forms a compound 'B' which is soluble in dilute acid. 'B' on treatment with aqueous $NaNO_2$ / HCl (0-5 °C) produces a compound 'C' which on treatment with CuCN/NaCN produces 'D'. Hydrolysis of 'D' produces 'E' which is also obtainable from the hydrolysis of 'A'. 'E' on treatment with acidified $KMnO_4$ produces 'F'. 'F' contains two different types of hydrogen atoms. The structure of 'A' is

Options

1. 

2. 

3. 

4. 

(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (A) · Official NTA final key

Q18 JEE Main 2026 · 22 Jan · Shift 2 MCQ

The compound A, $C_8H_8O_2$ reacts with acetophenone to form a single product via cross-Aldol condensation. The compound A on reaction with conc. NaOH forms a substituted benzyl alcohol as one of the two products. The compound A is :

(A) 4-methyl benzoic acid

(B) 2-hydroxy acetophenone

(C) 4-hydroxy benzylaldehyde

(D) 4-methoxy benzaldehyde

Answer: (D) 4-methoxy benzaldehyde · Official NTA final key

Q19 JEE Main 2026 · 21 Jan · Shift 1 MCQ

An organic compound (P) on treatment with aqueous ammonia under hot condition forms compound (Q) which on heating with Br_2 and KOH forms compound (R) having molecular formula C_6H_7N. Names of P, Q and R respectively are.

(A) Phenylethanoic acid, phenylethanamide, benzamine
(B) Benzoic acid, 4-methylbenzamide, 4-methylaniline
(C) Benzoic acid, benzamide, aniline
(D) Toluic acid, methylbenzamide, 2-methylaniline

Answer: (C) Benzoic acid, benzamide, aniline · Official NTA final key

Q20 JEE Main 2026 · 21 Jan · Shift 1 MCQ

An organic compound "P" of molecular formula $C_6H_{12}O_3$ gives positive Iodoform test but negative Tollen's test. When "P" is treated with dilute acid, it produces "Q". "Q" gives positive Tollen's test and also iodoform test. The structure of "P" is :

Q.69 An organic compound "P" of molecular formula $C_6H_{12}O_3$ gives positive Iodoform test but negative Tollen's test. When "P" is treated with dilute acid, it produces "Q". "Q" gives positive Tollen's test and also iodoform test. The structure of "P" is :

Options

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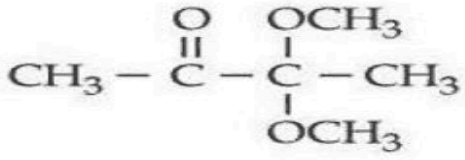
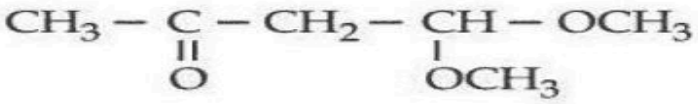
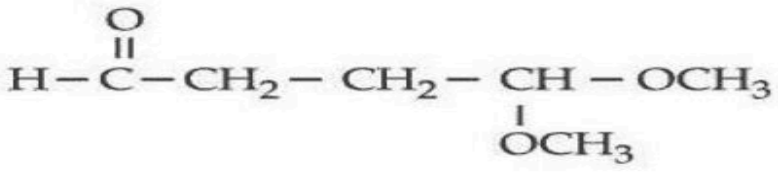
2. 
3. 
4. 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Official NTA final key

Q21 JEE Main 2026 · 21 Jan · Shift 2 MCQ

Match List - I with List - II.

List - I Reagents	List - II Reaction Name (Involving aldehydes)
A. H_2, Pd-$BaSO_4$	I. Etard Reaction
B. $SnCl_2$, HCl	II. Rosenmund Reduction
C. CrO_2Cl_2, CS_2	III. Gatterman - Koch Reaction
D. CO, HCl, Anhyd. $AlCl_3$	IV. Stephen Reaction

Choose the **correct** answer from the options given below :

(A) A-II, B-III, C-IV, D-I

(B) A-II, B-IV, C-I, D-III

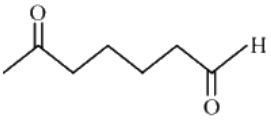
(C) A-IV, B-I, C-II, D-III

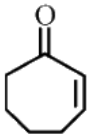
(D) A-IV, B-III, C-I, D-II

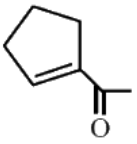
Answer: (B) A-II, B-IV, C-I, D-III · Official NTA final key

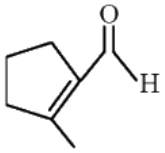
Q22 JEE Main 2025 · 8 Apr · Shift 2 MCQ

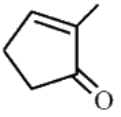
When *(see the figure above)* undergoes intramolecular aldol condensation, the major product formed is

1. When  undergoes intramolecular aldol condensation, the major product formed is

(1) 

(2) 

(3) 

(4) 

(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (B) · Key from source paper

Q23 JEE Main 2025 · 8 Apr · Shift 2 MCQ

$$A \xrightarrow[\text{(ii) } H_3O^+]{\text{(i) NaOH}} B \xrightarrow[\text{(ii) } H_2SO_4,\Delta]{\text{(i) EtOH}} C$$

'A' shows positive Lassaign's test for N and its molar mass is 121 .

'B' gives effervescence with aq $NaHCO_3$.

'C' gives fruity smell.

Identify A, B and C from the following.

14. $A \xrightarrow[(ii)H_3O^+]{(i)NaOH} B \xrightarrow[(ii)H_2SO_4,\Delta]{(i)EtOH} C$

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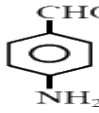
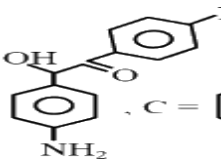
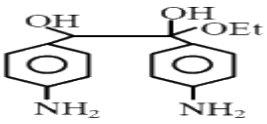
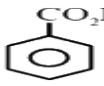
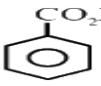
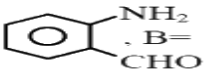
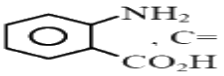
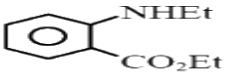
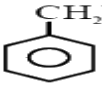
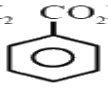
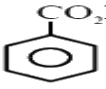
Identify A, B and C from the following.

(1) A=  , B=  , C = 

(2) A=  , B=  , C= 

(3) A=  , B=  , C= 

(4) A=  , B=  , C= 

(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (B) · Key from source paper

Q24 JEE Main 2025 · 7 Apr · Shift 2 MCQ

"P" is an optically active compound with molecular formula $C_6H_{12}O$. When 'P' is treated with 2, 4-dinitrophenylhydrazine, it gives a positive test. However, in presence of Tollens reagent, "P" gives a negative test. Predict the structure of "P".

(A) $CH_3 - C(=O) - CH_2 - CH_2 - CH_3$ (the double-bonded O hangs above the carbonyl C)

(B) $CH_3 - C(=O) - CH(CH_3) - CH_2 - CH_3$ (the double-bonded O is above the carbonyl C; the $CH_2 - CH_3$ group hangs below the CH)

(C) $H - C(=O) - CH_2 - CH(CH_3) - CH_2 - CH_3$ (the double-bonded O is above the carbonyl C; the $CH_2 - CH_3$ group hangs below the CH)

(D) $CH_3 - C(=O) - CH_2 - CH(CH_3) - CH_3$ (the double-bonded O is above the carbonyl C; a CH_3 hangs below the CH)

Answer: (B) $CH_3 - C(=O) - CH(CH_3) - CH_2 - CH_3$ (the double-bonded O is above the carbonyl C; the $CH_2 - CH_3$ group hangs below the CH) · Key from source paper

Q25 JEE Main 2025 · 4 Apr · Shift 1 MCQ

An organic compound (X) with molecular formula C_3H_6O is not readily oxidised. On reduction it gives $C_3H_8O(Y)$ which reacts with HBr to give a bromide (Z) which is converted to Grignard reagent. This

Grignard reagent on reaction with (X) followed by hydrolysis give 2,3-dimethylbutan-2-ol.
Compounds (X), (Y) and (Z) respectively are :

(A) $CH_3CH_2CHO, CH_3CH_2CH_2OH, CH_3CH_2CH_2Br$
(B) $CH_3CH_2CHO, CH_3CH=CH_2, CH_3CH(Br)CH_3$
(C) $CH_3COCH_3, CH_3CH_2CH_2OH, CH_3CH(Br)CH_3$
(D) $CH_3COCH_3, CH_3CH(OH)CH_3, CH_3CH(Br)CH_3$

Answer: (D) $CH_3COCH_3, CH_3CH(OH)CH_3, CH_3CH(Br)CH_3$ · Key from source paper

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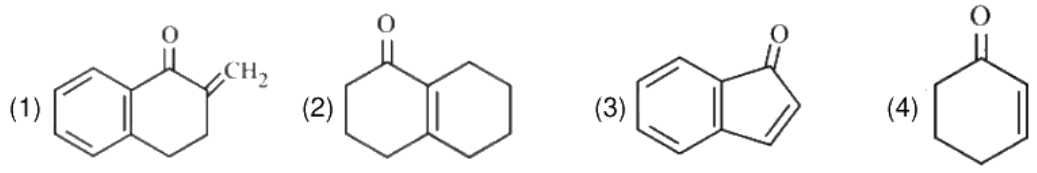
Q26 JEE Main 2025 · 4 Apr · Shift 1 MCQ

Aldol condensation is a popular and classical method to prepare α, β -unsaturated carbonyl compounds. This reaction can be both intermolecular and intramolecular. Predict which one of the following is not a product of intramolecular aldol condensation?

(see the figure above)

12. Aldol condensation is a popular and classical method to prepare α, β-unsaturated carbonyl compounds. This reaction can be both intermolecular and intramolecular. Predict which one of the following is not a product of intramolecular aldol condensation?



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q27 JEE Main 2025 · 4 Apr · Shift 2 MCQ

Which among the following compounds give yellow solid when reacted with NaOI / NaOH ?

(A) $CH_3-CH(OH)-C_2H_5$ (B) $CH_3-CH_2-CH_2-OH$ (C) $CH_3-C(=O)-C_2H_5$ (D) $CH_3-C(=O)-OH$ (E) $CH_3-CH_2-CH=O$

Choose the correct answer from the options given below :

(A) (A) and (C) Only
(B) (A), (C) and (D) Only
(C) (B), (C) and (E) Only
(D) (C) and (D) Only

Answer: (A) (A) and (C) Only · Key from source paper

Q28 JEE Main 2025 · 3 Apr · Shift 1 MCQ

Number of molecules from below which cannot give iodoform reaction is:

Ethanol, Isopropyl alcohol, Bromoacetone, 2-Butanol, 2-Butanone, Butanal, 2-Pentanone, 3-Pentanone, Pentanal and 3-Pentanol.

(A) 3
(B) 2
(C) 5
(D) 4

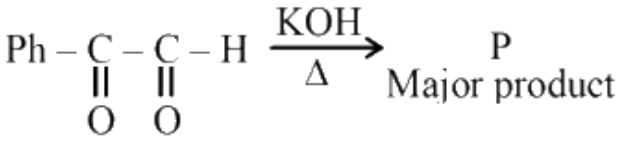
Answer: (D) 4 · Key from source paper

Q29 JEE Main 2025 · 3 Apr · Shift 2 MCQ

The major product (P) in the following reaction is :

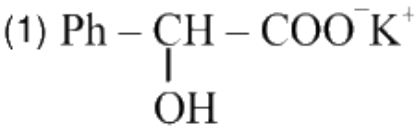
(see the figure above)

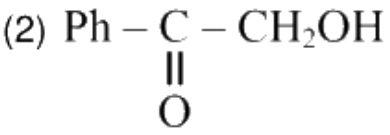
19. The major product (P) in the following reaction is :

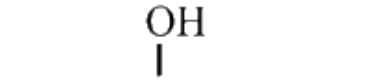


$$Ph-\underset{\underset{O}{\|}}{C}-\underset{\underset{O}{\|}}{C}-H \xrightarrow[\Delta]{KOH} \underset{\text{Major product}}{P}$$

(1) $Ph-\underset{\underset{OH}{|}}{CH}-COO^{-}K^{+}$



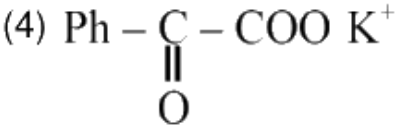




(2) $Ph-\underset{\underset{O}{\|}}{C}-CH_2OH$

(3) $Ph-\overset{\overset{OH}{|}}{CH}-CH_2OH$

(4) $Ph-\underset{\underset{O}{\|}}{C}-COO\ K^{+}$



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q30 JEE Main 2025 · 2 Apr · Shift 1 MCQ

Given below are two statements :

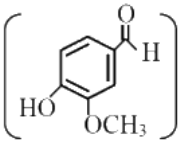
Statement (I) : Vanillin *(see the figure above)* will react with NaOH and also with Tollen's

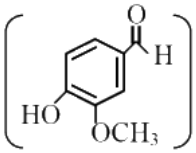
Statement (II) : Vanillin *(see the figure above)* will undergo self aldol condensation very easily.

In the light of the above statements, choose the most appropriate answer from the options given below :

CHEMISTRY **02-04-2025 (MORNING SESSION)**

4. Given below are two statements :

Statement (I) : Vanillin  will react with NaOH and also with Tollen's

Statement (II) : Vanillin  will undergo self aldol condensation very easily.

In the light of the above statements, choose the most appropriate answer from the options given below :

(1) Both Statement I and Statement II are incorrect

(2) Statement I is incorrect but Statement II is correct

(3) Both Statement I and Statement II are correct

(4) Statement I is correct but Statement II is incorrect

(A) Both Statement I and Statement II are incorrect

(B) Statement I is incorrect but Statement II is correct

(C) Both Statement I and Statement II are correct

(D) Statement I is correct but Statement II is incorrect

Answer: (D) Statement I is correct but Statement II is incorrect · Key from source paper

Q31 JEE Main 2025 · 2 Apr · Shift 1 MCQ

Consider the following molecules :

(p) $CH_3-CH_2-C(=O)-Cl$ (q) $CH_3-CH_2-C(=O)-O-C(=O)-CH_3$ (r) $CH_3-CH_2-C(=O)-O-CH_2-CH_3$ (s) $CH_3-CH_2-C(=O)-NH_2$

The correct order of rate of hydrolysis is :

(A) $r>q>p>s$

(B) $p>r>q>s$

(C) $p>q>r>s$

(D) $q>p>r>s$

Answer: (C) $p>q>r>s$ · Key from source paper

Q32 JEE Main 2025 · 2 Apr · Shift 2 MCQ

Consider the following reactions. From these reactions which reaction will give carboxylic acid as a major product?

(see the figure above)

Choose the correct answer from the options given below :

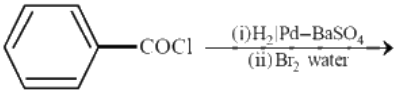
19. Consider the following reactions. From these reactions which reaction will give carboxylic acid as a major product?

(A) $R-C\equiv N \xrightarrow[\text{mild condition}]{\text{(i) } \overset{+}{H}/H_2O} \rightarrow$

(B) $R-MgX \xrightarrow[\text{(ii) } H_3O^+]{\text{(i) } CO_2} \rightarrow$

(C) $R-C\equiv N \xrightarrow[\text{(ii) } H_3O^+]{\text{(i) } 5nCl_2/HCl} \rightarrow$

(D) $R\cdot CH_2\cdot OH \xrightarrow{PCC} \rightarrow$

(E) 

Choose the correct answer from the options given below :

(1) A and D only (2) B and E only (3) A, B and E only (4) B, C and E only

(A) A and D only
(B) B and E only
(C) A, B and E only
(D) B, C and E only

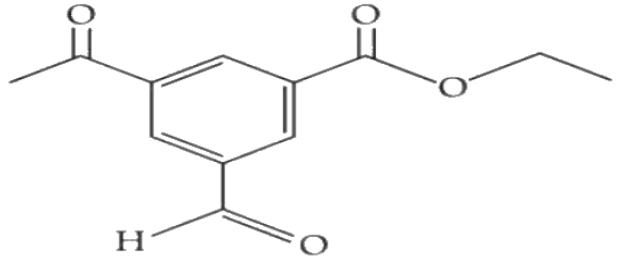
Answer: (B) B and E only · Key from source paper

Q33 JEE Main 2025 · 29 Jan · Shift 1 MCQ

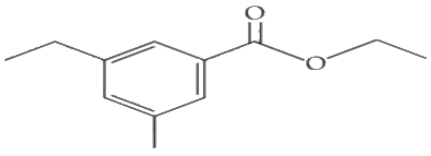
The product (P) formed in the following reaction is :

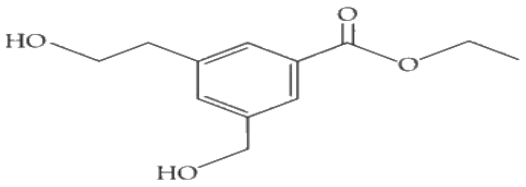
(see the figure above)

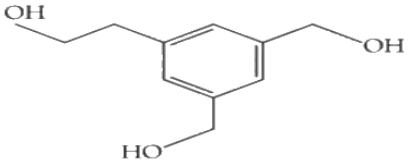
Q61. The product (P) formed in the following reaction is :

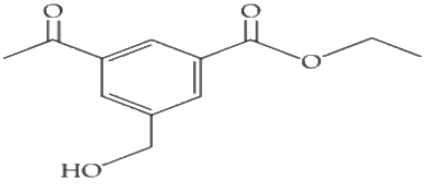


$\xrightarrow[HCl]{Zn-Hg}$ Product (P)

(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

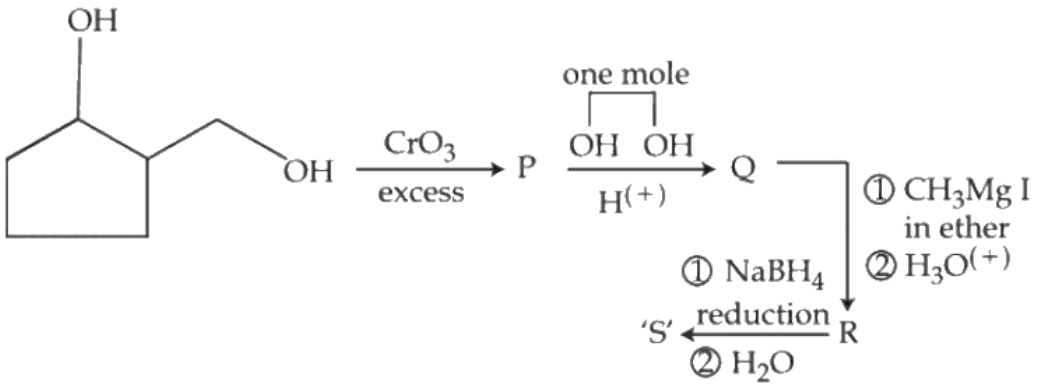
Answer: (A) · Key from source paper

Q34 JEE Main 2025 · 29 Jan · Shift 1 Numerical

0.1 mole of compound ' S ' will weigh _____ g. (Given molar mass in $gmol^{-1}$ C : 12, H : 1, O : 16)

(see the figure above)

Q74.



0.1 mole of compound ' S ' will weigh _____ g. (Given molar mass in $gmol^{-1}$ C : 12, H : 1, O : 16)

Numerical value type: the answer is a number.

Answer: 13. · Key from source paper

Q35 JEE Main 2025 · 28 Jan · Shift 1 MCQ

Both acetaldehyde and acetone (individually) undergo which of the following reactions? A. Iodoform Reaction B. Cannizaro Reaction C. Aldol Condensation D. Tollen's Test E. Clemmensen Reduction Choose the correct answer from the options given below:

(A) A, B and D Only
(B) C and E Only
(C) A, C and E Only
(D) B, C and D Only

Answer: (C) A, C and E Only · Key from source paper

Q36 JEE Main 2025 · 28 Jan · Shift 1 Numerical

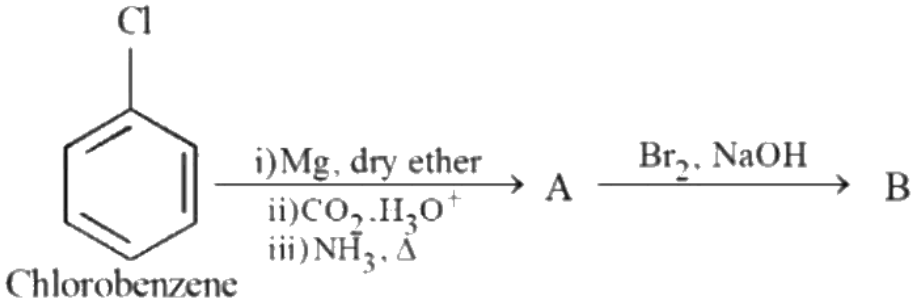
Consider the following sequence of reactions:

(see the figure above)

11.25 mg of chlorobenzene will produce _____ $\times 10^{-1}$mg of product B . (Consider the reactions result in complete conversion.) [Given molar mass of C, H, O, N and Cl as 12, 1, 16, 14 and 35.5 g mol^{-1}

respectively]

Q73. Consider the following sequence of reactions:



11.25 mg of chlorobenzene will produce _____ $\times 10^{-1}$ mg of product B . (Consider the reactions result in complete conversion.) [Given molar mass of C, H, O, N and Cl as 12, 1, 16, 14 and 35.5 g mol^{-1} respectively]

Numerical value type: the answer is a number.

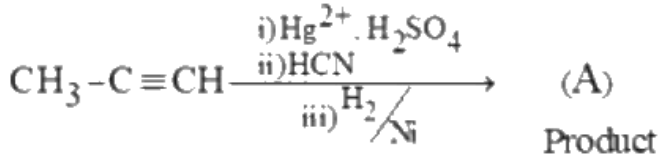
Answer: 93. · Key from source paper

Q37 JEE Main 2025 · 24 Jan · Shift 1 MCQ

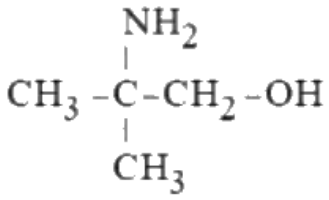
The product (A) formed in the following reaction sequence is

(see the figure above)

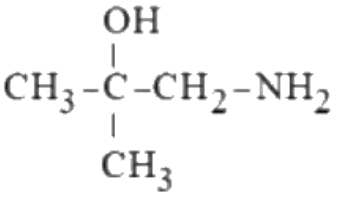
Q53. The product (A) formed in the following reaction sequence is



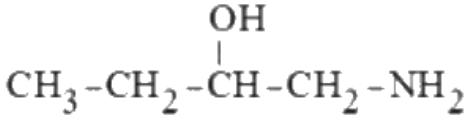
(1)



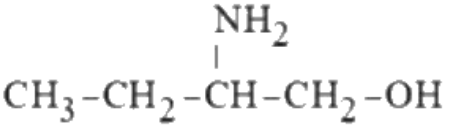
(2)



(3)



(4)



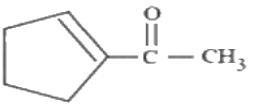
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

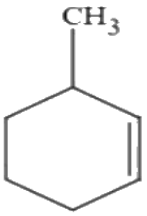
Answer: (B) · Key from source paper

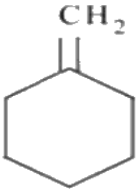
Q38 JEE Main 2025 · 24 Jan · Shift 1 MCQ

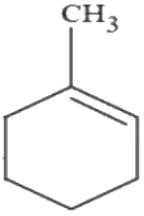
see figure

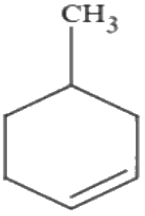
Q54.

Aman has been asked to synthesise the molecule 
(x).He thought of preparing the molecule using an aldol condensation reaction. He found a few cyclic alkenes in his laboratory. He thought of performing ozonolysis reaction on alkene to produce a dicarbonyl compound followed by aldol reaction to prepare " x ". Predict the suitable alkene that can lead to the formation of " x ".

(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

Q39 JEE Main 2025 · 24 Jan · Shift 1 MCQ

Which of the following arrangements with respect to their reactivity in nucleophilic addition reaction is correct?

(A) acetophenone < benzaldehyde < p-tolualdehyde < p- nitrobenzaldehyde
(B) benzaldehyde < acetophenone < p-nitrobenzaldehyde < p-tolualdehyde
(C) p- nitrobenzaldehyde < benzaldehyde < p-tolualdehyde < acetophenone
(D) acetophenone < p-tolualdehyde < benzaldehyde < p- nitrobenzaldehyde

Answer: (D) acetophenone < p-tolualdehyde < benzaldehyde < p- nitrobenzaldehyde · Key from source paper

Q40 JEE Main 2025 · 24 Jan · Shift 2 MCQ

Match List - I with List - II.

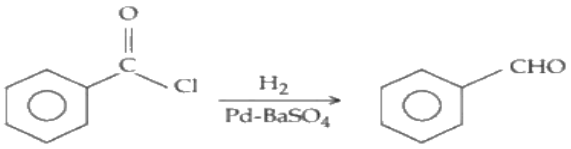
(see the figure above)

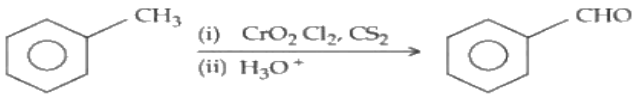
Choose the correct answer from the options given below :

Q64. Match List - I with List - II.

List - I

(A) $RCN \xrightarrow[(ii)\ H_3O^+]{(i)\ SnCl_2,\ HCl} R\,CHO$

(B) 

(C) 

(D) 

List - II

(I) Etard reaction

(II) Gatterman-Koch reaction

(III) Rosenmund reduction

(IV) Stephen reaction

Choose the correct answer from the options given below :

(1) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)

(2) (A)-(I), (B)-(III), (C)-(II), (D)-(IV)

(3) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

(4) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)

(A) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)

(B) (A)-(I), (B)-(III), (C)-(II), (D)-(IV)

(C) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

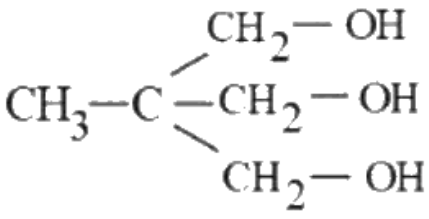
(D) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)

Answer: (D) (A)-(IV), (B)-(III), (C)-(I), (D)-(II) · Key from source paper

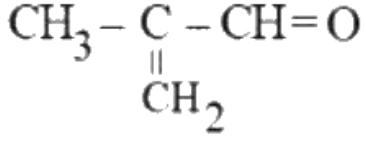
Q41 JEE Main 2025 · 23 Jan · Shift 1 MCQ

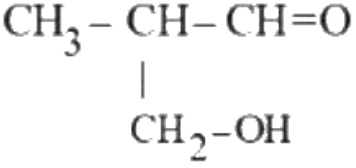
The major product of the following reaction is: $CH_3CH_2CH=O \xrightarrow[\text{reflux}]{\text{excess HCHO alkali}}$?

Q63. The major product of the following reaction is: $CH_3CH_2CH=O \xrightarrow[\text{reflux}]{\text{excess HCHO alkali}}$?

(1) 

(2) $CH_3-CH_2-CH_2-OH$

(3) 

(4) 

(A) *see figure*

(B) $CH_3 - CH_2 - CH_2 - OH$

(C) *see figure*

(D) *see figure*

Answer: (A) · Key from source paper

Q42 JEE Main 2025 · 23 Jan · Shift 2 MCQ

Given below are two statements : Consider the following reaction

(see the figure above)

Statement (I) : In the case of formaldehyde

(see the figure above)

, K is about 2280, due to small substituents, hydration is faster.

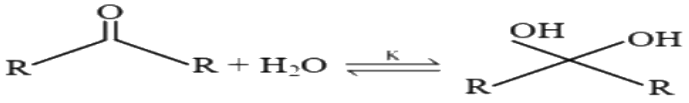
Statement (II) : In the case of trichloro acetaldehyde

(see the figure above)

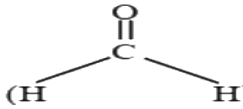
, K is about 2000 due to $-$ I effect of $-$ Cl.

In the light of the above statements, choose the correct answer from the options given below:

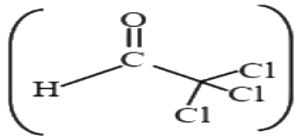
Q56. Given below are two statements : Consider the following reaction



Statement (I) : In the case of formaldehyde



(H H), K is about 2280, due to small substituents, hydration is faster.

Statement (II) : In the case of trichloro acetaldehyde  , K is about 2000 due to $-$ I effect of $-$ Cl.

In the light of the above statements, choose the **correct** answer from the options given below:

(1) Both Statement I and Statement II are false
(2) Statement I is true but Statement II is false
(3) Statement I is false but Statement II is true
(4) Both Statement I and Statement II are true

(A) Both Statement I and Statement II are false

(B) Statement I is true but Statement II is false

(C) Statement I is false but Statement II is true

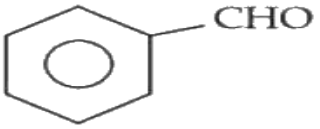
(D) Both Statement I and Statement II are true

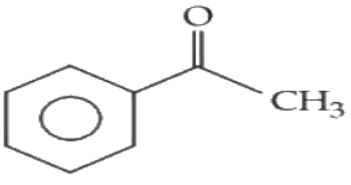
Answer: (D) Both Statement I and Statement II are true · Key from source paper

Q43 JEE Main 2025 · 22 Jan · Shift 1 MCQ

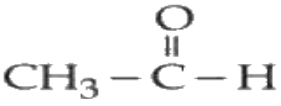
The compounds which give positive Fehling's test are : (A) *(see the figure above)* (B) *(see the figure above)* (C) $HOCH_2 - CO - (CHOH)_3 - CH_2 - OH$ (D) *(see the figure above)* (E) *(see the figure above)*
Choose the correct answer from the options given below :

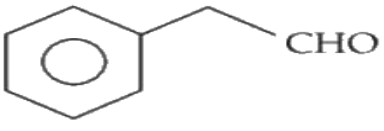
Q57.

The compounds which give positive Fehling's test are : (A) 



(B)

(C)$HOCH_2 - CO - (CHOH)_3 - CH_2 - OH$ (D) 



(E)

Choose the correct answer from the options given below :

(1) (A), (D) and (E) Only
(2) (C), (D) and (E) Only
(3) (A), (C) and (D) Only
(4) (A), (B) and (C) Only

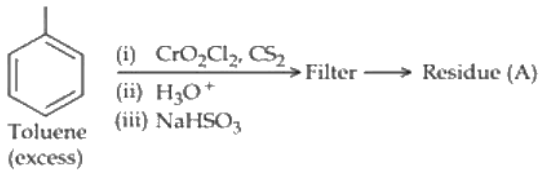
A (A), (D) and (E) Only
B (C), (D) and (E) Only
C (A), (C) and (D) Only
D (A), (B) and (C) Only

Answer: (B) (C), (D) and (E) Only · Key from source paper

Q44 JEE Main 2025 · 22 Jan · Shift 2 MCQ

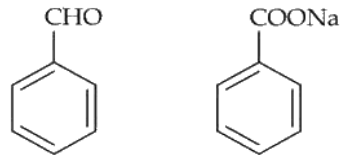
see figure

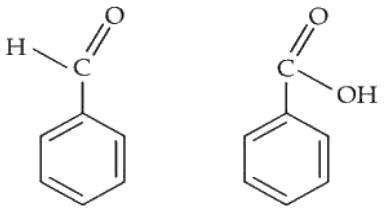
Q64.

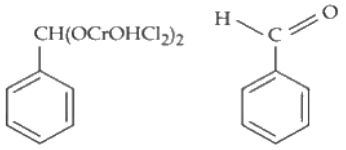


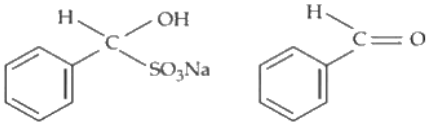
Residue (A) + HCl (dil) → Compound (B) Structure of residue (A) and compound (B) formed respectively is :

[A] [B]

(1) 

(2) 

(3) 

(4) 

(A) *see figure*

(B) *see figure*

(C) *see figure*

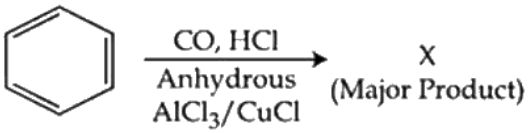
(D) *see figure*

Answer: (D) · Key from source paper

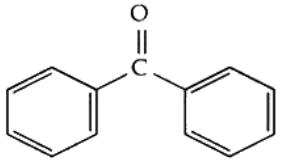
Q45 JEE Main 2024 · 9 Apr · Shift 1 MCQ

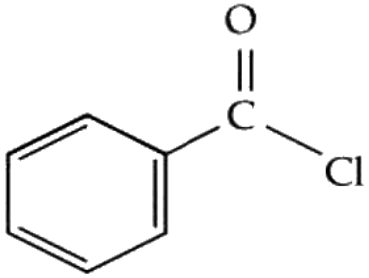
see figure

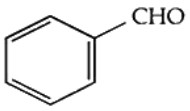
Q49.

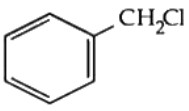


Identify major product " X " formed in the following reaction :

(1) 

(2) 

(3) 

(4) 

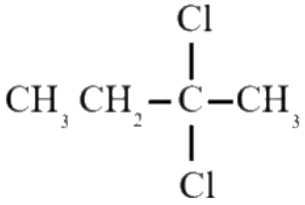
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

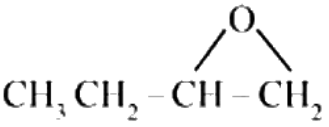
Answer: (C) · Key from source paper

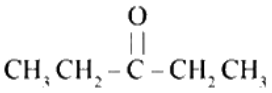
Q46 JEE Main 2024 · 9 Apr · Shift 2 MCQ

Which of the following compound can give positive iodoform test when treated with aqueous KOH solution followed by potassium hypoiodite.

Q47. Which of the following compound can give positive iodoform test when treated with aqueous KOH solution followed by potassium hypoiodite.

(1) 

(2) 

(3) 

(4) $CH_3CH_2CH_2CHO$

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) $CH_3CH_2CH_2CHO$

Answer: (A) · Key from source paper

Q47 JEE Main 2024 · 9 Apr · Shift 2 MCQ

Which of the following compounds will give silver mirror with ammoniacal silver nitrate? A. Formic acid B. Formaldehyde C. Benzaldehyde D. Acetone Choose the correct answer from the options given below :

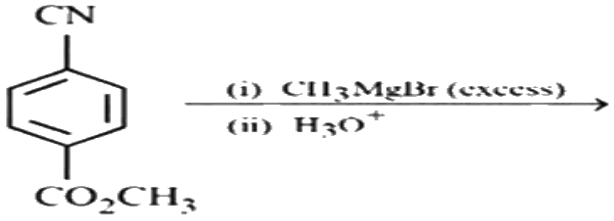
(A) A, B and C only
(B) C and D only
(C) B and C only
(D) A only

Answer: (A) A, B and C only · Key from source paper

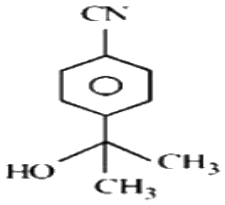
Q48 JEE Main 2024 · 9 Apr · Shift 2 MCQ

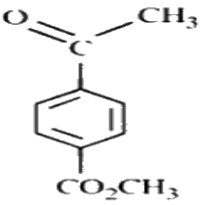
see figure

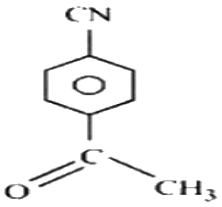
Q49.

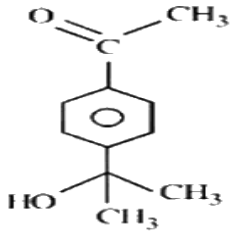


Major product of the following reaction is

(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

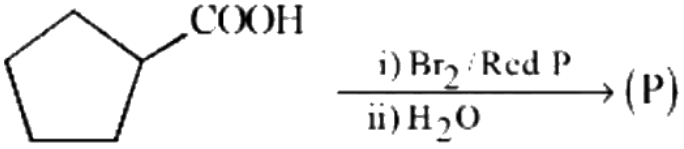
Answer: (D) · Key from source paper

Q49 JEE Main 2024 · 8 Apr · Shift 1 MCQ

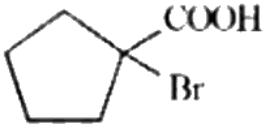
Identify the product (P) in the following reaction:

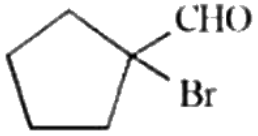
(see the figure above)

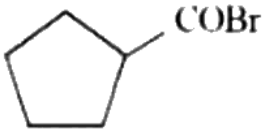
Q48.

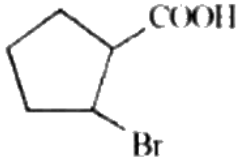


Identify the product (P) in the following reaction:

(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q50 JEE Main 2024 · 8 Apr · Shift 2 MCQ

The correct sequence of acidic strength of the following aliphatic acids in their decreasing order is:

$CH_3CH_2COOH,\ CH_3COOH,\ CH_3CH_2CH_2COOH,\ HCOOH$

(A) $CH_3CH_2CH_2COOH > CH_3CH_2COOH > CH_3COOH > HCOOH$
(B) $CH_3COOH > CH_3CH_2COOH > CH_3CH_2CH_2COOH > HCOOH$
(C) $HCOOH > CH_3COOH > CH_3CH_2COOH > CH_3CH_2CH_2COOH$
(D) $HCOOH > CH_3CH_2CH_2COOH > CH_3CH_2COOH > CH_3COOH$

Answer: (C) $HCOOH > CH_3COOH > CH_3CH_2COOH > CH_3CH_2CH_2COOH$ · Key from source paper

Q51 JEE Main 2024 · 8 Apr · Shift 2 Numerical

Two moles of benzaldehyde and one mole of acetone under alkaline conditions using aqueous NaOH after heating gives x as the major product. The number of π bonds in the product x is _____

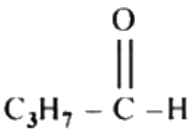
Numerical value type: the answer is a number.

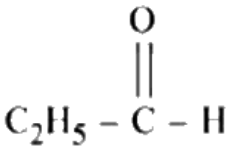
Answer: 9. · Key from source paper

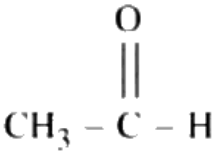
Q52 JEE Main 2024 · 6 Apr · Shift 1 MCQ

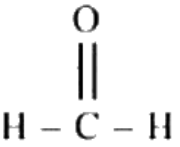
Which among the following aldehydes is most reactive towards nucleophilic addition reactions?

Q48. Which among the following aldehydes is most reactive towards nucleophilic addition reactions?

(1) 

(2) 

(3) 

(4) 

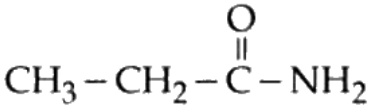
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Key from source paper

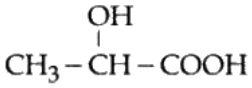
Q53 JEE Main 2024 · 6 Apr · Shift 2 MCQ

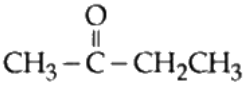
Consider the given reaction, identify the major product P. $CH_3 - COOH \xrightarrow[\text{(iv) } H_2O/\overline{O}H,\Delta]{\text{(i) } LiAlH_4 \text{ (ii) PCC (iii) HCN}/\overline{O}H}$ "P"

Q44. Consider the given reaction, identify the major product P. $CH_3 - COOH \xrightarrow[\text{(iv) } H_2O/\overline{O}H,\Delta]{\text{(i) } LiAlH_4 \text{ (ii) PCC (iii) HCN/OH}}$ "P"

(1) 

(2) $CH_3 - CH_2 - CH_2 - OH$

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

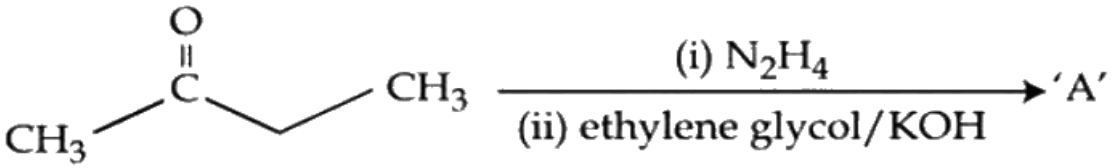
Answer: (C) · Key from source paper

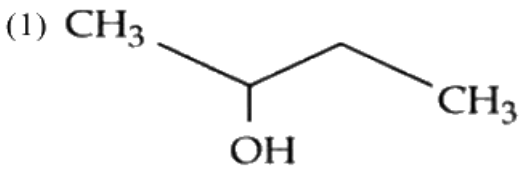
Q54 JEE Main 2024 · 5 Apr · Shift 1 MCQ

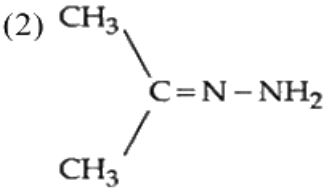
Identify ' A ' in the following reaction:

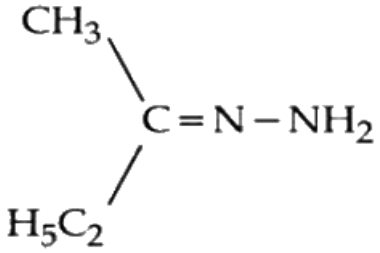
(see the figure above)

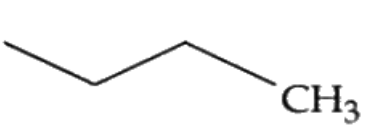
Q49. Identify ' A ' in the following reaction:



(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Key from source paper

Q55 JEE Main 2024 · 5 Apr · Shift 2 MCQ

$$CH_3CH_2-OH \xrightarrow[\text{(ii) } KMnO_4 \text{ (iii) } NaOH,\ CaO,\ \Delta]{\text{(i) Jone's Reagent}} P$$

Consider the above reaction sequence and identify the major product P.

(A) Methoxymethane
(B) Methanoic acid
(C) Methanal
(D) Methane

Answer: (D) Methane · Key from source paper

Q56 JEE Main 2024 · 4 Apr · Shift 1 MCQ

Given below are two statements : Statements I : Acidity of α-hydrogens of aldehydes and ketones is responsible for Aldol reaction. Statement II : Reaction between benzaldehyde and ethanal will NOT give Cross - Aldol product. In the light of the above statements, choose the most appropriate answer from the options given below :

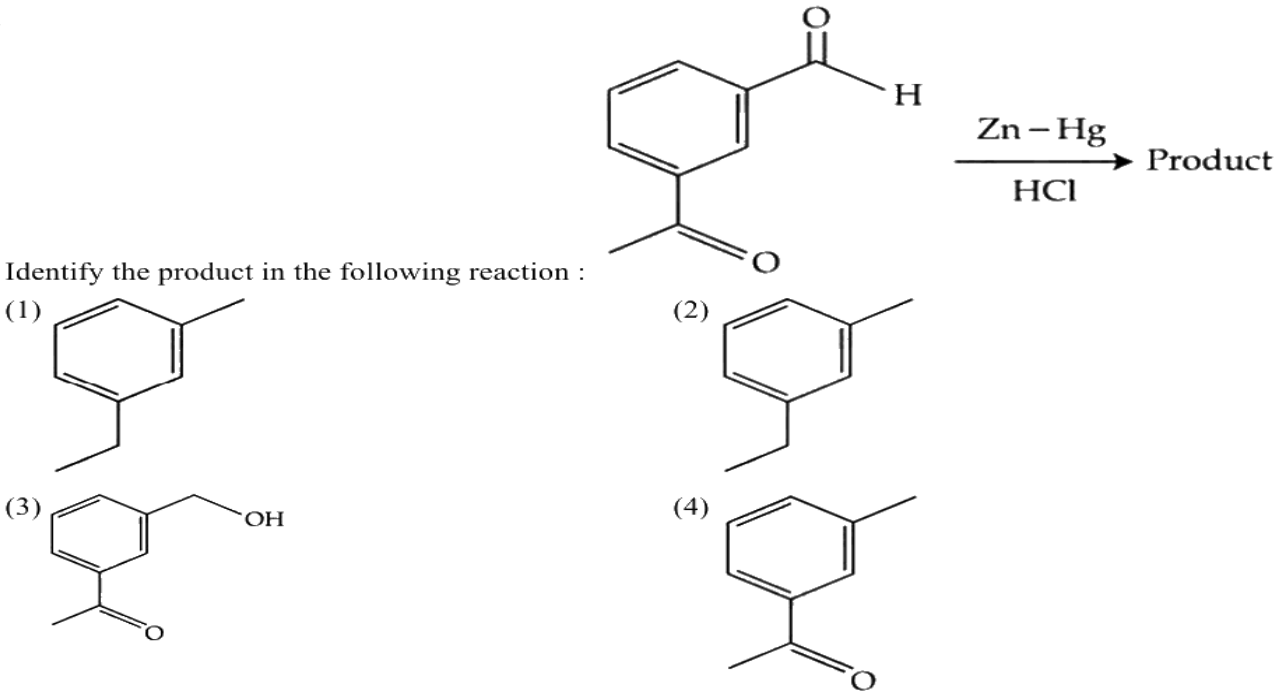
(A) Statement I is correct but Statement II is incorrect
(B) Both Statement I and Statement II are correct
(C) Both Statement I and Statement II are incorrect
(D) Statement I is incorrect but Statement II is correct

Answer: (A) Statement I is correct but Statement II is incorrect · Key from source paper

Q57 JEE Main 2024 · 4 Apr · Shift 1 MCQ

see figure

Q48.



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

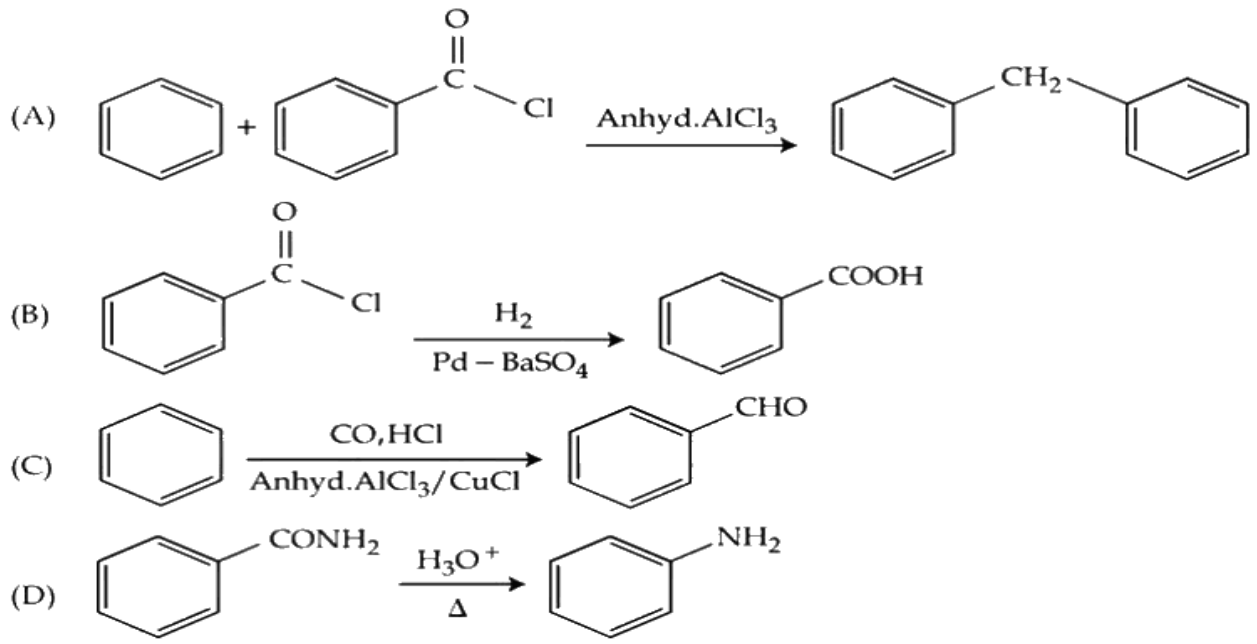
Answer: (A) · Key from source paper

Q58 JEE Main 2024 · 4 Apr · Shift 1 Numerical

The number of the correct reaction(s) among the following is _____

(see the figure above)

Q59. The number of the correct reaction(s) among the following is _____



Numerical value type: the answer is a number.

Answer: 1. · Key from source paper

Q59 JEE Main 2024 · 1 Feb · Shift 1 MCQ

Match List – I with List –II.

List – I (Reactions)	List – II (Reagents)
(A) $CH_3(CH_2)_5-C-OC_2H_5 \rightarrow CH_3(CH_2)_5CHO$ (the O of the C=O is drawn below the C)	(I) CH_3MgBr, H_2O
(B) $C_6H_5COC_6H_5 \rightarrow C_6H_5CH_2C_6H_5$	(II) Zn(Hg) and conc. HCl
(C) $C_6H_5CHO \rightarrow C_6H_5CH(OH)CH_3$	(III) $NaBH_4$, H^+
(D) $CH_3COCH_2COOC_2H_5 \rightarrow CH_3C(OH)CH_2COOC_2H_5$ (an H is drawn below the C of the C(OH) group)	(IV) DIBAL-H, H_2O

Choose the correct answer from options given below:

(A) A - III, B - IV, C - I, D - II

(B) A - IV, B - II, C - I, D - III

(C) A - IV, B - II, C - III, D - I

(D) A - III, B - IV, C - II, D - I

Answer: (B) A - IV, B - II, C - I, D - III · Key from source paper

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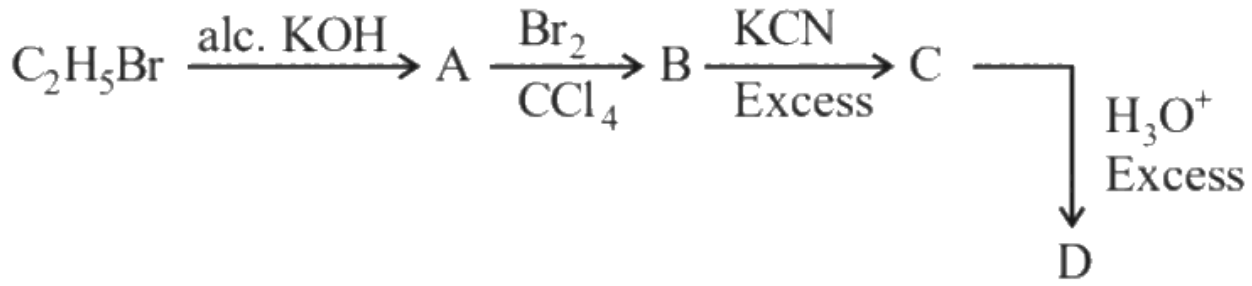
Q60 JEE Main 2024 · 1 Feb · Shift 2 MCQ

see figure

Q49.



Acid D formed in above reaction is:

(1) Gluconic acid
(2) Succinic acid
(3) Oxalic acid
(4) Malonic acid

(A) Gluconic acid
(B) Succinic acid
(C) Oxalic acid
(D) Malonic acid

Answer: (B) Succinic acid · Key from source paper

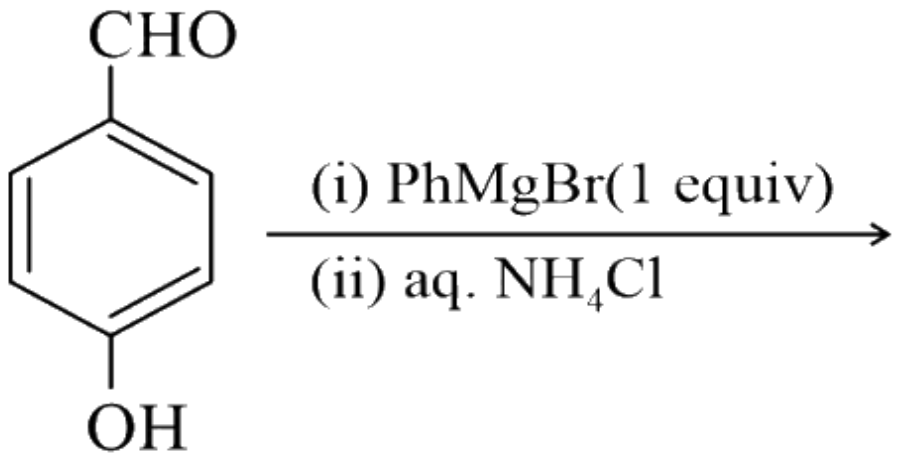
Q61 JEE Main 2024 · 31 Jan · Shift 1 Numerical

The product of the following reaction is P.

(see the figure above)

The number of hydroxyl groups present in the product P is _____.

Q59. The product of the following reaction is P.



The number of hydroxyl groups present in the product P is_____.

Numerical value type: the answer is a number.

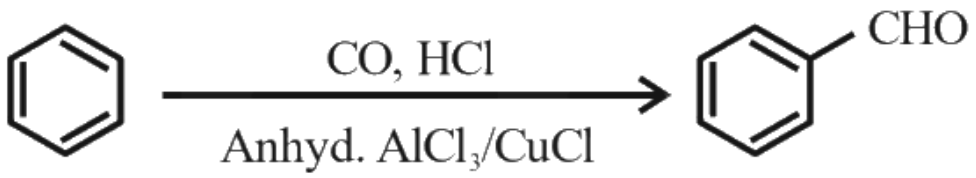
Answer: 0. · Key from source paper

Q62 JEE Main 2024 · 31 Jan · Shift 2 MCQ

Identify the name reaction.

(see the figure above)

Q47. Identify the name reaction.



(1) Stephen reaction
(2) Etard reaction
(3) Gatterman-koch reaction
(4) Rosenmund reduction

(A) Stephen reaction
(B) Etard reaction
(C) Gatterman-koch reaction
(D) Rosenmund reduction

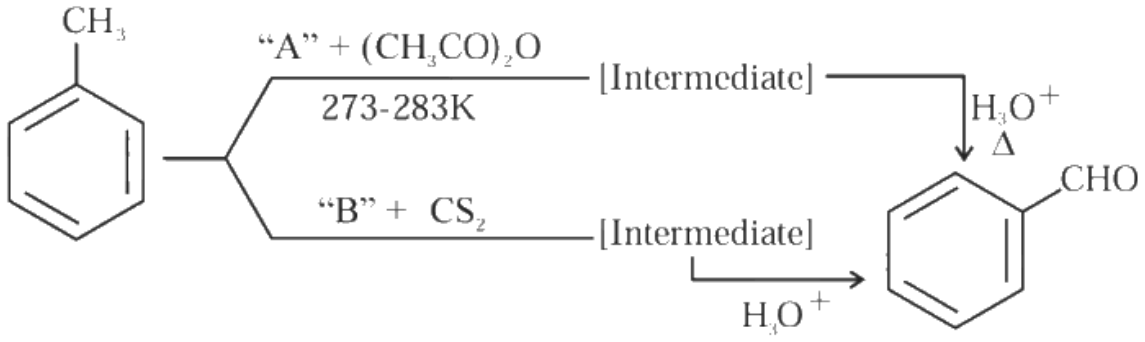
Answer: (C) Gatterman-koch reaction · Key from source paper

Q63 JEE Main 2024 · 30 Jan · Shift 1 MCQ

In the given reactions identify the reagent A and reagent B

(see the figure above)

Q39. In the given reactions identify the reagent A and reagent B



(1) A – CrO_3 B – CrO_3
(2) A – CrO_3 B – CrO_2Cl_2
(3) A – CrO_2Cl_2 B – CrO_2Cl_2
(4) A – CrO_2Cl_2 B – CrO_3

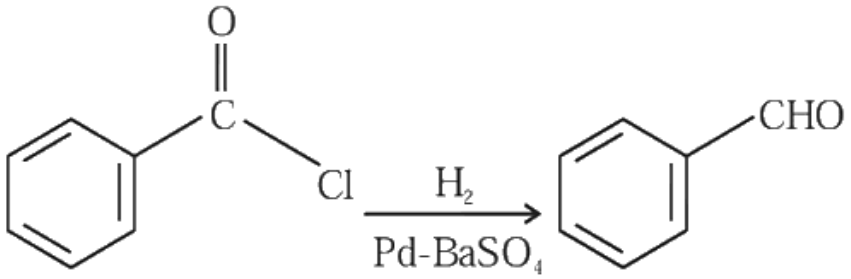
(A) $A - \mathrm{CrO_3}\ B - \mathrm{CrO_3}$
(B) $A - \ \mathrm{CrO_3}\ B - \mathrm{CrO_2Cl_2}$
(C) $A - \mathrm{CrO_2Cl_2}\ B - \mathrm{CrO_2Cl_2}$
(D) $A - \mathrm{CrO_2Cl_2}\ B - \mathrm{CrO_3}$

Answer: (B) $A - \ \mathrm{CrO_3}\ B - \mathrm{CrO_2Cl_2}$ · Key from source paper

Q64 JEE Main 2024 · 30 Jan · Shift 1 MCQ

see figure

Q45.



This reduction reaction is known as:

(1) Rosenmund reduction
(2) Wolff-Kishner reduction
(3) Stephen reduction
(4) Etard reduction

(A) Rosenmund reduction
(B) Wolff-Kishner reduction
(C) Stephen reduction
(D) Etard reduction

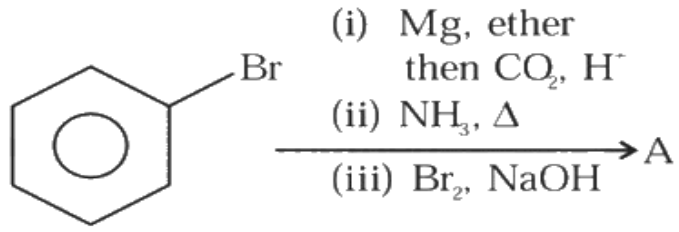
Answer: (A) Rosenmund reduction · Key from source paper

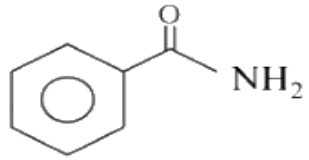
Q65 JEE Main 2024 · 30 Jan · Shift 1 MCQ

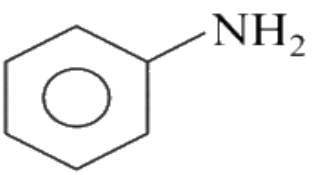
The final product A, formed in the following multistep reaction sequence is:

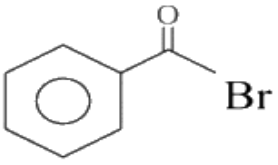
(see the figure above)

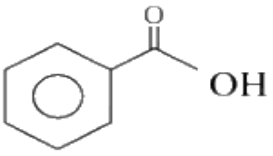
Q47. The final product A, formed in the following multistep reaction sequence is:



(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · Key from source paper

Q66 JEE Main 2024 · 30 Jan · Shift 1 · Numerical

The compound formed by the reaction of ethanal with semicarbazide contains _____ number of nitrogen atoms.

Numerical value type: the answer is a number.

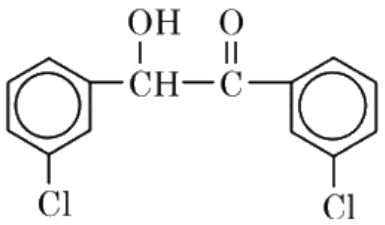
Answer: 03. · Key from source paper

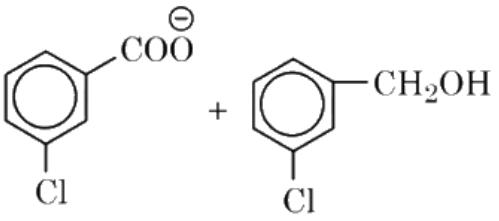
Q67 JEE Main 2024 · 30 Jan · Shift 2 · MCQ

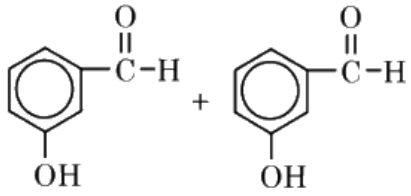
m-chlorobenzaldehyde on treatment with 50%KOH solution yields

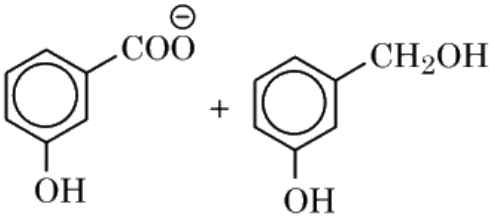
(see the figure above)

Q49. m-chlorobenzaldehyde on treatment with 50%KOH solution yields

(1) 

(2) 

(3) 

(4) 

(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

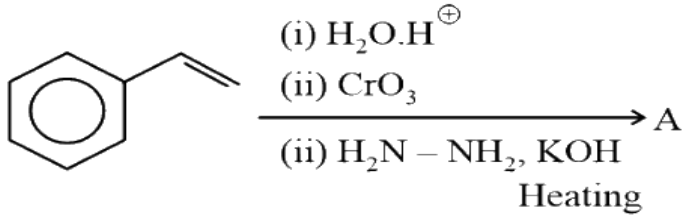
Answer: (B) · Checked by our team

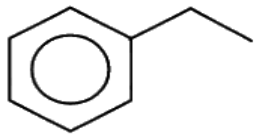
Q68 JEE Main 2024 · 29 Jan · Shift 1 MCQ

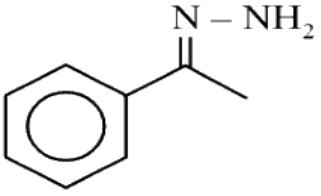
The final product A formed in the following multistep reaction sequence is

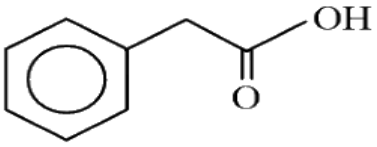
(see the figure above)

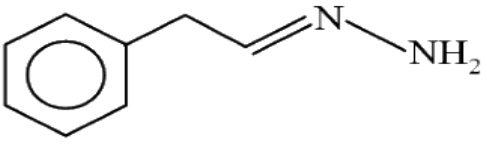
Q43. The final product A formed in the following multistep reaction sequence is



(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q69 JEE Main 2024 · 29 Jan · Shift 1 Numerical

From the compounds given below, number of compounds which give positive Fehling's test is

Benzaldehyde, Acetaldehyde, Acetone, Acetophenone, Methanal, 4-nitrobenzaldehyde, cyclohexane carbaldehyde.

Numerical value type: the answer is a number.

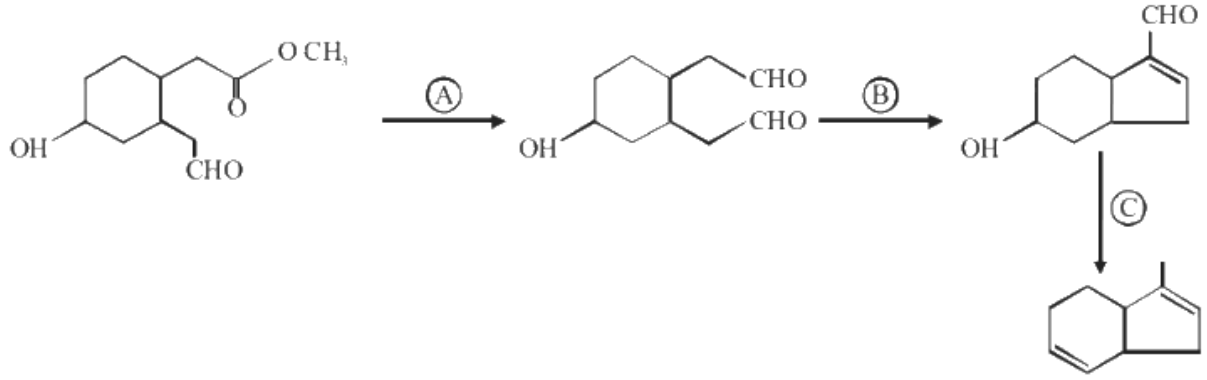
Answer: 3. · Key from source paper

Q70 JEE Main 2024 · 29 Jan · Shift 2 MCQ

Identify the reagents used for the following conversion

(see the figure above)

Q45. Identify the reagents used for the following conversion



(1) $A = LiAlH_4,\ B = NaOH_{(aq)}, C = NH_2 - NH_2 / KOH$ ethylene glycol
(2) $A = LiAlH_4,\ B = NaOH_{(alc)}, C = Zn / HCl$
(3) $A = DIBAL - H, B = NaOH_{(aq)}\ C = NH_2 - NH_2 / KOH$ ethylene glycol
(4) $A = DIBAL - H, B = NaOH_{(alc)}, C = Zn / HCl$

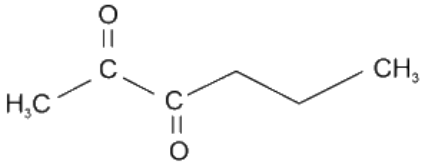
(A) A = $LiAlH_4$, B = $NaOH_{(aq)}$, C = $NH_2 - NH_2$ / KOH ethylene glycol
(B) A = $LiAlH_4$, B = $NaOH_{(alc)}$, C = Zn / HCl
(C) A = DIBAL − H, B = $NaOH_{(aq)}$ C = $NH_2 - NH_2$ / KOH ethylene glycol
(D) A = DIBAL − H, B = $NaOH_{(alc)}$, C = Zn / HCl

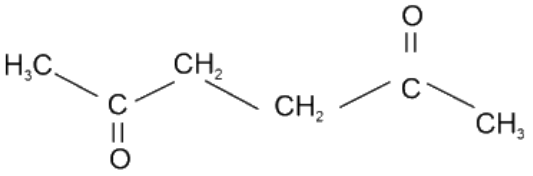
Answer: (D) A = DIBAL − H, B = $NaOH_{(alc)}$, C = Zn / HCl · Key from source paper

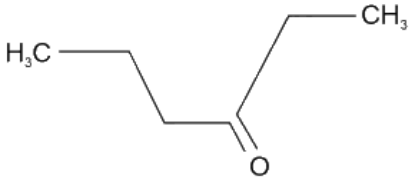
Q71 JEE Main 2024 · 27 Jan · Shift 1 MCQ

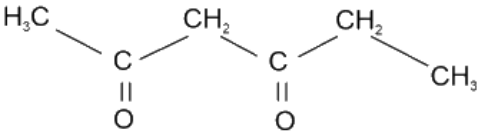
Which of the following has highly acidic hydrogen?

Q39. Which of the following has highly acidic hydrogen?

(1) 

(2) 

(3) 

(4) 

(A) *see figure*

(B) *see figure*

(C) *see figure*

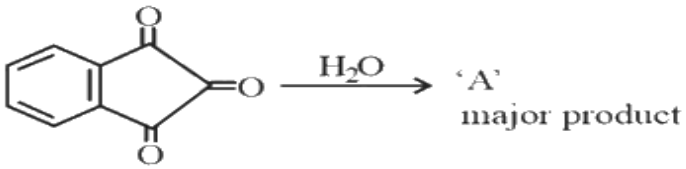
(D) *see figure*

Answer: (D) · Key from source paper

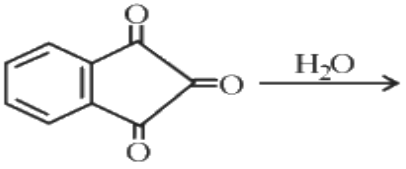
Q72 JEE Main 2023 · 15 Apr · Shift 1 MCQ

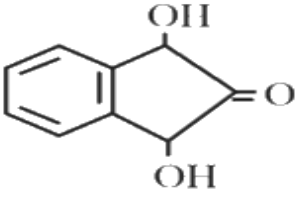
see figure

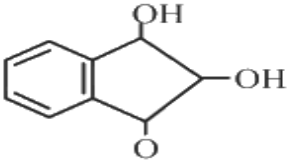
Q46.

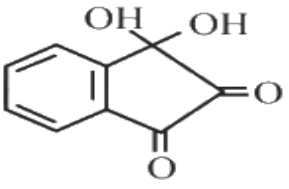


'A' formed in the above reaction is

(1) 

(2) 

(3) 

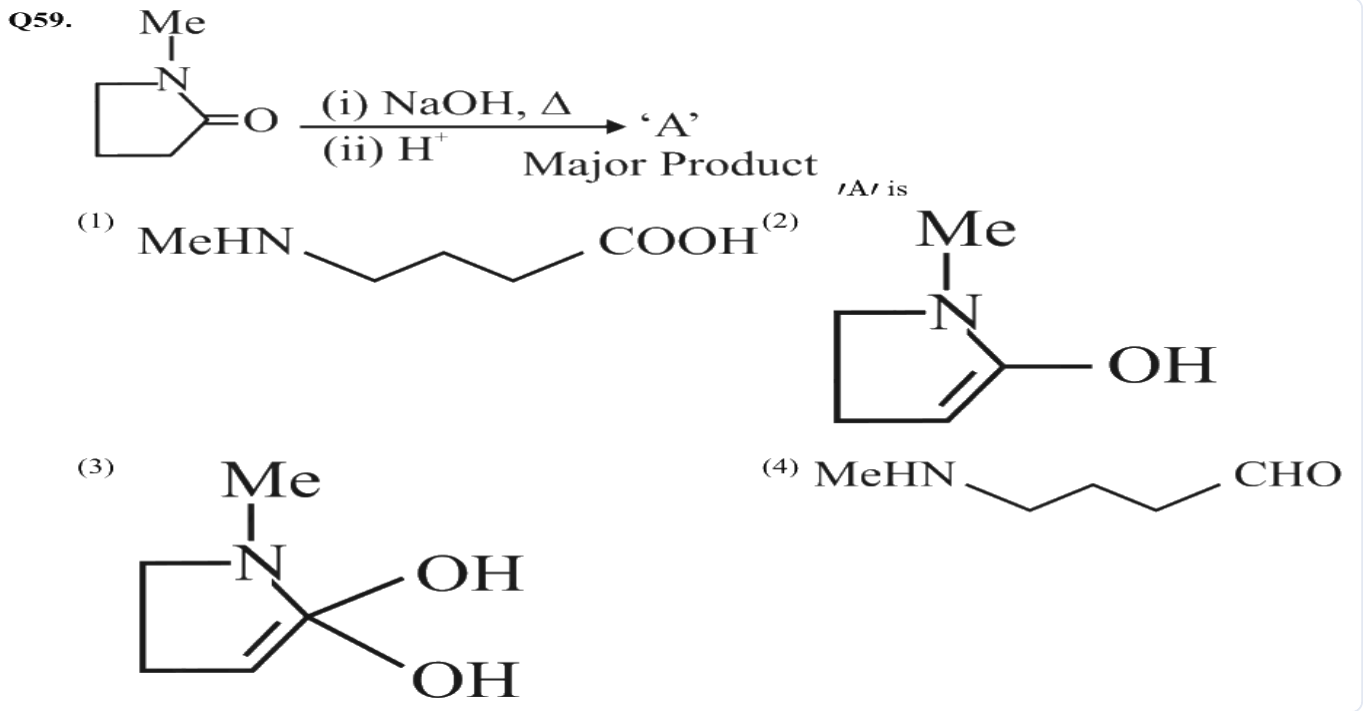
(4) 

(A) (structure drawn, see figure)
(B) (structure drawn, see figure)
(C) (structure drawn, see figure)
(D) (structure drawn, see figure)

Answer: (A) (structure drawn, see figure) · Key from source paper

Q73 JEE Main 2023 · 13 Apr · Shift 1 MCQ

see figure



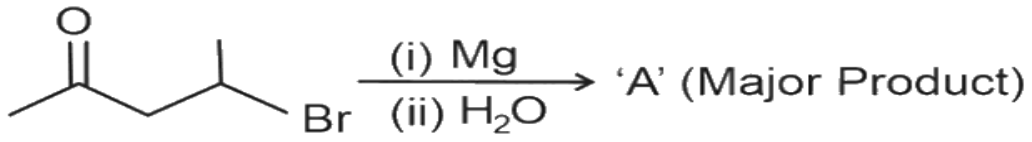
(A) (structure drawn, see figure)
(B) (structure drawn, see figure)
(C) (structure drawn, see figure)
(D) (structure drawn, see figure)

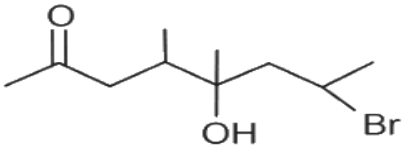
Answer: (A) (structure drawn, see figure) · Key from source paper

Q74 JEE Main 2023 · 12 Apr · Shift 1 MCQ

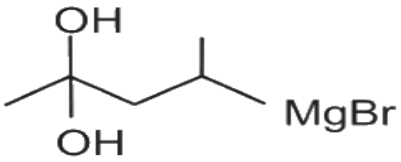
In the following reaction
(see the figure above)

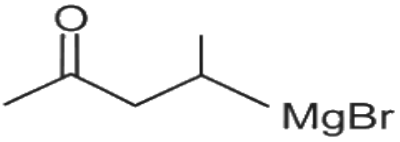
Q54. In the following reaction



(1) 

(2) 

(3) 

(4) 

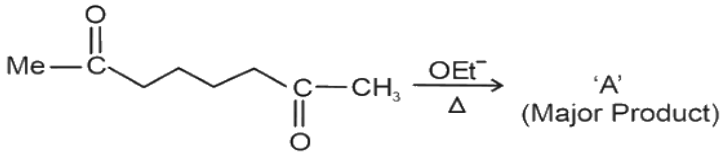
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · Key from source paper

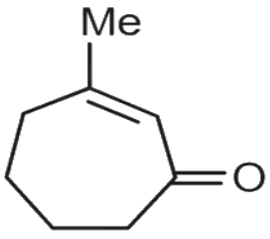
Q75 JEE Main 2023 · 12 Apr · Shift 1 MCQ

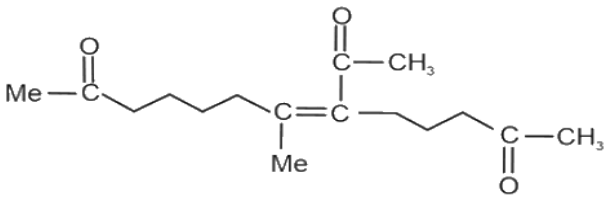
see figure

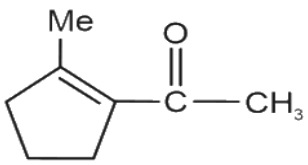
Q55.

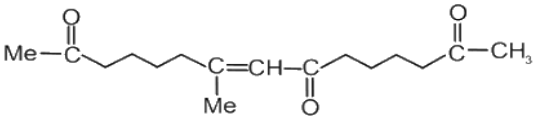


A in the above reaction is :

(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

Q76 JEE Main 2023 · 12 Apr · Shift 1 Numerical

The mass of NH_3 produced when 131.8 kg of cyclohexane carbaldehyde undergoes Tollen's test is _____ kg. (Nearest Integer)
Molar mass of C = 12 g/mol
N = 14 g/mol
O = 16 g/mol

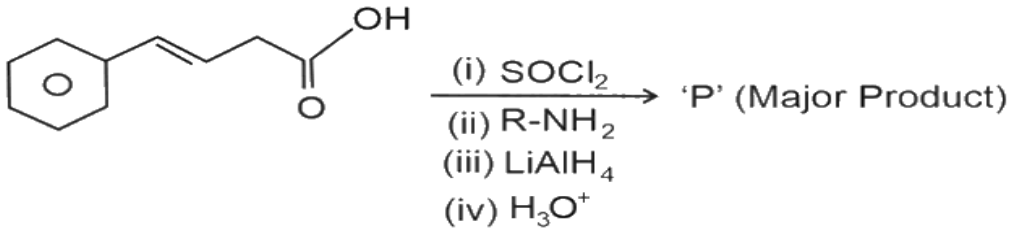
Numerical value type: the answer is a number.

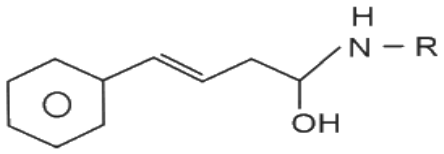
Answer: 80. · Checked by our team

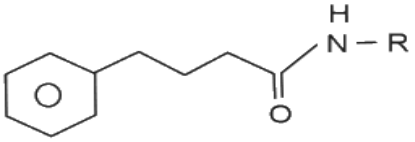
Q77 JEE Main 2023 · 12 Apr · Shift 1 MCQ

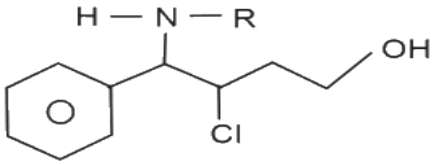
The major product 'P' formed in the following sequence of reactions is
(see the figure above)

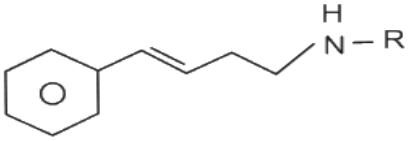
Q58. The major product 'P' formed in the following sequence of reactions is



(1)


(2)


(3)


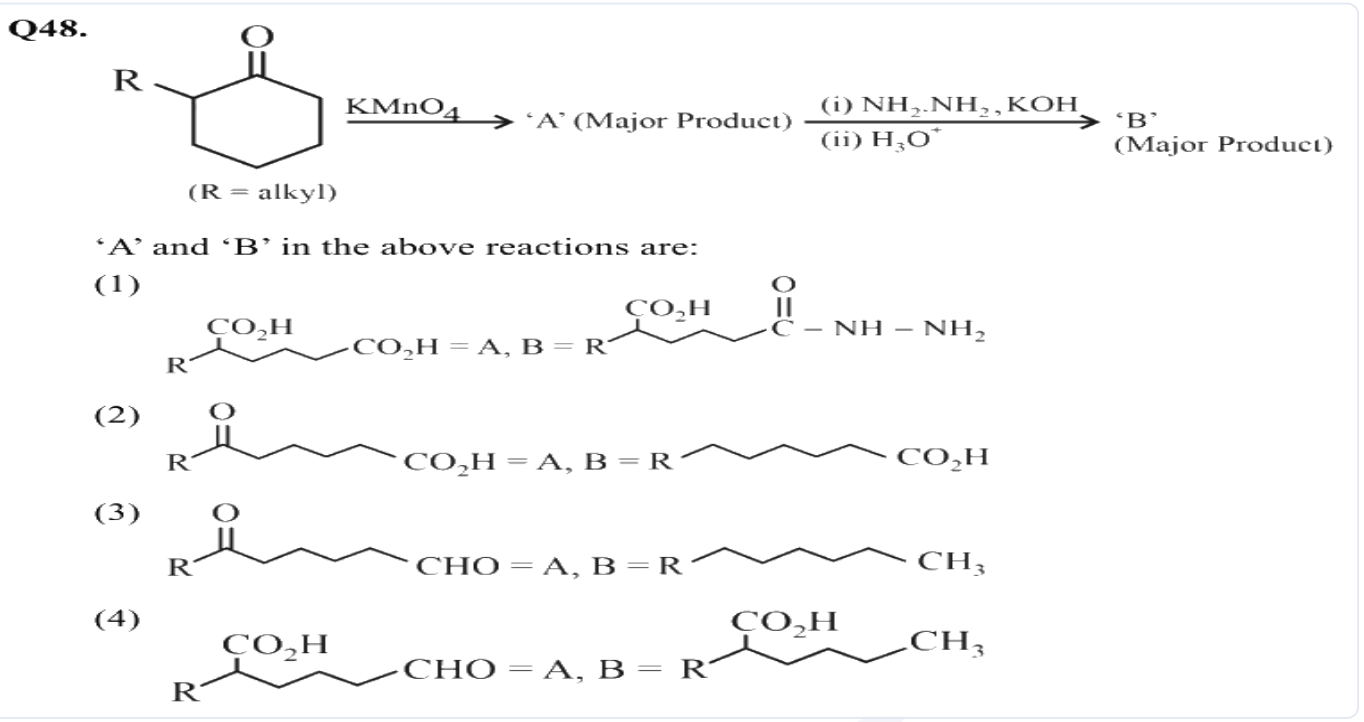
(4)


(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Key from source paper

Q78 JEE Main 2023 · 11 Apr · Shift 1 MCQ

see figure



(A) *see figure*

(B) *see figure*

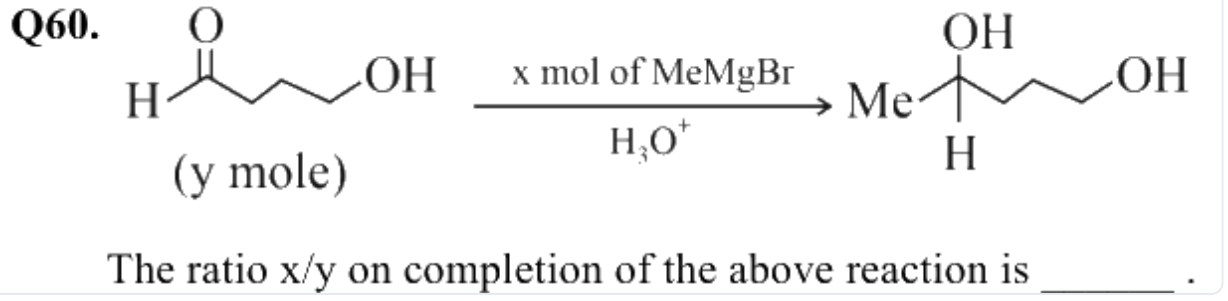
(C) *see figure*

(D) *see figure*

Answer: (B) · Key from source paper

Q79 JEE Main 2023 · 11 Apr · Shift 1 Numerical

see figure



Numerical value type: the answer is a number.

Answer: 2. · Key from source paper

Q80 JEE Main 2023 · 11 Apr · Shift 2 MCQ

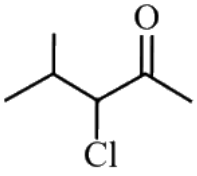
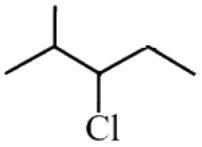
Given below are two statements, one is labelled as Assertion **A** and the other is labelled as Reason **R**.
Assertion **A**: *(see the figure above)* can be subjected to Wolff-Kishner reduction to give *(see the figure*

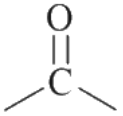
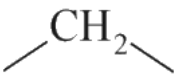
above)

Reason **R**: Wolff-Kishner reduction is used to convert *(see the figure above)* into *(see the figure above)*

In the light of the above statements, choose the correct answer from the options given below:

Q43. Given below are two statements, one is labelled as Assertion **A** and the other is labelled as Reason **R**.

Assertion **A**:  can be subjected to Wolff-Kishner reduction to give 

Reason **R**: Wolff-Kishner reduction is used to convert  into 

In the light of the above statements, choose the correct answer from the options given below:

(1) **A** is true but **R** is false

(2) **A** is false but **R** is true

(3) Both **A** and **R** are true and **R** is the correct explanation of **A**

(4) Both **A** and **R** are true and **R** is NOT the correct explanation of **A**

(A) **A** is true but **R** is false

(B) **A** is false but **R** is true

(C) Both **A** and **R** are true and **R** is the correct explanation of **A**

(D) Both **A** and **R** are true and **R** is NOT the correct explanation of **A**

Answer: (B) A is false but R is true · Key from source paper

Q81 JEE Main 2023 · 11 Apr · Shift 2 MCQ

The major product formed in the following reaction is

(see the figure above)

A. $C_6H_5 - CH(OH) - CH - C_2H_5$ with CH_3 below the second CH

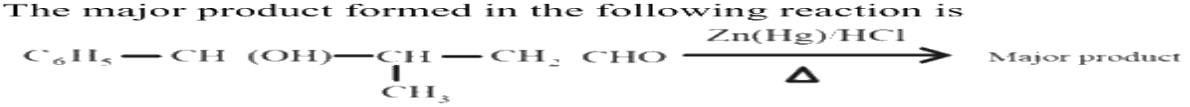
B. $C_6H_5 - CH = C - C_2H_5$ with CH_3 below the C

C. $C_6H_5 - C = CH - C_2H_5$ with CH_3 below the C

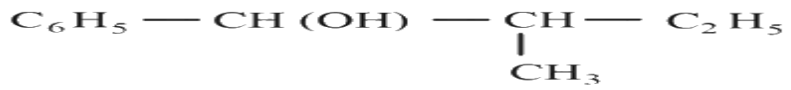
D. *(see the figure above)*

choose the correct answer from the options Given below:

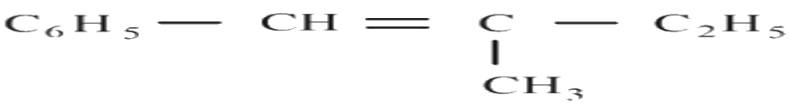
Q44. The major product formed in the following reaction is



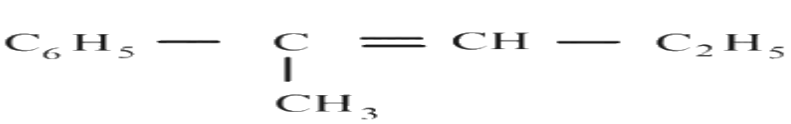
A.



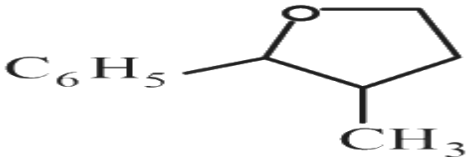
B.



C.



D.



choose the correct answer from the options Given below:

(1) B only (2) A only

(3) C only (4) D only

(A) B only

(B) A only

(C) C only

(D) D only

Answer: (B) A only · Key from source paper

Q82 JEE Main 2023 · 11 Apr · Shift 2 MCQ

Given below are two statements, one is labelled as **Assertion A** and the other is labelled as **Reasom R**.

Assertion A: A solution of the product obtained by heating a mole of glycine with a mole of chlorine in presence of red phosphorous generates chiral carbon atom.

Reason R: A molecule with 2 chiral carbons is always optically active.

In the light of above statements, chose the correct answer from the options given below:

(A) **A** is true but **R** is false

(B) Both **A** and **R** are true but **R** is the correct explaination of **A**

(C) **A** is false but **R** is true

(D) Both **A** and **R** are true but **R** is NOT the correct explaination of **A**

Answer: (A) A is true but R is false · Key from source paper

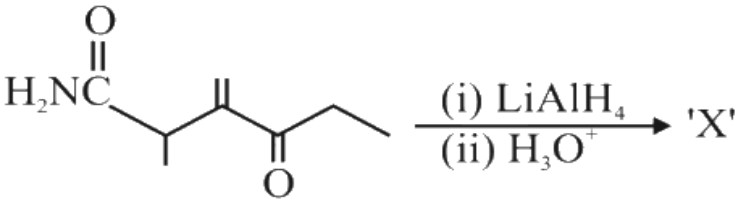
Q83 JEE Main 2023 · 10 Apr · Shift 2 MCQ

In the reaction given below

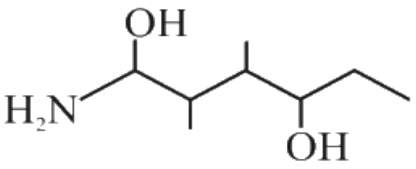
(see the figure above)

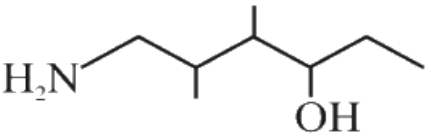
The product 'X' is :

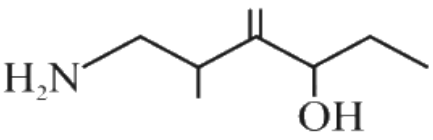
Q48. In the reaction given below

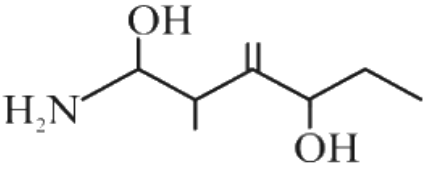


The product 'X' is :

(1)


(2)


(3)


(4)


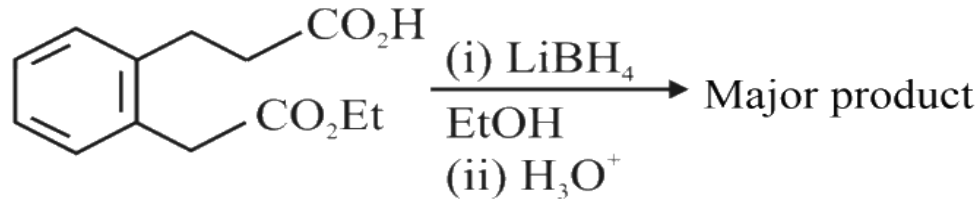
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

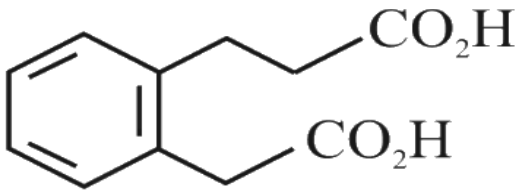
Answer: (C) · Key from source paper

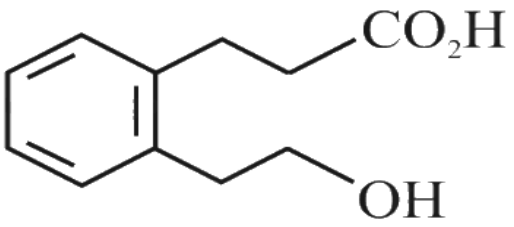
Q84 JEE Main 2023 · 8 Apr · Shift 1 MCQ

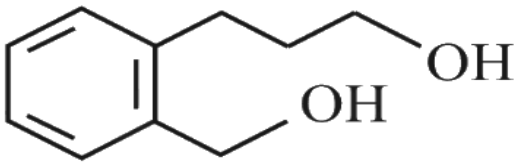
The major product formed in the following reaction is
(see the figure above)

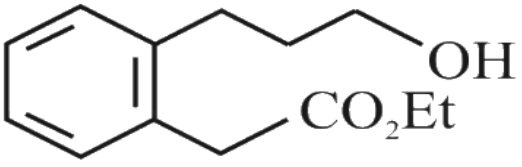
Q56. The major product formed in the following reaction is



(1)


(2)


(3)


(4)


(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · Key from source paper

Q85 JEE Main 2023 · 8 Apr · Shift 2 MCQ

The descending order of acidity for the following carboxylic acid is-

(A) CH_3COOH

(B) $F_3C-COOH$

(C) $ClCH_2-COOH$

(D) FCH_2-COOH

(E) $BrCH_2-COOH$

Choose the correct answer from the options given below:

(A) B > C > D > E > A
(B) E > D > B > A > C
(C) B > D > C > E > A
(D) D > B > A > E > C

Answer: (C) B > D > C > E > A · Key from source paper

Q86 JEE Main 2023 · 6 Apr · Shift 1 MCQ

Match List-I with .

List-I Name of reaction		List-II Reagent used
A	Hell-Volhard Zelinsky reaction	I $NaOH + I_2$
B	Iodoform reaction	II (i) CrO_2Cl_2, CS_2 (ii) H_2O
C	Etard reaction	III (i) Br_2 / red phosphorus (ii) H_2O
D	Gatterman-Koch reaction	IV CO, HCl, anhyd. $AlCl_3$

Choose the correct answer from the options given below:

(A) A → III; B → I; C → II; D → IV
(B) A → I; B → II; C → III; D → IV
(C) A → III; B → II; C → I; D → IV
(D) A → III; B → I; C → IV; D → II

Answer: (A) A → III; B → I; C → II; D → IV · Key from source paper

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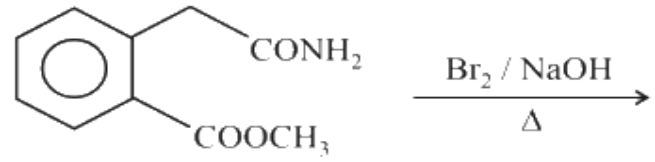
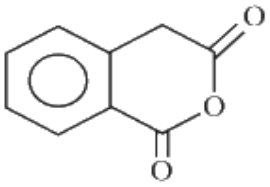
Q87 JEE Main 2023 · 6 Apr · Shift 1 MCQ

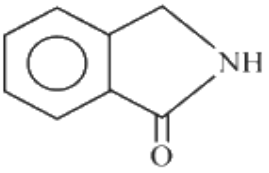
The major product formed in the following reaction is

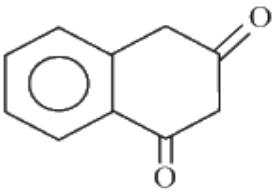
(see the figure above)

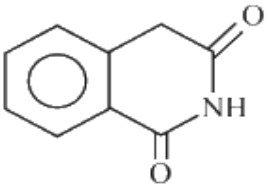
Q47. The major product formed in the following reaction is



(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

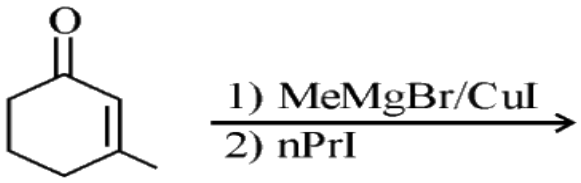
Answer: (B) · Key from source paper

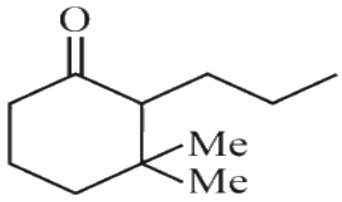
Q88 JEE Main 2023 · 6 Apr · Shift 2 MCQ

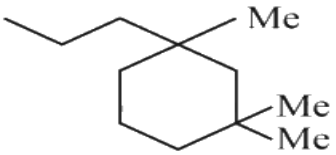
Find out the major product from the following reaction.

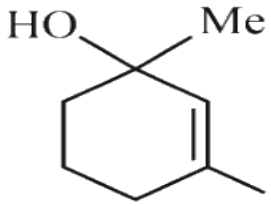
(see the figure above)

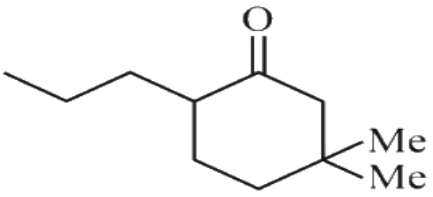
Q55. Find out the major product from the following reaction.



(1) 

(2) 

(3) 

(4) 

(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (A) · Key from source paper

Q89 JEE Main 2023 · 6 Apr · Shift 2 · Numerical

Among the following the number of compounds which will give positive iodoform reaction is _____ .

(a) 1-Phenylbutan-2-one

(b) 2-Methylbutan-2-ol

(c) 3-Methylbutan-2-ol

(d) 1-Phenylethanol

(e) 3, 3-dimethylbutan-2-one

(f) 1-Phenylpropan-2-ol

Numerical value type: the answer is a number.

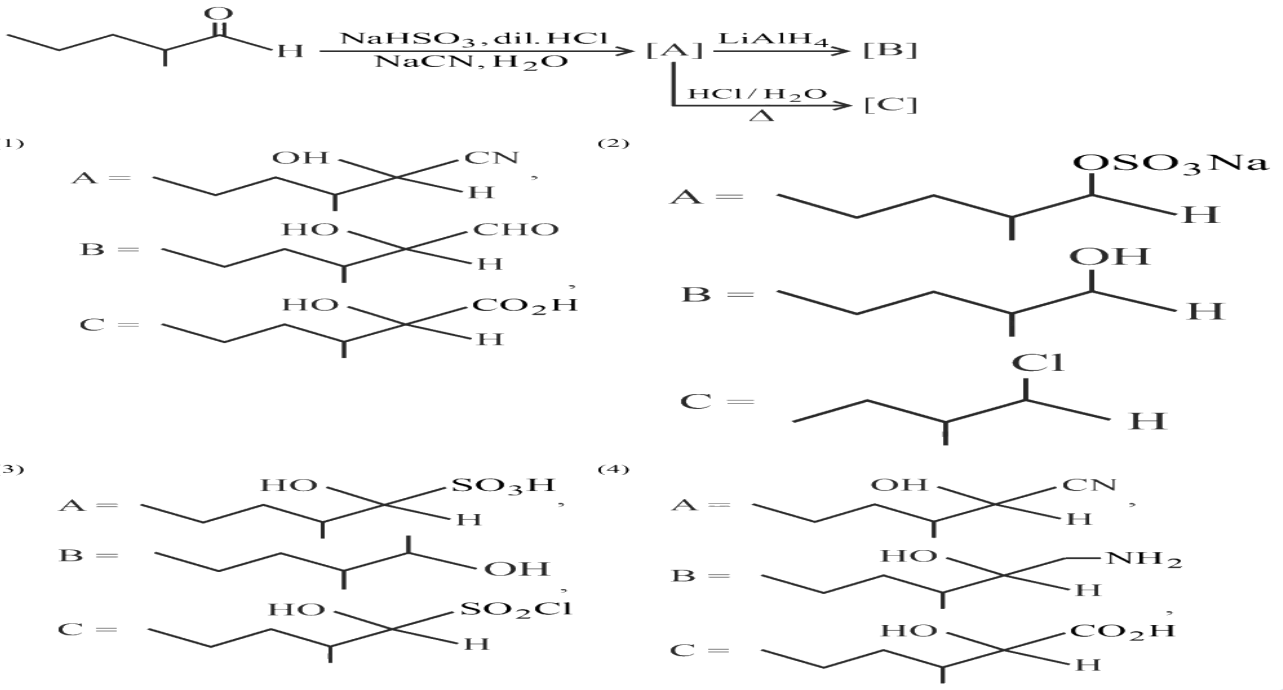
Answer: 4. · Key from source paper

Q90 JEE Main 2023 · 1 Feb · Shift 2 · MCQ

The structures of major products A, B and C in the following reaction are sequence.

(see the figure above)

Q56. The structures of major products A, B and C in the following reaction are sequence.



(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (D) · Key from source paper

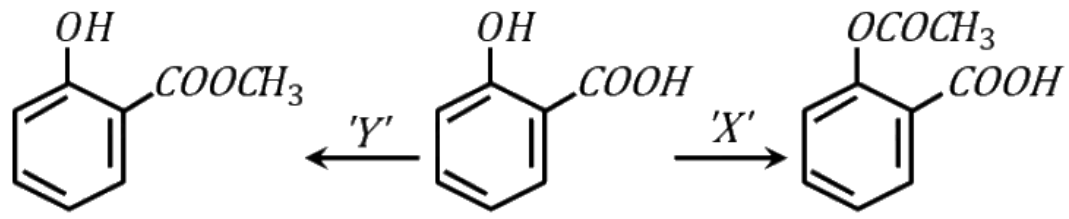
Q91 JEE Main 2023 · 1 Feb · Shift 2 MCQ

In a reaction

(see the figure above)

reagents 'X' and 'Y' respectively are:

Q57. In a reaction



reagents 'X' and 'Y' respectively are:

(1) $(CH_3CO)_2O/H^+$ and CH_3OH/H^+, Δ

(2) $(CH_3CO)_2O/H^+$ and $(CH_3CO)_2O/H^+$

(3) CH_3OH/H^+, Δ and CH_3OH/H^+, Δ

(4) $CH_3OH/H^+\Delta$ and $(CH_3CO)_2O/H^+$

(A) $(CH_3\ CO)_2O/H^+$ and $CH_3\ OH\ /H^+, \Delta$
(B) $(CH_3\ CO)_2O/H^+$ and $(CH_3\ CO)_2O/H^+$
(C) $CH_3\ OH\ /H^+, \Delta$ and $CH_3\ OH\ /H^+, \Delta$
(D) $CH_3\ OH\ /H^+\Delta$ and $(CH_3\ CO)_2O/H^+$

Answer: (A) $(CH_3\ CO)_2O/H^+$ **and** $CH_3\ OH\ /H^+, \Delta$ · Key from source paper

Q92 JEE Main 2023 · 31 Jan · Shift 1 MCQ

Consider the following reaction

Propanal + Methanal $= \xrightarrow[(ii)\ \Delta\ (iii)\ NaCN\ (iv)\ H_3O^+]{(i)\ dil.\ NaOH}$ Product B $(C_5H_8O_3)$

The correct statement for product B is. It is

(A) optically active and adds one mole of bromine
(B) racemic mixture and is neutral
(C) racemic mixture and gives a gas with saturated $NaHCO_3$ solution
(D) optically active alcohol and is neutral

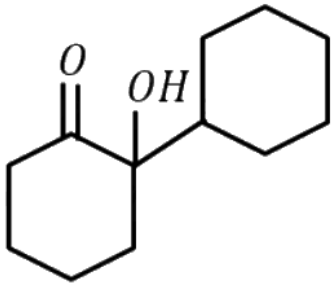
Answer: (C) racemic mixture and gives a gas with saturated $NaHCO_3$ **solution** · Key from source paper

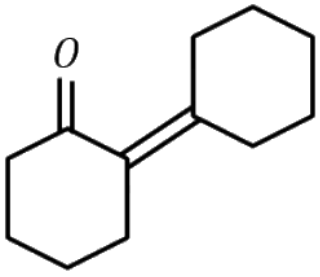
Q93 JEE Main 2023 · 31 Jan · Shift 2 MCQ

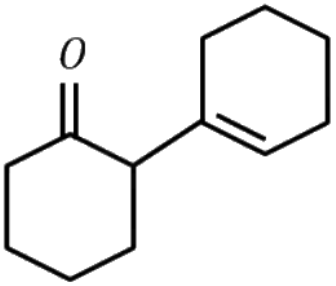
Cyclohexylamine when treated with nitrous acid yields (P). On treating (P) with PCC results in (Q). When (Q) is heated with dil. NaOH we get (R) The final product (R) is:

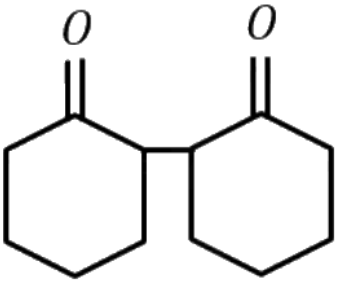
(see the figure above)

Q55. Cyclohexylamine when treated with nitrous acid yields (P). On treating (P) with PCC results in (Q). When (Q) is heated with dil. NaOH we get (R) The final product (R) is:

(1)


(2)


(3)


(4)


(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

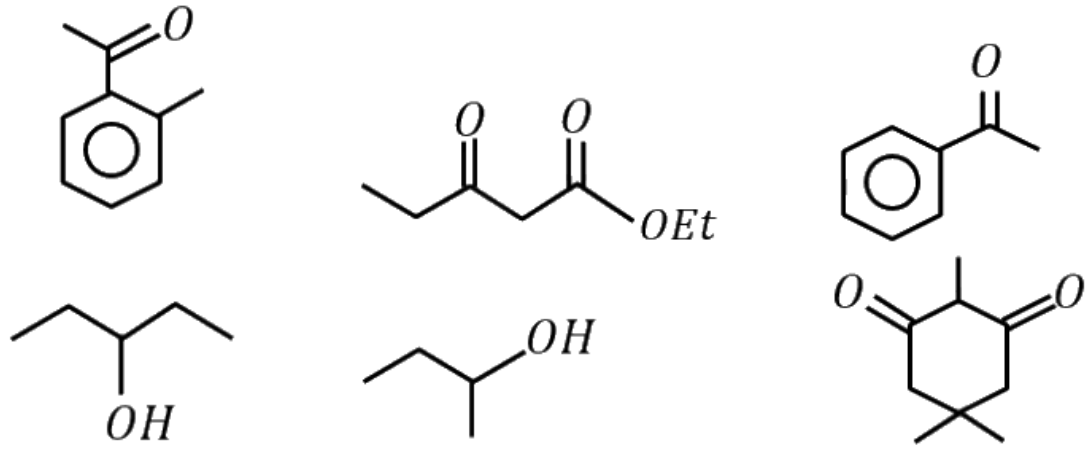
Answer: (B) · Key from source paper

Q94 JEE Main 2023 · 31 Jan · Shift 2 Numerical

The number of molecules which gives haloform test among the following molecules is :

(see the figure above)

Q56. The number of molecules which gives haloform test among the following molecules is :



Numerical value type: the answer is a number.

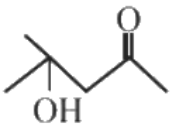
Answer: 3. · Key from source paper

Q95 JEE Main 2023 · 30 Jan · Shift 2 MCQ

Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: *(see the figure above)* can be easily reduced using Zn − Hg / HCl to *(see the figure above)*
Reason R: Zn − Hg / HCl is used to reduce carbonyl group to $-CH_2-$ group.
In the light of the above statements, choose the correct answer from the options given below:

Q43. Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: 

can be easily reduced using Zn − Hg / HCl to 

Reason R: Zn − Hg / HCl is used to reduce carbonyl group to $-CH_2-$ group.

In the light of the above statements, choose the correct answer from the options given below:

(1) A is false but R is true
(2) A is true but R is false
(3) Both A and R are true but R is not the correct explanation of A
(4) Both A and R are true and R is the correct explanation of A

(A) A is false but R is true
(B) A is true but R is false
(C) Both A and R are true but R is not the correct explanation of A
(D) Both A and R are true and R is the correct explanation of A

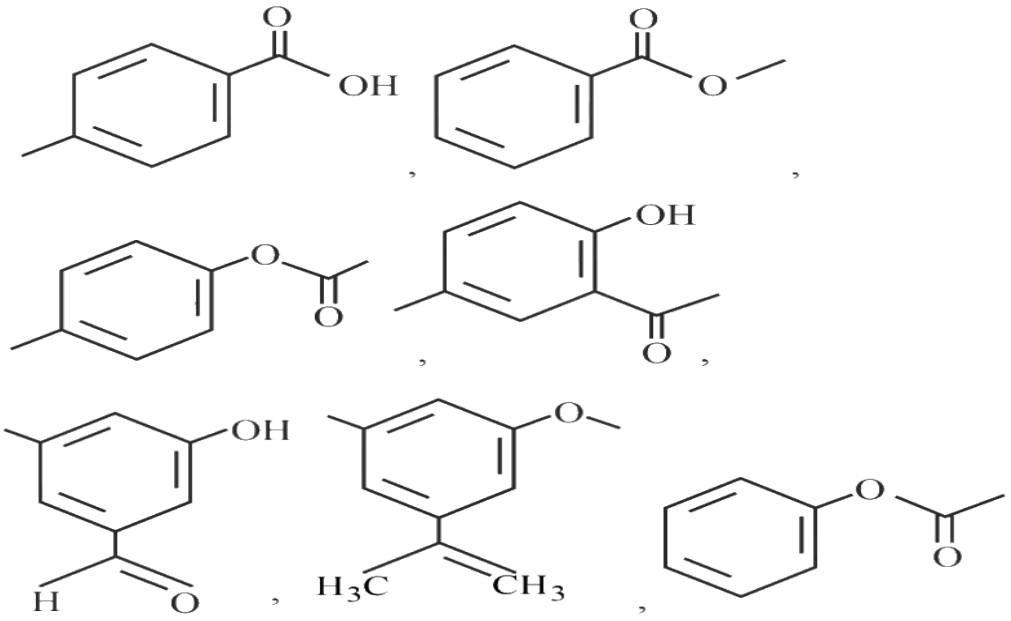
Answer: (A) A is false but R is true · Key from source paper

Q96 JEE Main 2023 · 30 Jan · Shift 2 Numerical

Number of compounds from the following which will not dissolve in cold $NaHCO_3$ and NaOH solutions but will dissolve in hot NaOH solution is _____ .

(see the figure above)

Q58. Number of compounds from the following which will not dissolve in cold $NaHCO_3$ and NaOH solutions but will dissolve in hot NaOH solution is _____ .



Numerical value type: the answer is a number.

Answer: 3. · Key from source paper

Q97 JEE Main 2023 · 29 Jan · Shift 1 MCQ

Match List I with List II.

List I | Reaction
(A) Hoffmann Degradation
(B) Clemmensen reduction
(C) Cannizzaro reaction
(D) Reimer-Tiemann reaction

List II | Reagents
(I) Conc.KOH, Δ
(II) $CHCl_3$, NaOH $/H_3O^+$

(III) Br_2, NaOH

(IV) $Zn - Hg / HCl$

(A) (A) - III, (B) - IV, (C) - II, (D) - I

(B) (A) - II, (B) - IV, (C) - I, (D) - III

(C) (A) - III, (B) - IV, (C) - I, (D) - II

(D) (A) - II, (B) - I, (C) - III, (D) - IV

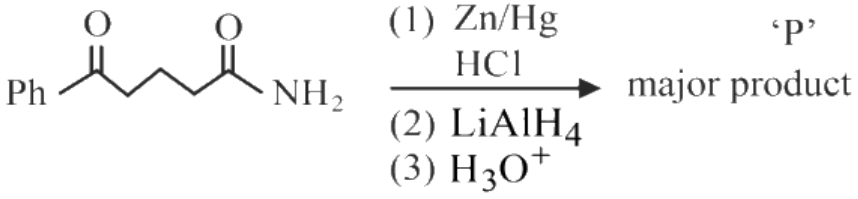
Answer: (C) (A) - III, (B) - IV, (C) - I, (D) - II · Key from source paper

Q98 JEE Main 2023 · 29 Jan · Shift 1 MCQ

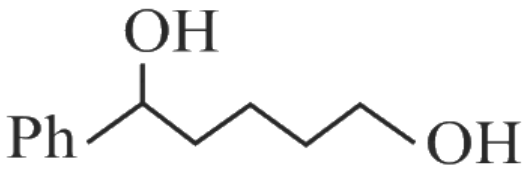
The major product 'P' for the following sequence of reactions is:

(see the figure above)

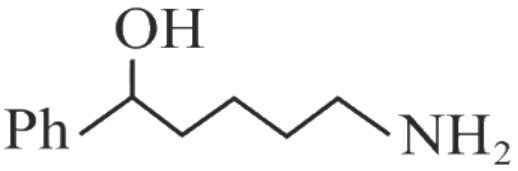
Q58. The major product 'P' for the following sequence of reactions is:



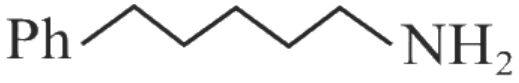
(1)



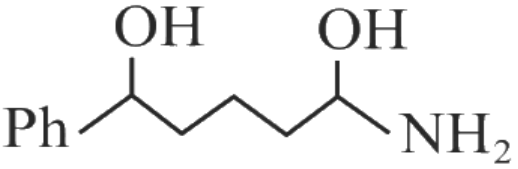
(2)



(3)



(4)



(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

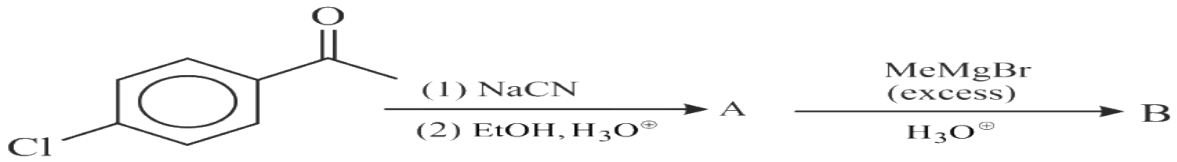
Answer: (C) · Key from source paper

Q99 JEE Main 2023 · 29 Jan · Shift 2 MCQ

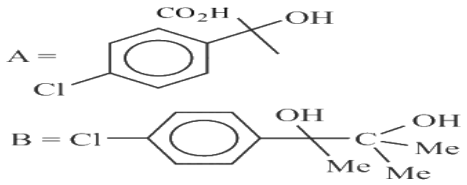
Find out the major products from the following reaction sequence.

(see the figure above)

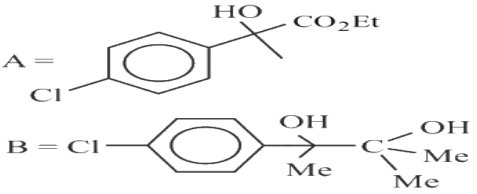
Q56. Find out the major products from the following reaction sequence.



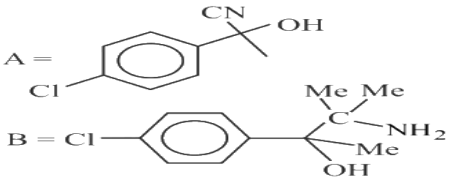
(1)



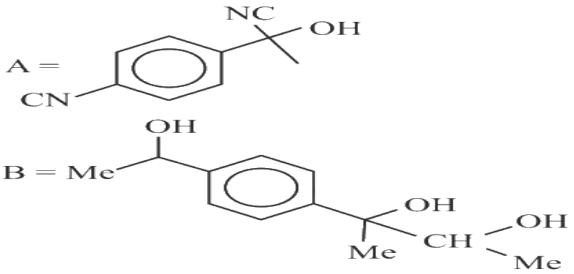
(2)



(3)



(4)



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · Key from source paper

Q100 JEE Main 2023 · 29 Jan · Shift 2 MCQ

Reaction of propanamide with Br_2 / KOH (aq) produces:

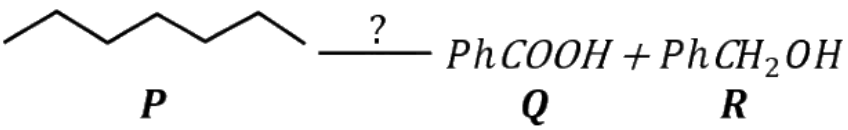
(A) Ethylnitrile
(B) Propylamine
(C) Propanenitrile
(D) Ethylamine

Answer: (D) Ethylamine · Key from source paper

Q101 JEE Main 2023 · 25 Jan · Shift 1 MCQ

see figure

Q40.



The correct sequence of reagents for the preparation of Q and R is:

(1) (i) Cr_2O_3, 770 K, 20 atm; (ii) CrO_2Cl_2, H_3O^+; (iii) NaOH; (iv) H_3O^+

(2) (i) CrO_2Cl_2, H_3O^+; (ii) Cr_2O_3, 770 K, 20 atm; (iii) NaOH; (iv) H_3O^+

(3) (i) $KMnO_4$, OH^-; (ii) Mo_2O_3, Δ; (iii) NaOH; (iv) H_3O^+

(4) (i) Mo_2O_3, Δ; (ii) CrO_2Cl_2, H_3O^+; (iii) NaOH; (iv) H_3O^+

(A) (i) Cr_2O_3, 770 K, 20 atm; (ii) CrO_2Cl_2, H_3O^+; (iii) NaOH; (iv) H_3O^+

(B) (i) CrO_2Cl_2, H_3O^+; (ii) Cr_2O_3, 770 K, 20 atm; (iii) NaOH; (iv) H_3O^+

(C) (i) $KMnO_4$, OH^-, Δ; (ii) Mo_2O_3, Δ; (iii) NaOH; (iv) H_3O^+

(D) (i) Mo_2O_3, Δ; (ii) CrO_2Cl_2, H_3O^+; (iii) NaOH; (iv) H_3O^+

Answer: (A) (i) Cr_2O_3, 770 K, 20 atm; (ii) CrO_2Cl_2, H_3O^+; (iii) NaOH; (iv) H_3O^+ · Key from source paper

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Q102

JEE Main 2023 · 25 Jan · Shift 1 · MCQ

Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R:
Assertion A: Acetal/Ketal is stable in basic medium.
Reason R: The high leaving tendency of alkoxide ion gives the stability to acetal/ketal in basic medium.
In the light of the above statements, choose the correct answer from the options given below:

(A) A is true but R is false

(B) A is false but R is true

(C) Both A and R are true and R is the correct explanation of A

(D) Both A and R are true but R is NOT the correct explanation of A

Answer: (A) A is true but R is false · Key from source paper

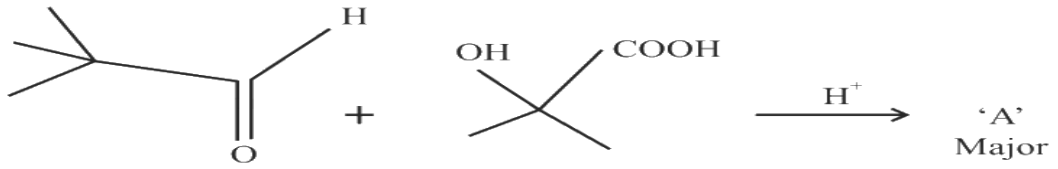
Q103

JEE Main 2023 · 25 Jan · Shift 2 · MCQ

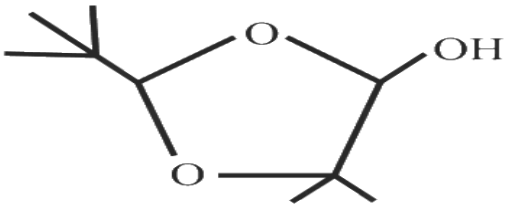
'A' in the given reaction is

(see the figure above)

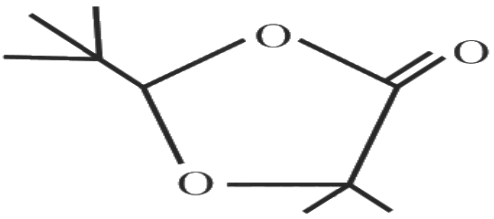
Q55. ' A ' in the given reaction is



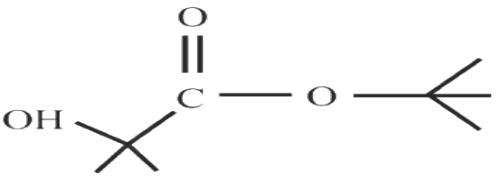
(1)



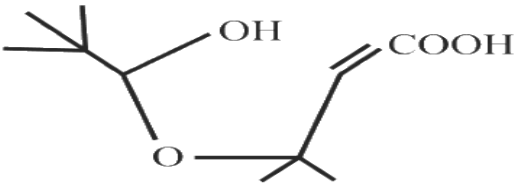
(2)



(3)



(4)



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

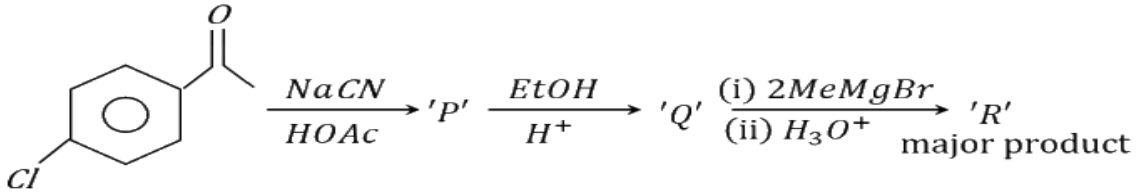
Answer: (B) · Key from source paper

Q104 JEE Main 2023 · 24 Jan · Shift 1 MCQ

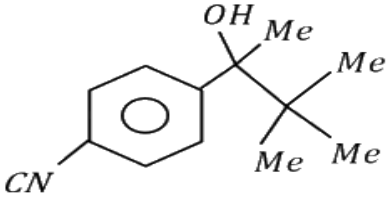
'R' formed in the following sequence of reaction is:

(see the figure above)

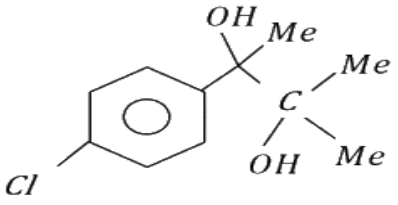
Q48. 'R' formed in the following sequence of reaction is:



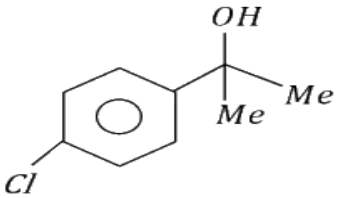
(1)



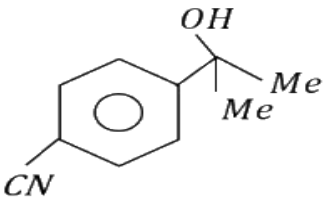
(2)



(3)



(4)



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

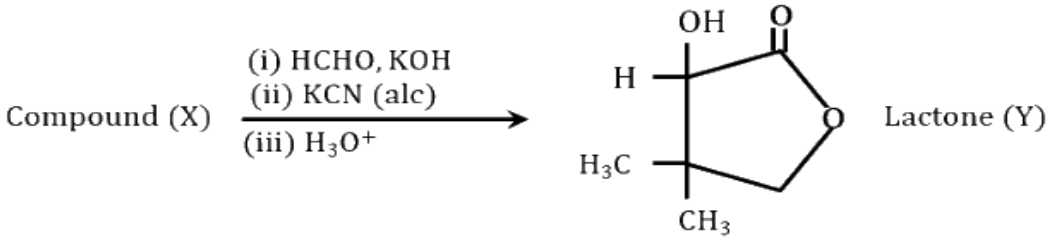
Answer: (B) · Key from source paper

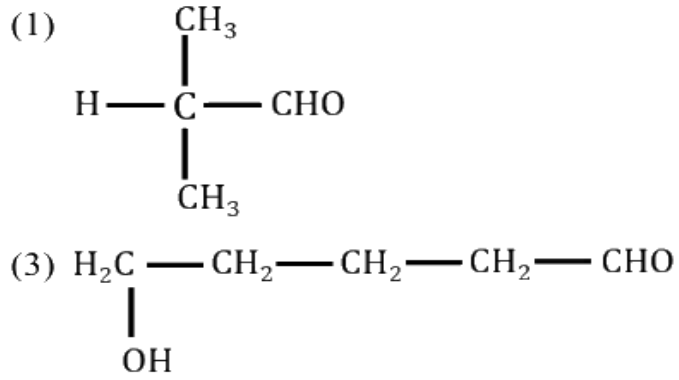
Q105 JEE Main 2023 · 24 Jan · Shift 1 MCQ

Compound X undergoes following sequence of reactions to give the Lactone Y.

(see the figure above)

Q49. Compound X undergoes following sequence of reactions to give the Lactone Y.





(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

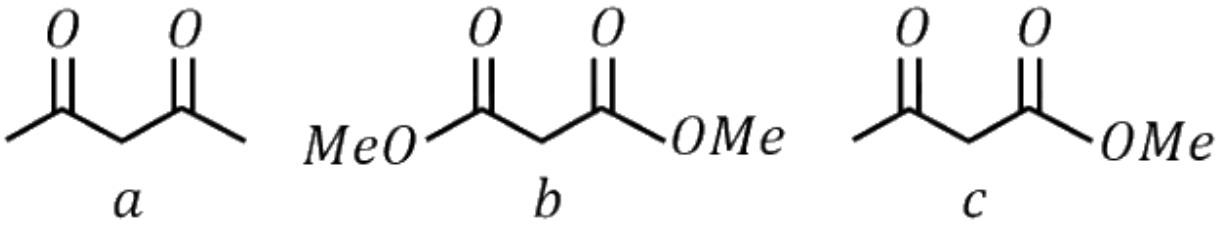
Answer: (A) · Key from source paper

Q106 JEE Main 2023 · 24 Jan · Shift 2 MCQ

Which will undergo deprotonation most readily in basic medium?

(see the figure above)

Q42. Which will undergo deprotonation most readily in basic medium?



(1) a only
(2) c only
(3) Both a and c
(4) b only

(A) a only
(B) c only
(C) Both a and c
(D) b only

Answer: (A) a only · Key from source paper

Q107 JEE Main 2023 · 24 Jan · Shift 2 MCQ

Given below are two statements :

Statement I :

(see the figure above)

under Clemmensen reduction conditions will give

(see the figure above)

Statement II :

(see the figure above)

under Wolff-Kishner reduction condition will give

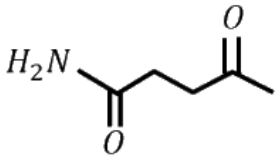
(see the figure above)

In the light of the above statements, choose the correct answer from the options given below :

EdLoop JEE

Q43. Given below are two statements :

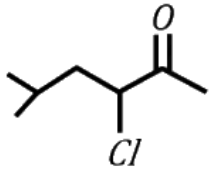
Statement I :



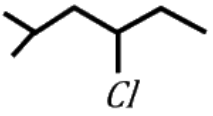
under Clemmensen reduction conditions will give



Statement II :



under Wolff-Kishner reduction condition will give



In the light of the above statements, choose the correct answer from the options given below :

(1) Statement I is false but Statement II is true
(2) Both Statement I and Statement II are false
(3) Statement I is true but Statement II is false
(4) Both Statement I and Statement II are true

(A) Statement I is false but Statement II is true
(B) Both Statement I and Statement II are false
(C) Statement I is true but Statement II is false
(D) Both Statement I and Statement II are true

Answer: (C) Statement I is true but Statement II is false · Key from source paper

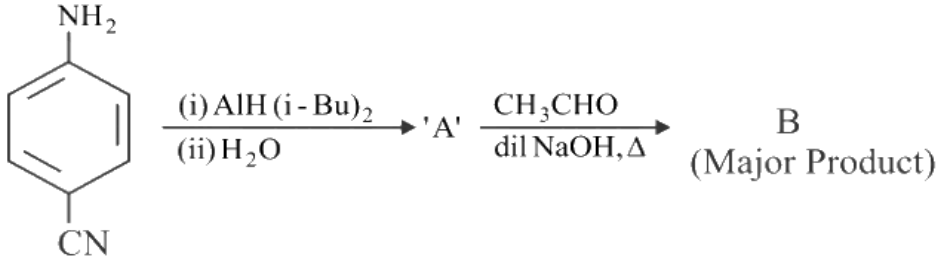
Q108 JEE Main 2022 · 29 Jul · Shift 1 MCQ

Consider the following reaction sequence

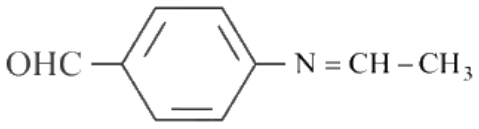
(see the figure above)

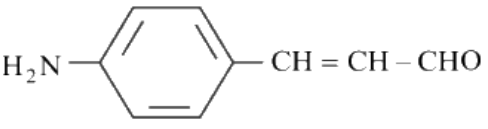
The product 'B' is

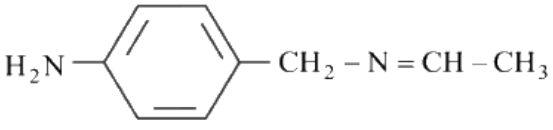
Q46. Consider the following reaction sequence

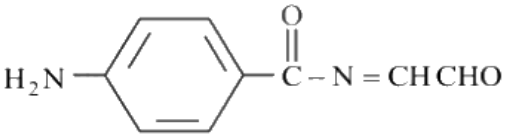


The product 'B' is

(1) 

(2) 

(3) 

(4) 

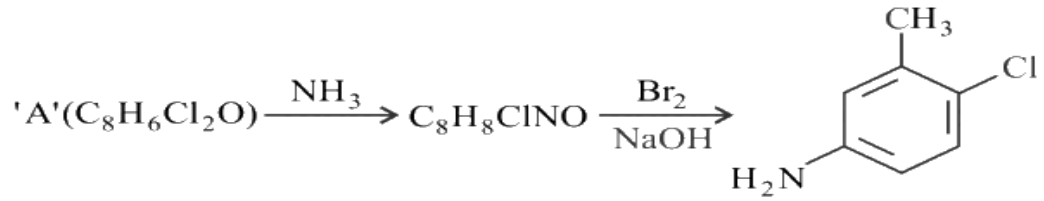
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · Key from source paper

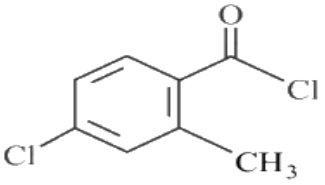
Q109 JEE Main 2022 · 29 Jul · Shift 1 MCQ

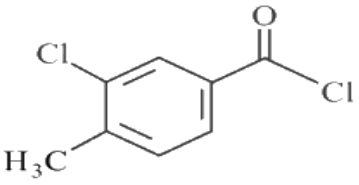
see figure

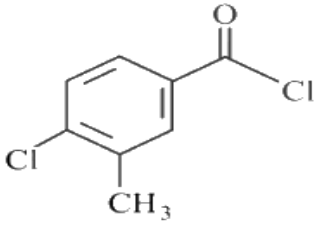
Q48.

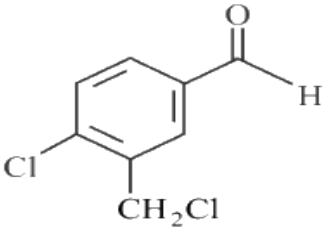


Consider the above reaction, the compound 'A' is

(1)


(2)


(3)


(4)


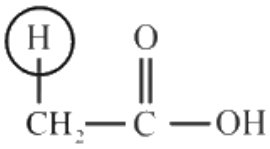
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

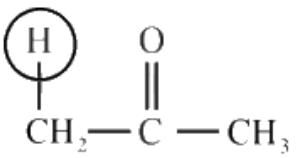
Answer: (C) · Key from source paper

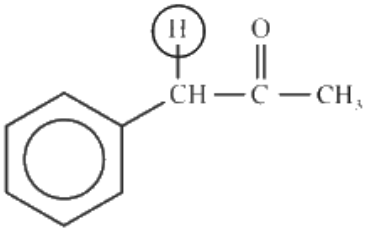
Q110 JEE Main 2022 · 28 Jul · Shift 1 MCQ

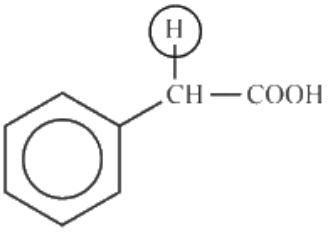
Among the following marked proton of which compound shows lowest pK_a value?
(see the figure above)

Q38. Among the following marked proton of which compound shows lowest pK_a value?

(1) 

(2) 

(3) 

(4) 

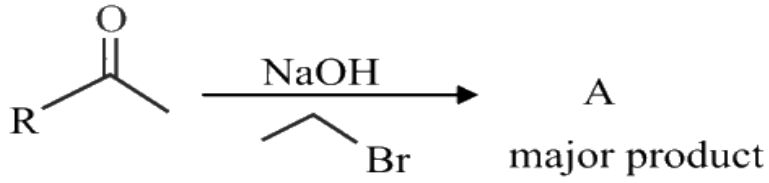
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

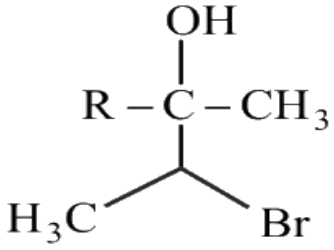
Answer: (C) · Key from source paper

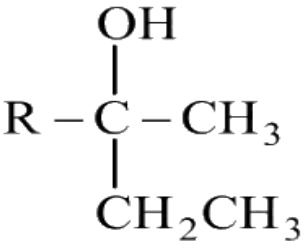
Q111 JEE Main 2022 · 27 Jul · Shift 2 MCQ

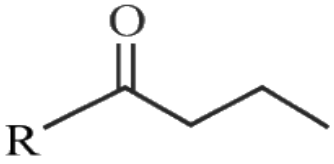
The structure of A in the given reaction is
(see the figure above)

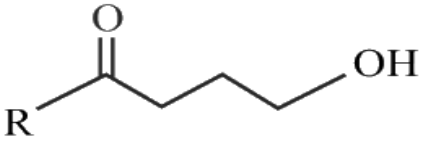
Q44. The structure of A in the given reaction is



(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

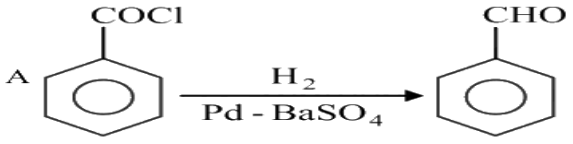
Answer: (C) · Key from source paper

Q112 JEE Main 2022 · 27 Jul · Shift 2 MCQ

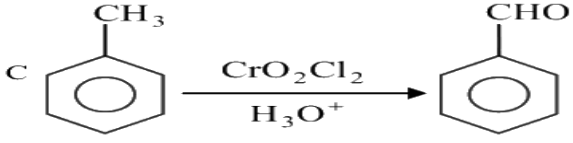
Match List-I with List-II.
(see the figure above)
List-I
List-II
I Gatterman Koch reaction
II Etard reaction
III Stephen reaction
IV Rosenmund reaction
Choose the correct answer from the options given below

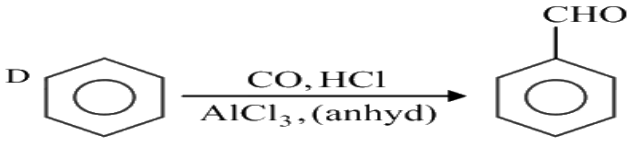
Q46. Match List-I with List-II.

List-I

A 

B $CH_3-CN \xrightarrow[H_3O^+]{SnCl_2/HCl} CH_3-CHO$

C 

D 

List-II

I Gatterman Koch reaction

II Etard reaction

III Stephen reaction

IV Rosenmund reaction

Choose the correct answer from the options given below

(1) A – IV, B – III, C – II, D – I
(2) A – I, B – II, C – III, D – IV
(3) A – II, B – III, C – IV, D – I
(4) A – III, B – II, C – I, D – IV

(A) A – IV, B – III, C – II, D – I
(B) A – I, B – II, C – III, D – IV
(C) A – II, B – III, C – IV, D – I
(D) A – III, B – II, C – I, D – IV

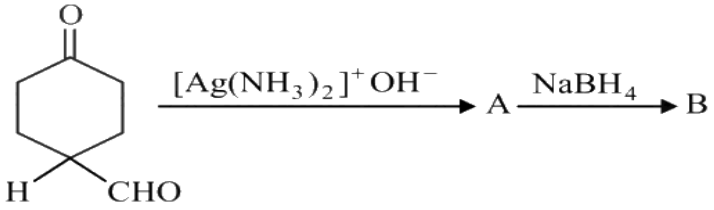
Answer: (A) A – IV, B – III, C – II, D – I · Key from source paper

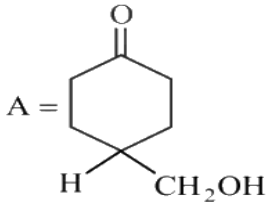
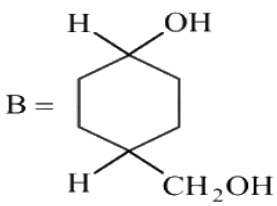
Q113 JEE Main 2022 · 26 Jul · Shift 1 MCQ

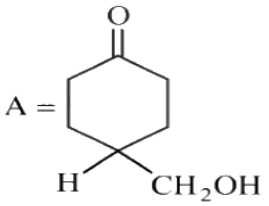
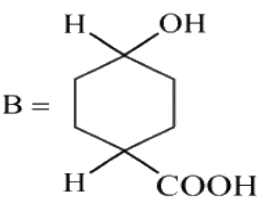
The products formed in the following reaction, A and B are

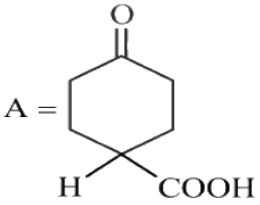
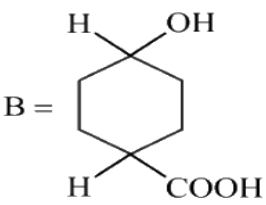
(see the figure above)

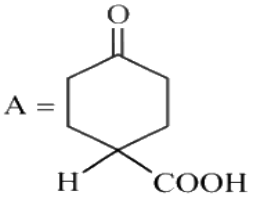
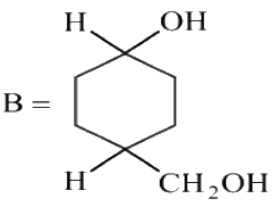
Q47. The products formed in the following reaction, A and B are



(1) A =  , B = 

(2) A =  , B = 

(3) A =  , B = 

(4) A =  , B = 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

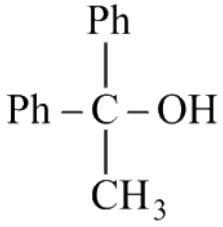
Answer: (C) · Key from source paper

Q114 JEE Main 2022 · 26 Jul · Shift 1 MCQ

Which reactant will give the following alcohol on reaction with one mole of phenyl magnesium bromide (PhMgBr) followed by acidic hydrolysis?

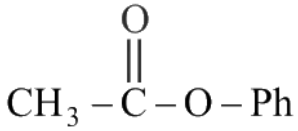
(see the figure above)

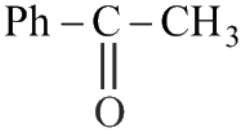
Q48. Which reactant will give the following alcohol on reaction with one mole of phenyl magnesium bromide (PhMgBr) followed by acidic hydrolysis?



(1) $CH_3 - C \equiv N$

(2) $Ph - C \equiv N$

(3) 

(4) 

(A) $CH_3 - C \equiv N$

(B) $Ph - C \equiv N$

(C) *see figure*

(D) *see figure*

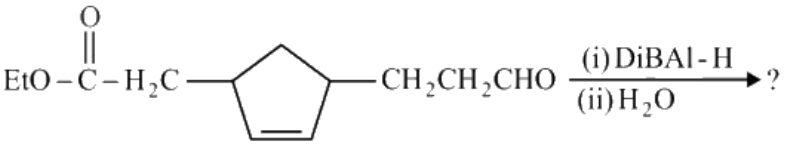
Answer: (D) · Key from source paper

Q115 JEE Main 2022 · 26 Jul · Shift 2 MCQ

Consider the above reaction and predict the major product.

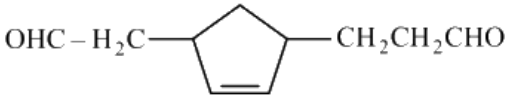
(see the figure above)

Q46.

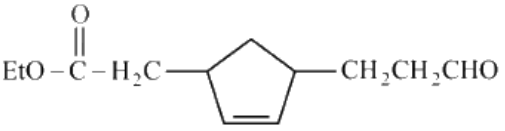


Consider the above reaction and predict the major product.

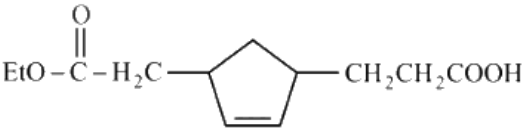
(1)



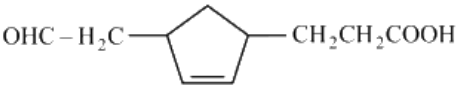
(2)



(3)



(4)



(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (A) · Key from source paper

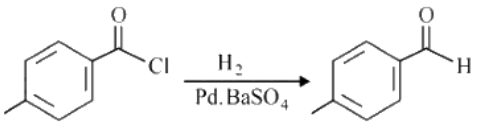
Q116 JEE Main 2022 · 25 Jul · Shift 1 MCQ

Which one of the following reactions does not represent correct combination of substrate and product under the given conditions?

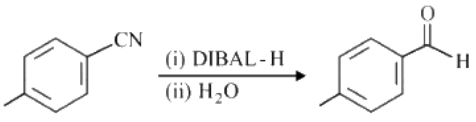
(see the figure above)

Q46. Which one of the following reactions does not represent correct combination of substrate and product under the given conditions?

(1)



(2)



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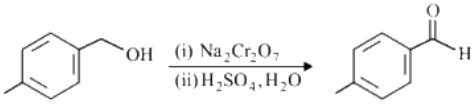
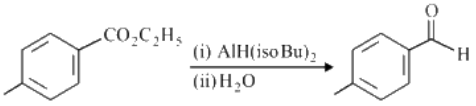


(4)



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

Q117 JEE Main 2022 · 25 Jul · Shift 1 Numerical

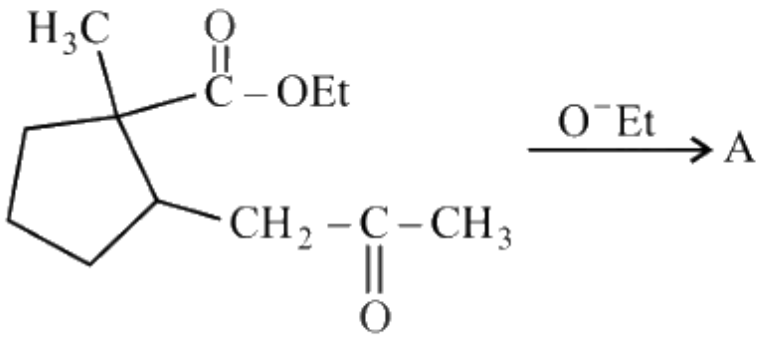
In the given reaction

(see the figure above)

(Where Et is $-C_2H_5$)

The number of chiral carbon/s in product A is

Q60. In the given reaction



(Where Et is -C_2H_5)

The number of chiral carbon/s in product A is

Numerical value type: the answer is a number.

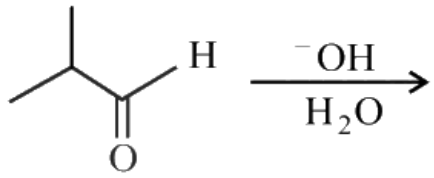
Answer: 2. · Key from source paper

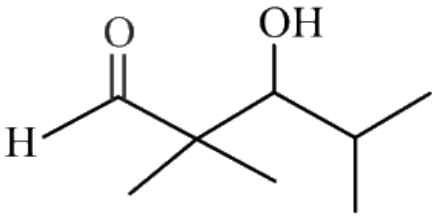
Q118 JEE Main 2022 · 25 Jul · Shift 2 MCQ

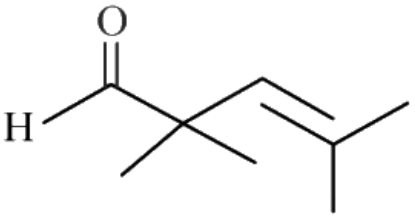
What is the major product of the following reaction?

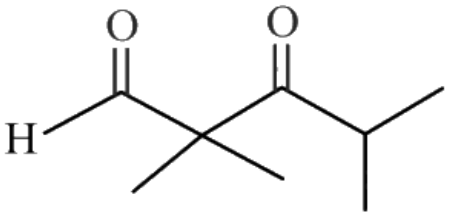
(see the figure above)

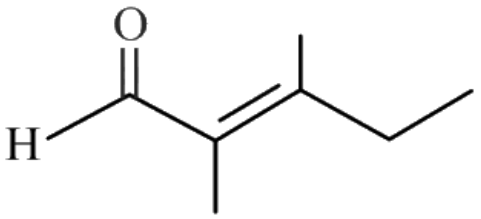
Q46. What is the major product of the following reaction?



(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q119 JEE Main 2022 · 25 Jul · Shift 2 MCQ

$CH_3 - CH_2 - CN \xrightarrow[\text{Ether}]{CH_3MgBr} A \xrightarrow{H_3O^+} B \xrightarrow[HCl]{Zn-Hg} C$. The correct structure of C is

(A) $CH_3 - CH_2 - CH_2 - CH_3$
(B) $CH_3 - CH_2 - C(=O) - CH_3$ (the C=O drawn on top of the central carbon)
(C) $CH_3 - CH_2 - CH(OH) - CH_3$ (the OH drawn on top of the CH)
(D) $CH_3 - CH_2 - CH = CH_2$

Answer: (A) $CH_3 - CH_2 - CH_2 - CH_3$ · Key from source paper

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Q120 JEE Main 2022 · 29 Jun · Shift 1 MCQ

Given below are two statements :
Statement I: The esterification of carboxylic acid with an alcohol is a nucleophilic acyl substitution.
Statement II: Electron withdrawing groups in the carboxylic acid will increase the rate of esterification reaction.
Choose the most appropriate option

(A) Statement I is correct but Statement II is incorrect.

(B) Both Statement I and Statement II are incorrect.

(C) Both Statement I and Statement II are correct.

(D) Statement I is incorrect but Statement II is correct.

Answer: (C) Both Statement I and Statement II are correct. · Key from source paper

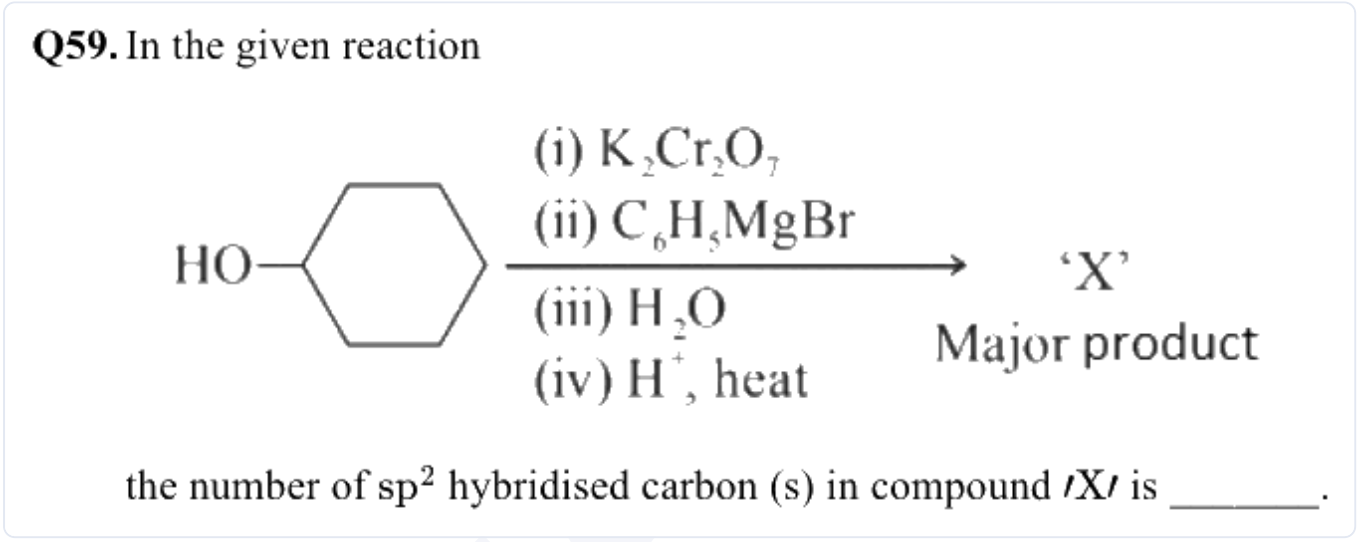
Q121 JEE Main 2022 · 29 Jun · Shift 2 Numerical

In the given reaction

(see the figure above) $\xrightarrow{\text{(i) } K_2Cr_2O_7 \text{ (ii) } C_6H_5MgBr \text{ (iii) } H_2O \text{ (iv) } H^+, \text{ heat}}$ 'X'

Major product

the number of sp^2 hybridised carbon (s) in compound 'X' is _____.



Numerical value type: the answer is a number.

Answer: 8. · Key from source paper

Q122 JEE Main 2022 · 29 Jun · Shift 2 Numerical

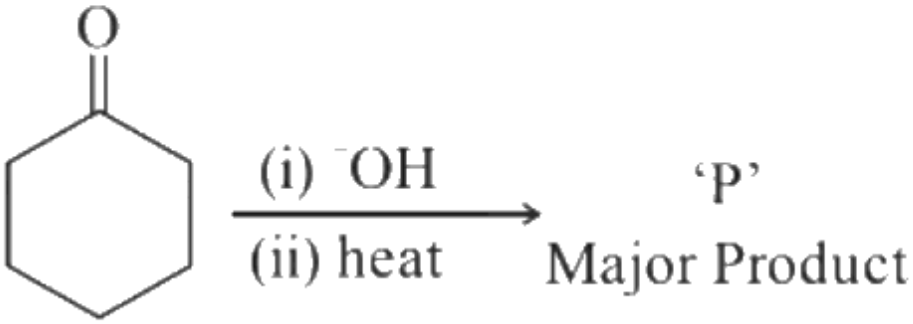
In the given reaction,

(see the figure above) $\xrightarrow{\text{(i) } {}^-OH \text{ (ii) heat}}$ 'P'

Major Product

The number of π electrons present in the product 'P' is _____.

Q60. In the given reaction,



The number of π electrons present in the product 'P' is _____.

Numerical value type: the answer is a number.

Answer: 4. · Key from source paper

Q123 JEE Main 2022 · 28 Jun · Shift 1 MCQ

The correct structure of product 'A' formed in the following reaction,

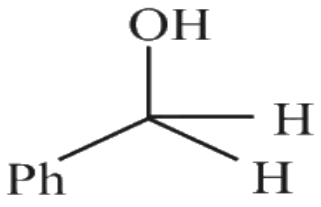
$$PhCHO + Ph - CHO \xrightarrow[\text{in } D_2O]{NaOD} A + Ph - \overset{O}{\overset{\|}{C}} - O^- \text{ (Ph is } -C_6H_5)$$

(see the figure above)

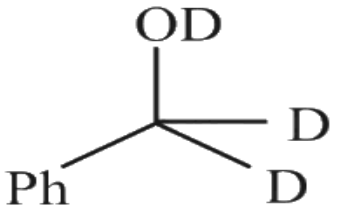
Q46. The correct structure of product 'A' formed in the following reaction,

$$PhCHO + Ph - CHO \xrightarrow[\text{in } D_2O]{NaOD} A + Ph - \overset{O}{\overset{\|}{C}} - O^- \text{ (Ph is } -C_6H_5) \text{ is}$$

(1)



(2)



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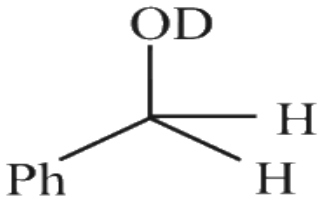

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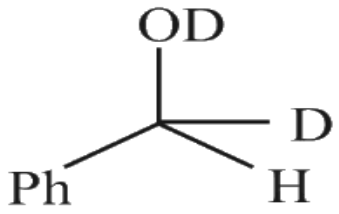


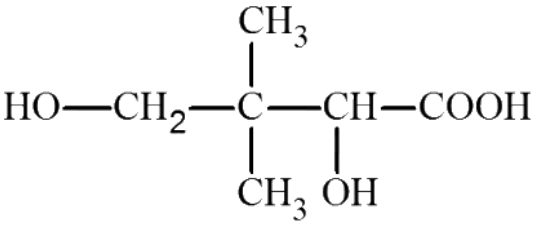
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

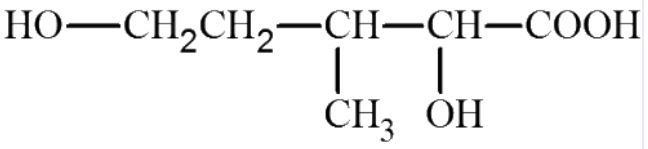
Answer: (C) · Key from source paper

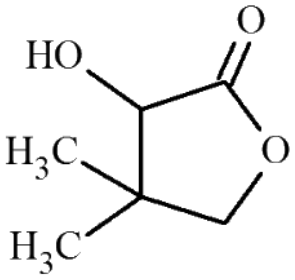
Q124 JEE Main 2022 · 28 Jun · Shift 2 MCQ

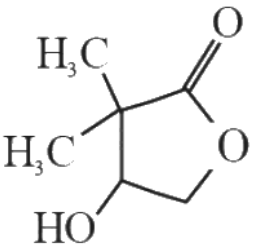
Isobutyraldehyde on reaction with formaldehyde and K_2CO_3 gives compound 'A'. Compound 'A' reacts with KCN and yields compound 'B', which on hydrolysis gives a stable compound 'C'. The compound 'C' is

Q46. Isobutyraldehyde on reaction with formaldehyde and K_2CO_3 gives compound 'A'. Compound 'A' reacts with KCN and yields compound 'B', which on hydrolysis gives a stable compound 'C'. The compound 'C' is

(1) 

(2) 

(3) 

(4) 

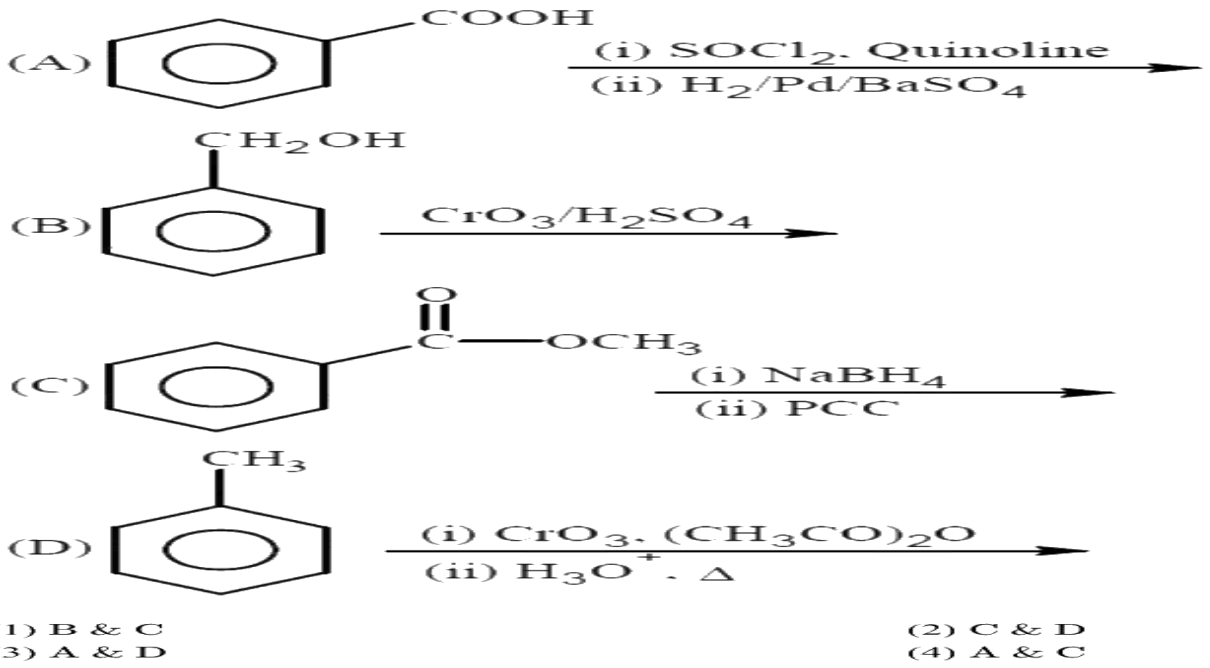
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

Q125 JEE Main 2022 · 27 Jun · Shift 1 MCQ

Which of the following reactions will yield benzaldehyde as a product?
(see the figure above)

Q45. Which of the following reactions will yield benzaldehyde as a product?



(1) B & C
(2) C & D
(3) A & D
(4) A & C

(A) B & C
(B) C & D
(C) A & D
(D) A & C

Answer: (C) A & D · Key from source paper

Q126 JEE Main 2022 · 27 Jun · Shift 2 MCQ

Decarboxylation of all six possible forms of diaminobenzoic acids $C_6H_3(NH_2)_2COOH$ yields three products A, B and C. Three acids give a product 'A', two acids gives a product 'B' and one acid give a product 'C'. The melting point of product 'C' is

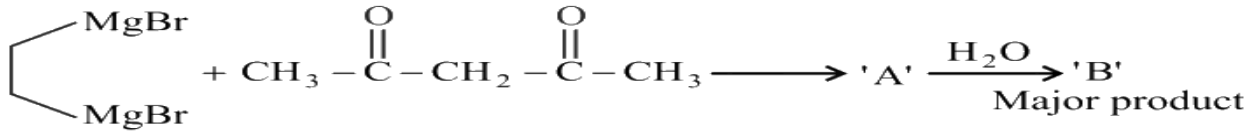
(A) $63\ ^\circ C$
(B) $90\ ^\circ C$
(C) $104\ ^\circ C$
(D) $142\ ^\circ C$

Answer: (D) $142\ ^\circ C$ · Key from source paper

Q127 JEE Main 2022 · 26 Jun · Shift 1 MCQ

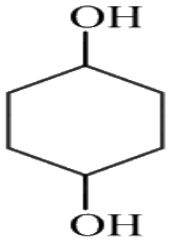
see figure

Q46.

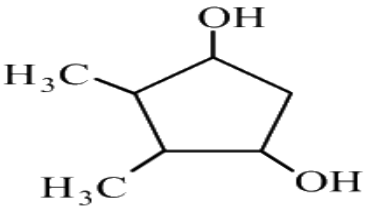


Consider the above reaction sequence and identify the product B.

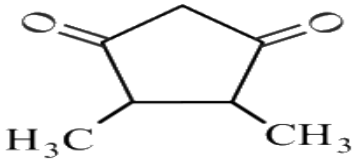
(1)



(2)



(3)



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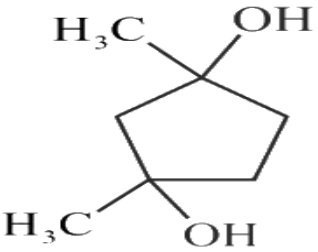

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Key from source paper

Q128 JEE Main 2022 · 26 Jun · Shift 2 MCQ

Toluene can be easily converted into benzaldehyde by which of the following reagents?

(A) CrO_3 /acetic acid, H_3O^+
(B) CrO_3 /acetic anhydride, H_3O^+
(C) $KMnO_4$ / HCl, H_3O^+
(D) CO, HCl, Anhyd. $AlCl_3$

Answer: (B) CrO_3 **/acetic anhydride,** H_3O^+ · Key from source paper

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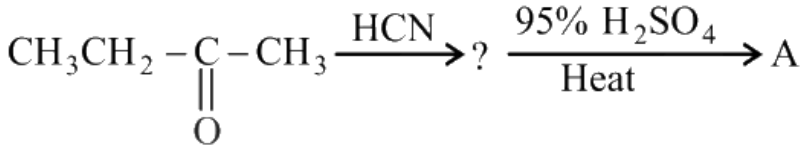
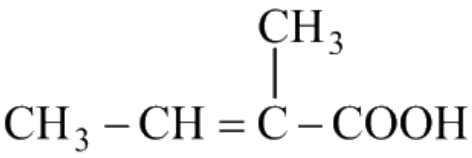
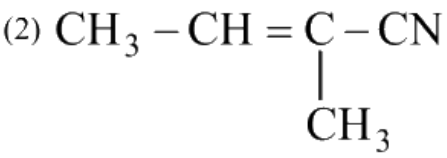
Q129 JEE Main 2022 · 26 Jun · Shift 2 MCQ

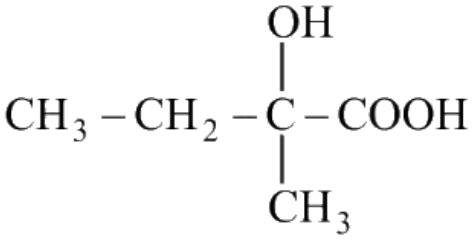
The final product 'A' in the following reaction sequence
(see the figure above)

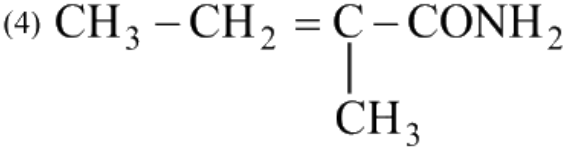
Q44. The final product 'A' in the following reaction sequence



(1) 

(2) 

(3) 

(4) 

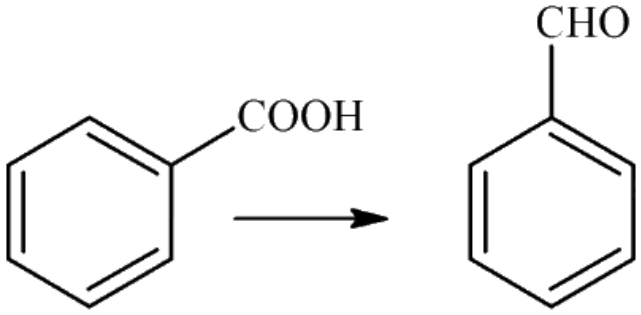
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q130 JEE Main 2022 · 26 Jun · Shift 2 MCQ

The reagent, from the following, which converts benzoic acid to benzaldehyde in one step is *(see the figure above)*

Q45. The reagent, from the following, which converts benzoic acid to benzaldehyde in one step is



(1) $LiAlH_4$
(2) $KMnO_4$
(3) MnO
(4) $NaBH_4$

(A) $LiAlH_4$

(B) $KMnO_4$

(C) MnO

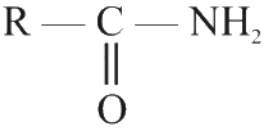
(D) $NaBH_4$

Answer: (C) MnO · Key from source paper

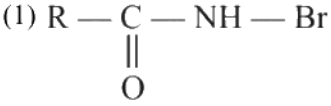
Q131 JEE Main 2022 · 25 Jun · Shift 1 MCQ

see figure

Q48.

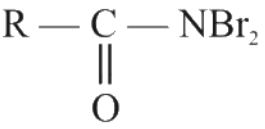


The reaction of with bromine and KOH gives RNH_2 as the end product. Which one of the following is the intermediate product formed in this reaction?

(1) 

(2) R - NH - Br

(3) R - N = C = O

(4) 

(A) *see figure*

(B) $R-NH-Br$

(C) $R-N=C=O$

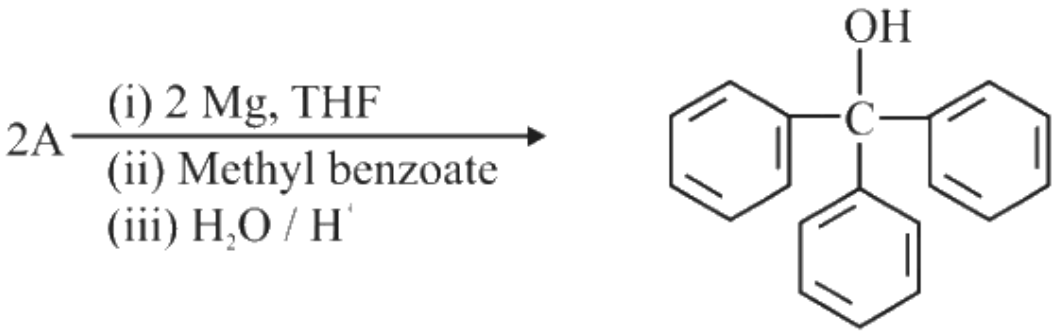
(D) *see figure*

Answer: (C) $R-N=C=O$ · Key from source paper

Q132 JEE Main 2022 · 25 Jun · Shift 2 MCQ

In the given reaction
(see the figure above)
'A' can be

Q43. In the given reaction



'A' can be

(1) benzyl bromide
(2) bromobenzene
(3) cyclohexyl bromide
(4) methyl bromide

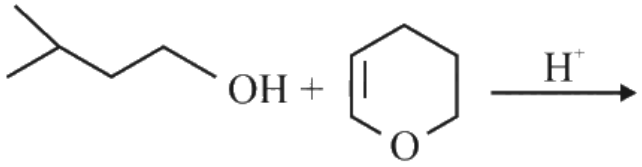
(A) benzyl bromide
(B) bromobenzene
(C) cyclohexyl bromide
(D) methyl bromide

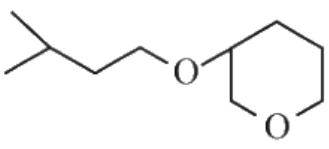
Answer: (B) bromobenzene · Key from source paper

Q133 JEE Main 2022 · 25 Jun · Shift 2 MCQ

The major product formed in the following reaction, is
(see the figure above)

Q45. The major product formed in the following reaction, is



(1)


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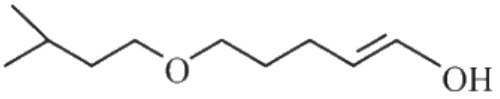

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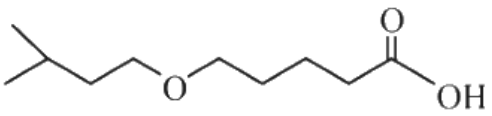
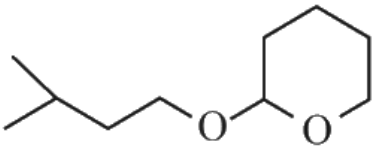


(4)


(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

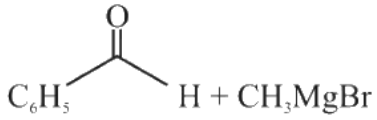
Answer: (D) · Key from source paper

Q134 JEE Main 2022 · 25 Jun · Shift 2 MCQ

Which of the following conditions or reaction sequence will NOT give acetophenone as the major product?

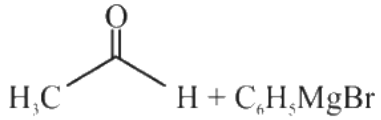
Q46. Which of the following conditions or reaction sequence will NOT give acetophenone as the major product?

(1) (a)



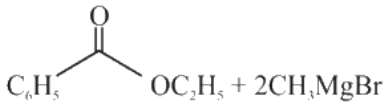
(b) $Na_2Cr_2O_7, H^+$

(2) (a)



(b) PCC, DCM

(3)



(4)



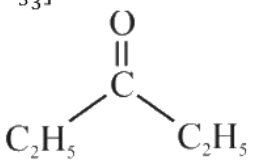
(A) (a) *(see the figure above)* (b) $Na_2Cr_2O_7, H^+$
(B) (a) *(see the figure above)* (b) PCC, DCM
(C) *see figure*
(D) *see figure*

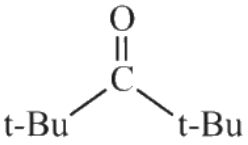
Answer: (C) · Key from source paper

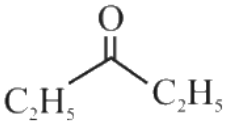
Q135 JEE Main 2022 · 25 Jun · Shift 2 MCQ

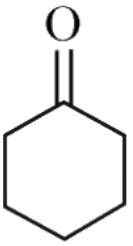
Which of the following ketone will NOT give enamine on treatment with secondary amines? [where t - Bu is $-CCH_{33}$]

Q48. Which of the following ketone will NOT give enamine on treatment with secondary amines? [where t - Bu is $-CCH_{33}$]

(1) 

(2) 

(3) 

(4) 

(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (B) · Key from source paper

Q136 JEE Main 2022 · 24 Jun · Shift 1 MCQ

Two statements are given belwo :

Statement I : The melting point of monocarboxylic acid with even number of carbon atoms is higher than that of with odd number of carbon atoms acid immediately below and above it in the series.

Statement II : The solubility of monocarboxylic acids in water decreases with increase in molar mass.

Choose the most appropriate option :

(A) Both Statement I and Statement II are correct.

(B) Both Statement I and Statement II are incorrect.

(C) Statement I is correct but Statement II is incorrect.

(D) Statement I is incorrect but Statement II is correct.

Answer: (A) Both Statement I and Statement II are correct. · Checked by our team

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Q137 JEE Main 2022 · 24 Jun · Shift 2 MCQ

Hex-4-ene-2-ol on treatment with PCC gives 'A'. 'A' on reaction with sodium hypoiodite gives 'B', which on further heating with soda lime gives 'C'. The compound 'C' is

(A) 2-pentene

(B) proponaldehyde

(C) 2-butene

(D) 4-methylpent-2-ene

Answer: (C) 2-butene · Key from source paper

Q138 JEE Main 2021 · 1 Sep · Shift 2 MCQ

In the following sequence of reactions, $C_3H_6 \xrightarrow{H^+/H_2O} A \xrightarrow[\text{dilKOH}]{KIO} B + C$. The compounds B and C respectively are :

(A) CI_3COOK, CH_3I
(B) CH_3I, $HCOOK$
(C) CI_3COOK, $HCOOH$
(D) CHI_3, CH_3COOK

Answer: (D) CHI_3, CH_3COOK · Key from source paper

Q139 JEE Main 2021 · 1 Sep · Shift 2 MCQ

Given below are two statements :
Statement I : The nucleophilic addition of sodium hydrogen sulphite to an aldehyde or a ketone involves proton transfer to form a stable ion.
Statement II : The nucleophilic addition of hydrogen cyanide to an aldehyde or a ketone yields amine as final product.
In the light of the above statements, choose the most appropriate answer from the options given below :

(A) Both Statement I and Statement II are false.
(B) Both Statement I and Statement II are true.
(C) Statement I is false but Statement II is true.
(D) Statement I is true but Statement II is false.

Answer: (D) Statement I is true but Statement II is false. · Key from source paper

Q140 JEE Main 2021 · 1 Sep · Shift 2 MCQ

In the following sequence of reactions a compound A, (molecular formula $C_6H_{12}O_2$) with a straight chain structure gives a C_4 carboxylic acid. A is :
$A \xrightarrow[H_3O^+]{LiAlH_4} B \xrightarrow{\text{Oxidation}} C_4$ - carboxylic acid

(A) $CH_3-CH_2-CH(OH)-CH_2-O-CH=CH_2$ (the OH hangs above the third carbon)
(B) $CH_3-CH_2-CH_2-O-CH=CH-CH_2-OH$
(C) $CH_3-CH_2-CH_2-COO-CH_2-CH_3$
(D) $CH_3-CH_2-COO-CH_2-CH_2-CH_3$

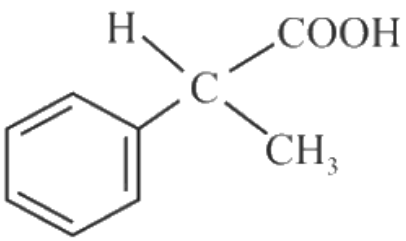
Answer: (C) $CH_3-CH_2-CH_2-COO-CH_2-CH_3$ · Key from source paper

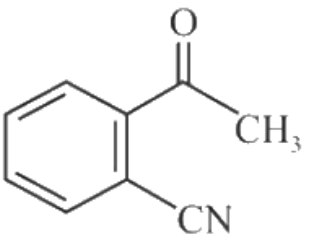
Q141 JEE Main 2021 · 31 Aug · Shift 1 MCQ

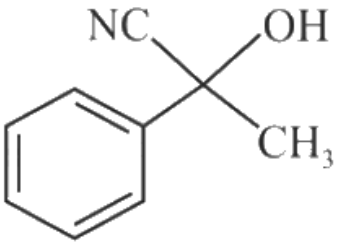
The structure of product C, formed by the following sequence of reactions is :
$CH_3\,COOH + SOCl_2 \longrightarrow A \xrightarrow[AlCl_3]{\text{Benzene}} B \xrightarrow[-OH]{KCN} C$

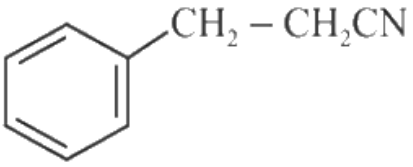
Q44. The structure of product C, formed by the following sequence of reactions is :

$$CH_3COOH + SOCl_2 \longrightarrow A \xrightarrow[AlCl_3]{\text{Benzene}} B \xrightarrow[-OH]{KCN} C$$

(1) 

(2) 

(3) 

(4) 

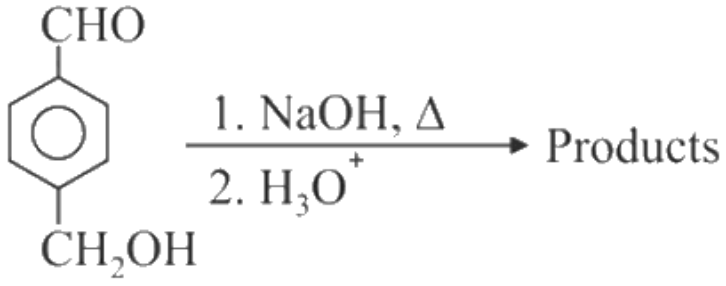
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

Q142 JEE Main 2021 · 31 Aug · Shift 2 MCQ

For the reaction given below :
(see the figure above)
The compound which is not formed as a product in the reaction is a :

Q46. For the reaction given below :



The compound which is not formed as a product in the reaction is a :

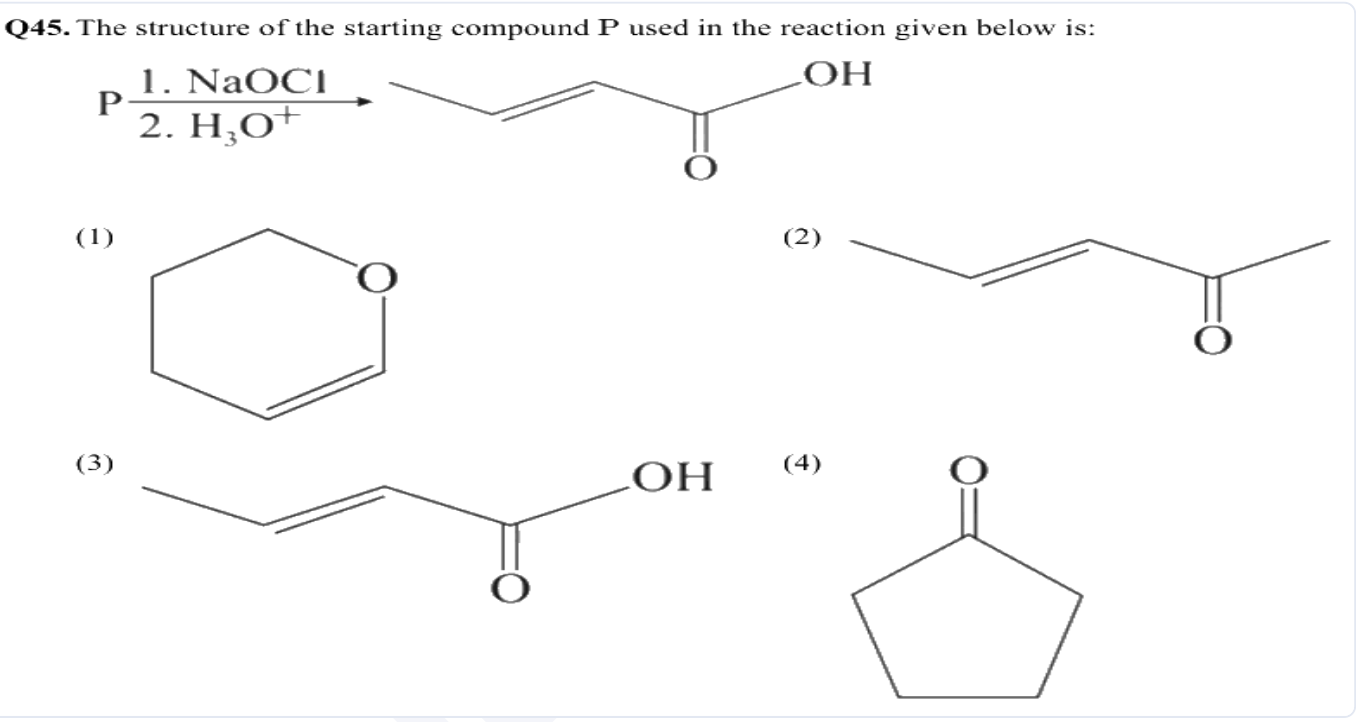
(1) diol
(2) monocarboxylic acid
(3) compound with both alcohol and acid functional groups
(4) dicarboxylic acid

(A) diol
(B) monocarboxylic acid
(C) compound with both alcohol and acid functional groups
(D) dicarboxylic acid

Answer: (D) dicarboxylic acid · Key from source paper

Q143 JEE Main 2021 · 27 Aug · Shift 1 MCQ

The structure of the starting compound P used in the reaction given below is:
(see the figure above)



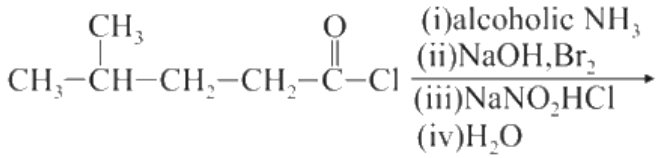
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

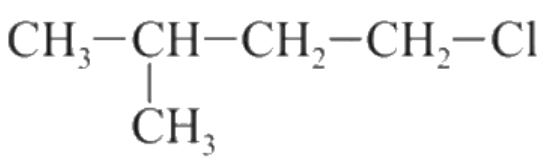
Answer: (B) · Key from source paper

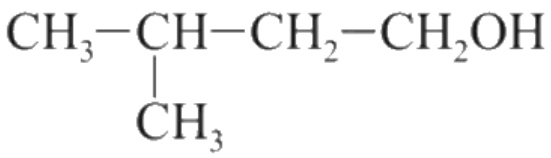
Q144 JEE Main 2021 · 27 Aug · Shift 1 MCQ

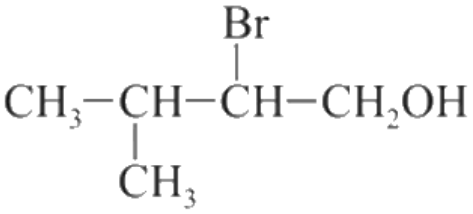
The major product of the following reaction is:
(see the figure above)

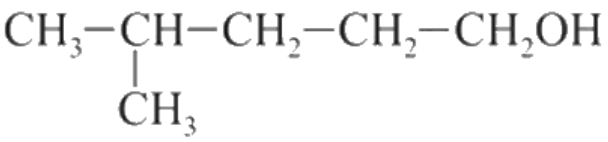
Q46. The major product of the following reaction is:



(1) 

(2) 

(3) 

(4) 

(A) $CH_3 - CH - CH_2 - CH_2 - Cl$ with a CH_3 branch hanging below the second carbon.

(B) $CH_3 - CH - CH_2 - CH_2OH$ with a CH_3 branch hanging below the second carbon.

(C) $CH_3 - CH - CH - CH_2OH$ with a Br hanging above the third carbon and a CH_3 hanging below the second carbon.

(D) $CH_3 - CH - CH_2 - CH_2 - CH_2OH$ with a CH_3 branch hanging below the second carbon.

Answer: (B) $CH_3 - CH - CH_2 - CH_2OH$ **with a** CH_3 **branch hanging below the second carbon.** · Key from source paper

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Q145 JEE Main 2021 · 27 Aug · Shift 2 MCQ

Which one of the following reactions will not yield propanoic acid?

(A) $CH_3\,CH_2\,CH_2\,Br + Mg,\ CO_2$ dry ether $/H_3O^+$

(B) $CH_3\,CH_2\,CH_3 + KMnO_4\,(Heat), OH^-/H_3O^+$

(C) $CH_3\,CH_2\,CCl_3 + OH^-/H_3O^+$

(D) $CH_3\,CH_2\,COCH_3 + OI^-/H_3O^+$

Answer: (A) $CH_3\,CH_2\,CH_2\,Br + Mg,\ CO_2$ **dry ether** $/H_3O^+$ · Key from source paper

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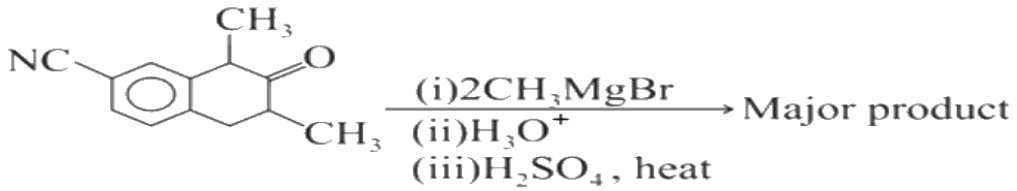
Q146 JEE Main 2021 · 27 Aug · Shift 2 MCQ

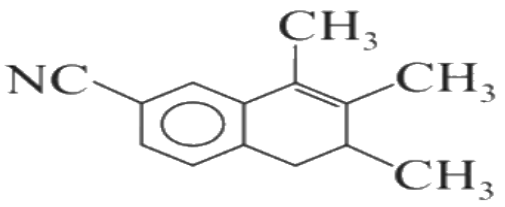
Which one of the following is the major product of the given reaction?

(see the figure above)

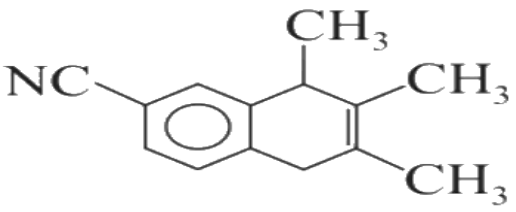
Q47. Which one of the following is the major product of the given reaction?



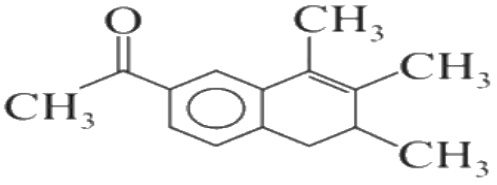
(1)



(2)



(3)



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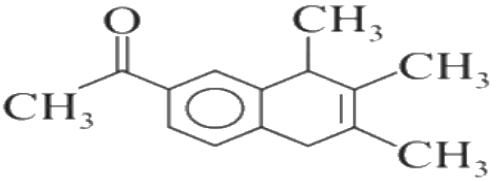


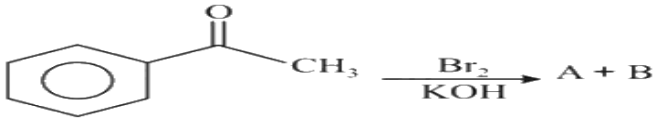
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

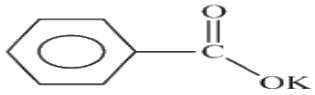
Answer: (C) · Key from source paper

Q147 JEE Main 2021 · 26 Aug · Shift 1 MCQ

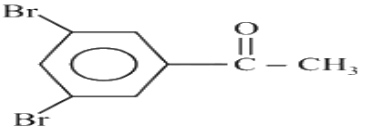
The major products formed in the following reaction sequence A and B are:
(see the figure above)

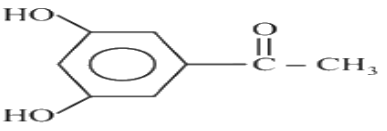
Q47. The major products formed in the following reaction sequence A and B are:

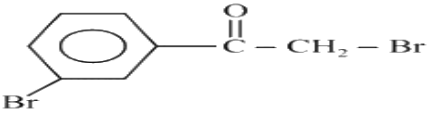


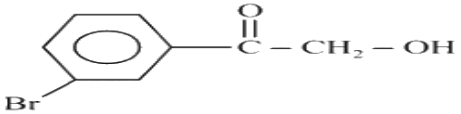
(1) A = 

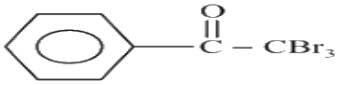
, B = $CHBr_3$

(2) A = 

, B = 

(3) A = 

, B = 

(4) A = 

, B = 

(A) A = *(see the figure above)* sodium benzoate (benzene ring bearing C(=O)OK), B = $CHBr_3$

(B) A = *(see the figure above)* acetophenone with Br at both meta positions (3,5-dibromoacetophenone, ring with C(=O)-CH3), B = *(see the figure above)* acetophenone with OH at both meta positions (3,5-dihydroxyacetophenone)

(C) A = *(see the figure above)* ring with Br at the meta position and C(=O)-CH2-Br, B = *(see the figure above)* ring with Br at the meta position and C(=O)-CH2-OH

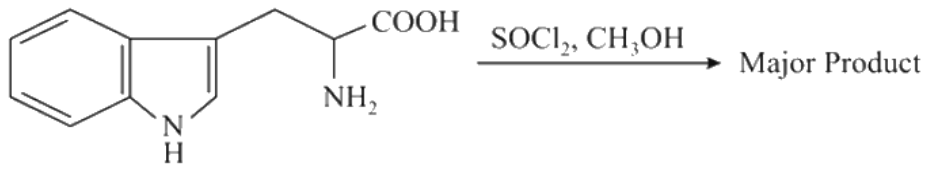
(D) A = *(see the figure above)* benzene ring bearing C(=O)-CBr3, B = *(see the figure above)* benzaldehyde (benzene ring bearing CHO)

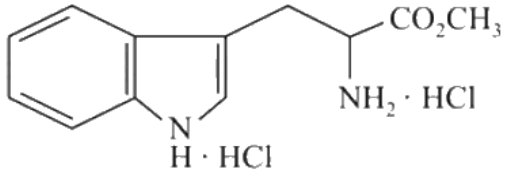
Answer: (A) A = *(see the figure above)* **sodium benzoate (benzene ring bearing C(=O)OK), B =** $CHBr_3$ · Key from source paper

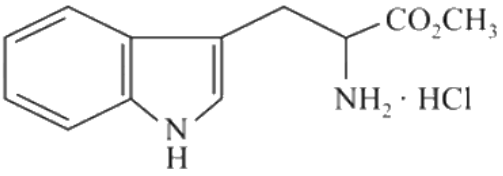
Q148 JEE Main 2021 · 26 Aug · Shift 1 MCQ

The major product formed in the following reaction is:
(see the figure above)

Q48. The major product formed in the following reaction is:



(1)


(2)


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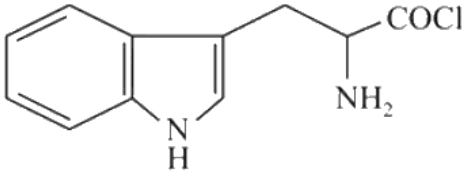

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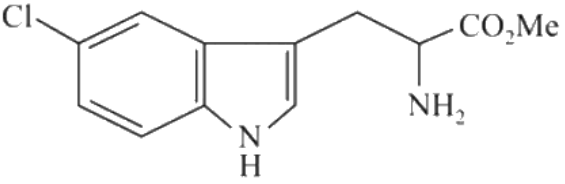


(A) *see figure*

(B) *see figure*

(C) *see figure*

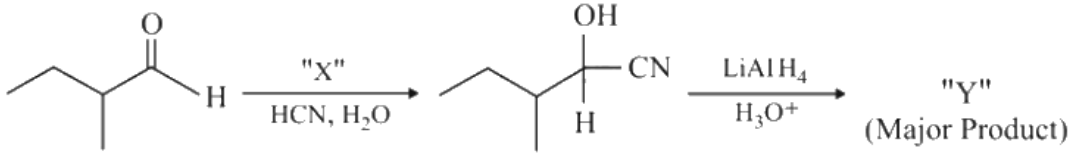
(D) *see figure*

Answer: (B) · Key from source paper

Q149 JEE Main 2021 · 26 Aug · Shift 2 MCQ

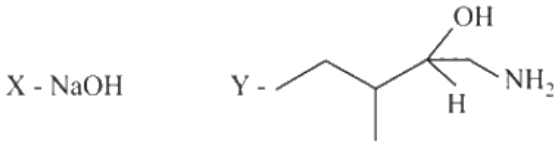
see figure

Q38.

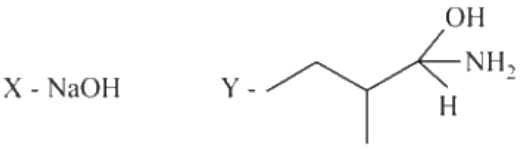


Consider the given reaction, Identify 'X' and 'Y' :

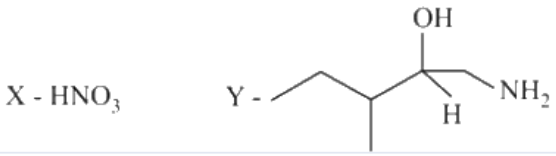
(1)



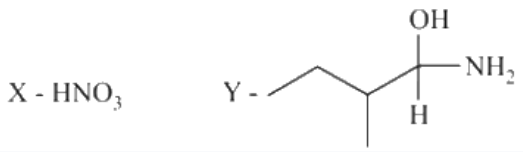
(2)



(3)



(4)



(A) X - $NaOH$; Y - *(see the figure above)* skeletal chain with a branch (methyl) and a CH(OH) carbon (OH up, H down) followed by CH2-NH2

(B) X - $NaOH$; Y - *(see the figure above)* skeletal chain with a branch (methyl) and a carbon bearing OH (up), NH2 (right) and H (down) on the same carbon

(C) X - HNO_3; Y - *(see the figure above)* skeletal chain with a branch (methyl) and a CH(OH) carbon (OH up, H down) followed by CH2-NH2

(D) X - HNO_3; Y - *(see the figure above)* skeletal chain with a branch (methyl) and a carbon bearing OH (up), NH2 (right) and H (down) on the same carbon

Answer: (A) X - $NaOH$; Y - *(see the figure above)* **skeletal chain with a branch (methyl) and a CH(OH) carbon (OH up, H down) followed by CH2-NH2** · Key from source paper

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Q150 JEE Main 2021 · 26 Aug · Shift 2 MCQ

Match List - I with List - II.

List - I

(Chemical Reaction)

a $CH_3COOCH_2CH_3 \rightarrow CH_3CH_2OH$

b $CH_3COOCH_3 \rightarrow CH_3CHO$

c $CH_3C \equiv N \rightarrow CH_3CHO$

d $CH_3C \equiv N \rightarrow$ *(see the figure above)*

List - II

(Reagent used)

i CH_3MgBr/H_3O^+ (one equivalent)

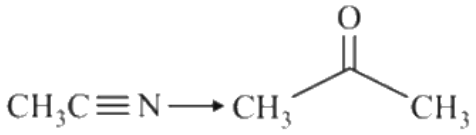
ii H_2SO_4/H_2O

iii $DIBAL - H/H_2O$

iv $SnCl_2, HCl/H_2O$

Choose the most appropriate match.

Q48. Match List - I with List - II.

List - I (Chemical Reaction)	List - II (Reagent used)
a $CH_3COOCH_2CH_3 \rightarrow CH_3CH_2OH$	i CH_3MgBr/H_3O^+ (one equivalent)
b $CH_3COOCH_3 \rightarrow CH_3CHO$	ii H_2SO_4/H_2O
c $CH_3C \equiv N \rightarrow CH_3CHO$	iii $DIBAL-H/H_2O$
d 	iv $SnCl_2, HCl/H_2O$

Choose the most appropriate match.

(1) (a) – (ii), (b) – (iii), (c) – (iv), (d) – (i)
(2) (a) – (ii), (b) – (iv), (c) – (iii), (d) – (i)
(3) (a) – (iii), (b) – (ii), (c) – (i), (d) – (iv)
(4) (a) – (iv), (b) – (ii), (c) – (iii), (d) – (i)

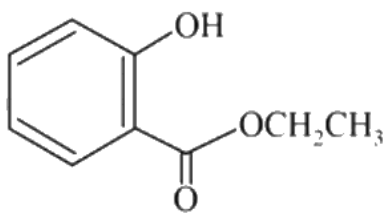
(A) (a) - (ii), (b) - (iii), (c) - (iv), (d) - (i)
(B) (a) - (ii), (b) - (iv), (c) - (iii), (d) - (i)
(C) (a) - (iii), (b) - (ii), (c) - (i), (d) - (iv)
(D) (a) - (iv), (b) - (ii), (c) - (iii), (d) - (i)

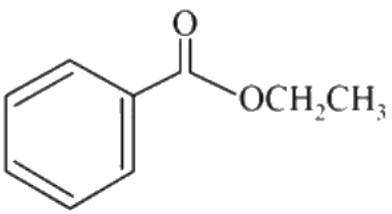
Answer: (A) (a) - (ii), (b) - (iii), (c) - (iv), (d) - (i) · Key from source paper

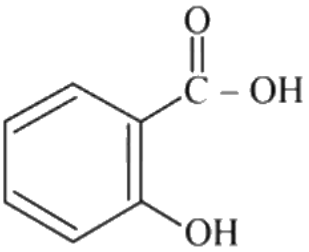
Q151 JEE Main 2021 · 27 Jul · Shift 1 MCQ

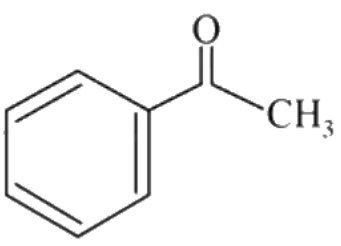
Which one of the following compounds will give orange precipitate when treated with 2, 4 – dinitrophenyl hydrazine ?

Q46. Which one of the following compounds will give orange precipitate when treated with 2, 4 –dinitrophenyl hydrazine ?

(1) 

(2) 

(3) 

(4) 

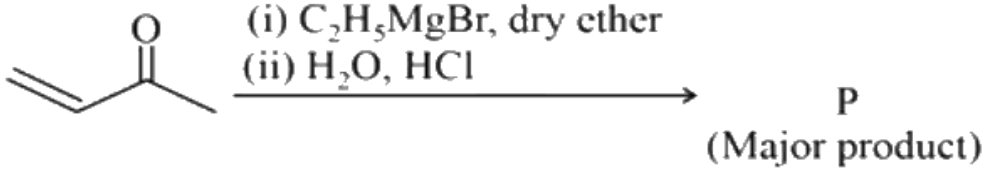
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Key from source paper

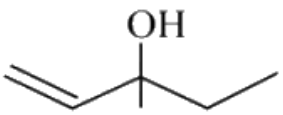
Q152 JEE Main 2021 · 25 Jul · Shift 1 MCQ

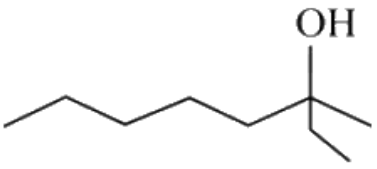
see figure

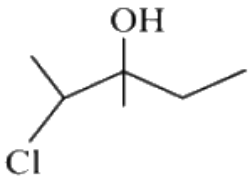
Q42.

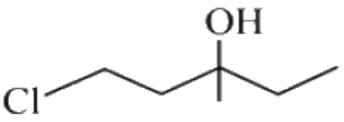


Consider the above reaction, the major product 'P' is:

(1) 

(2) 

(3) 

(4) 

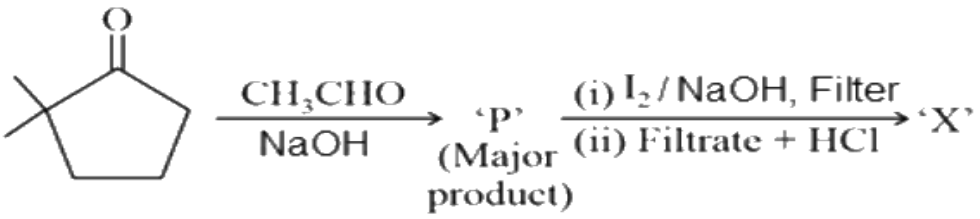
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Checked by our team

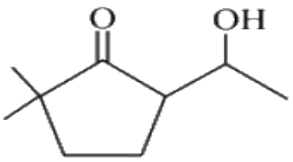
Q153 JEE Main 2021 · 25 Jul · Shift 1 MCQ

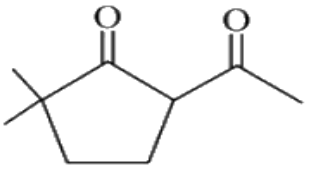
see figure

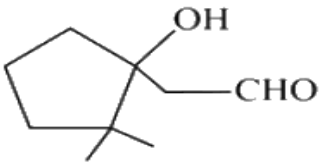
Q44.

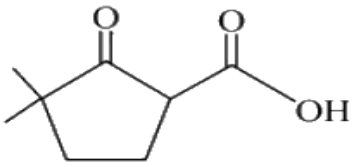


Consider the given reaction, the product 'X' is:

(1) 

(2) 

(3) 

(4) 

(A) *see figure*

(B) *see figure*

(C) *see figure*

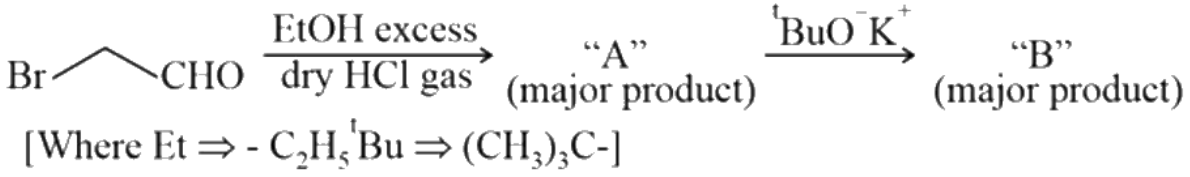
(D) *see figure*

Answer: (D) · Key from source paper

Q154 JEE Main 2021 · 25 Jul · Shift 2 MCQ

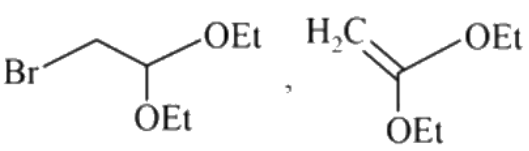
see figure

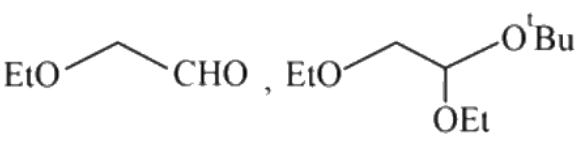
Q44.

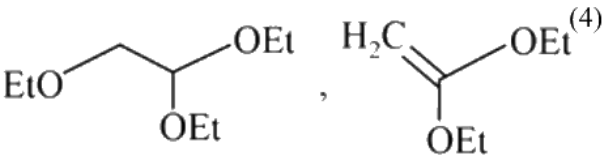


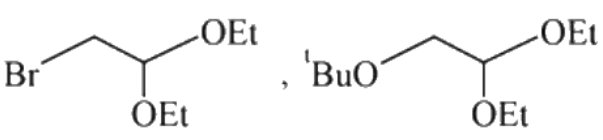
[Where Et ⇒ - C_2H_5 ^{t}Bu ⇒ $(CH_3)_3C$-]

Consider the above reaction sequence, Product "A" and Product "B" formed respectively are:

(1) 

(2) 

(3) 

(4) 

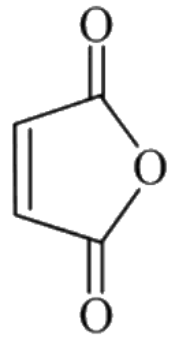
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q155 JEE Main 2021 · 25 Jul · Shift 2 MCQ

see figure

Q46.



Maleic anhydride

Maleic anhydride can be prepared by :

(1) Heating trans-but-2-enedioic acÄ±d

(2) Heating cis-but-2-enedioic acid

(3) Treating cis-but-2-enedioic acid with alcohol and acid

(4) Treating trans-but-2-enedioic acid with alcohol and acid

(A) Heating trans-but-2-enedioic acid
(B) Heating cis-but-2-enedioic acid
(C) Treating cis-but-2-enedioic acid with alcohol and acid
(D) Treating trans-but-2-enedioic acid with alcohol and acid

Answer: (B) Heating cis-but-2-enedioic acid · Key from source paper

Q156 JEE Main 2021 · 25 Jul · Shift 2 MCQ

A reaction of benzonitrile with one equivalent $CH_3\ MgBr$ followed by hydrolysis produces a yellow liquid "P". The compound "P" will give positive _____

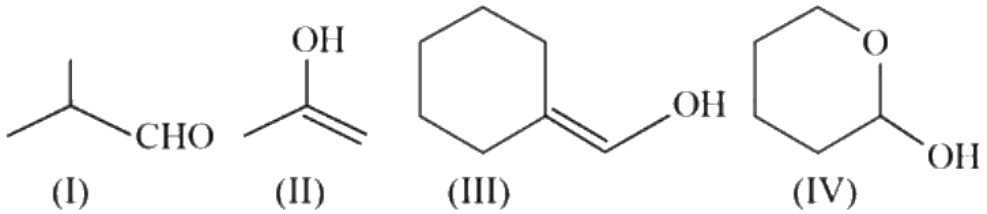
(A) Iodoform test
(B) Schiff's test
(C) Ninhydrin's test
(D) Tollen's test

Answer: (A) Iodoform test · Key from source paper

Q157 JEE Main 2021 · 20 Jul · Shift 1 MCQ

see figure

Q46.



(I) (II) (III) (IV)

Which among the above compound/s does/do not form Silver mirror when treated with Tollen's reagent?

(1) (I), (III) and (IV) only
(2) Only (IV)
(3) Only (II)
(4) (III) and (IV) only

(A) (I), (III) and (IV) only
(B) Only (IV)
(C) Only (II)
(D) (III) and (IV) only

Answer: (C) Only (II) · Key from source paper

Q158 JEE Main 2021 · 20 Jul · Shift 1 Numerical

To synthesise 1 mole of 2-methylpropan-2-ol from Ethylethanoate equivalents of CH_3MgBr reagent will be required. (Integer value)

Numerical value type: the answer is a number.

Answer: 2. · Key from source paper

Q159 JEE Main 2021 · 20 Jul · Shift 1 Numerical

The number of nitrogen atoms in a semicarbazone molecule of acetone is_____

Numerical value type: the answer is a number.

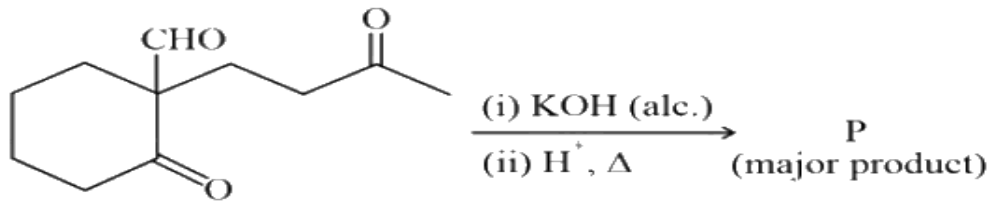
Answer: 3. · Key from source paper

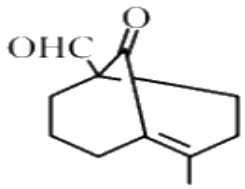
Q160 JEE Main 2021 · 20 Jul · Shift 2 MCQ

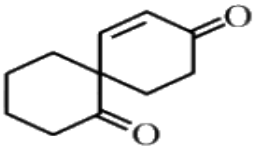
The major product (P) in the following reaction is:

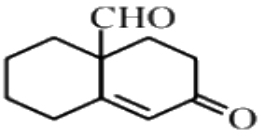
(see the figure above)

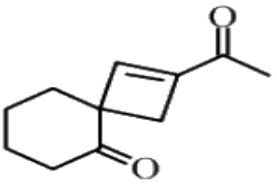
Q45. The major product (P) in the following reaction is:



(1) 

(2) 

(3) 

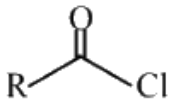
(4) 

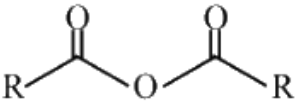
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

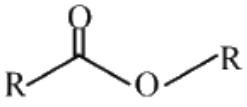
Answer: (B) · Key from source paper

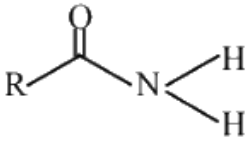
Q161 JEE Main 2021 · 20 Jul · Shift 2 MCQ

see figure

Q46. (A) 

(B) 

(C) 

(D) 

The correct order of their reactivity towards hydrolysis at room temperature is:

(1) (A) > (B) > (C) > (D)
(2) (D) > (A) > (B) > (C)
(3) (D) > (B) > (A) > (C)
(4) (A) > (C) > (B) > (D)

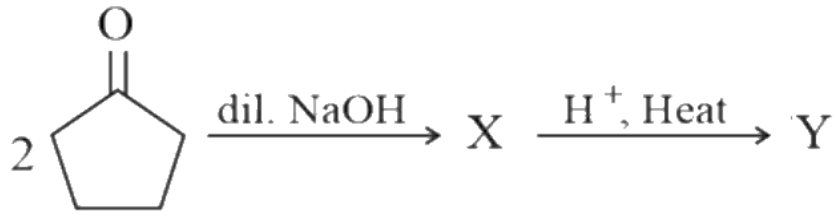
(A) (A) > (B) > (C) > (D)
(B) (D) > (A) > (B) > (C)
(C) (D) > (B) > (A) > (C)
(D) (A) > (C) > (B) > (D)

Answer: (A) (A) > (B) > (C) > (D) · Key from source paper

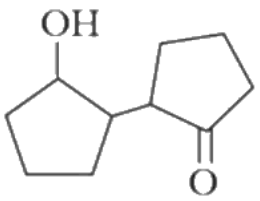
Q162 JEE Main 2021 · 18 Mar · Shift 2 MCQ

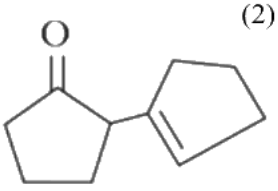
see figure

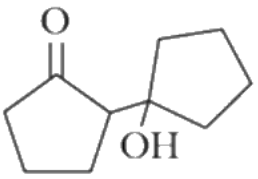
Q46.

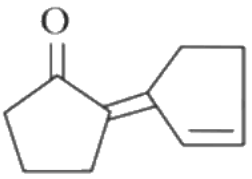


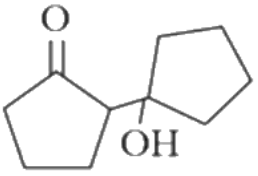
Consider the above reaction, the product X and Y respectively are :

(1) 

,


(2) 

,


(3) 

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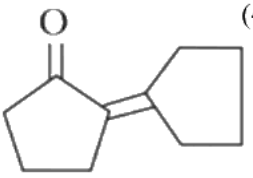
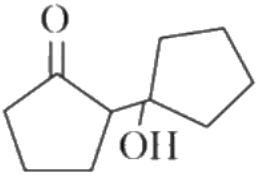
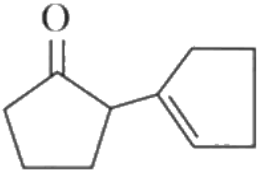


(4) 

,


(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

Q163 JEE Main 2021 · 18 Mar · Shift 2 MCQ

In the reaction of hypobromite with amide, the carbonyl carbon is lost as:

(A) CO_3^{2-}
(B) HCO_3^-
(C) CO_2
(D) CO

Answer: (A) CO_3^{2-} · Key from source paper

Q164 JEE Main 2021 · 18 Mar · Shift 2 Numerical

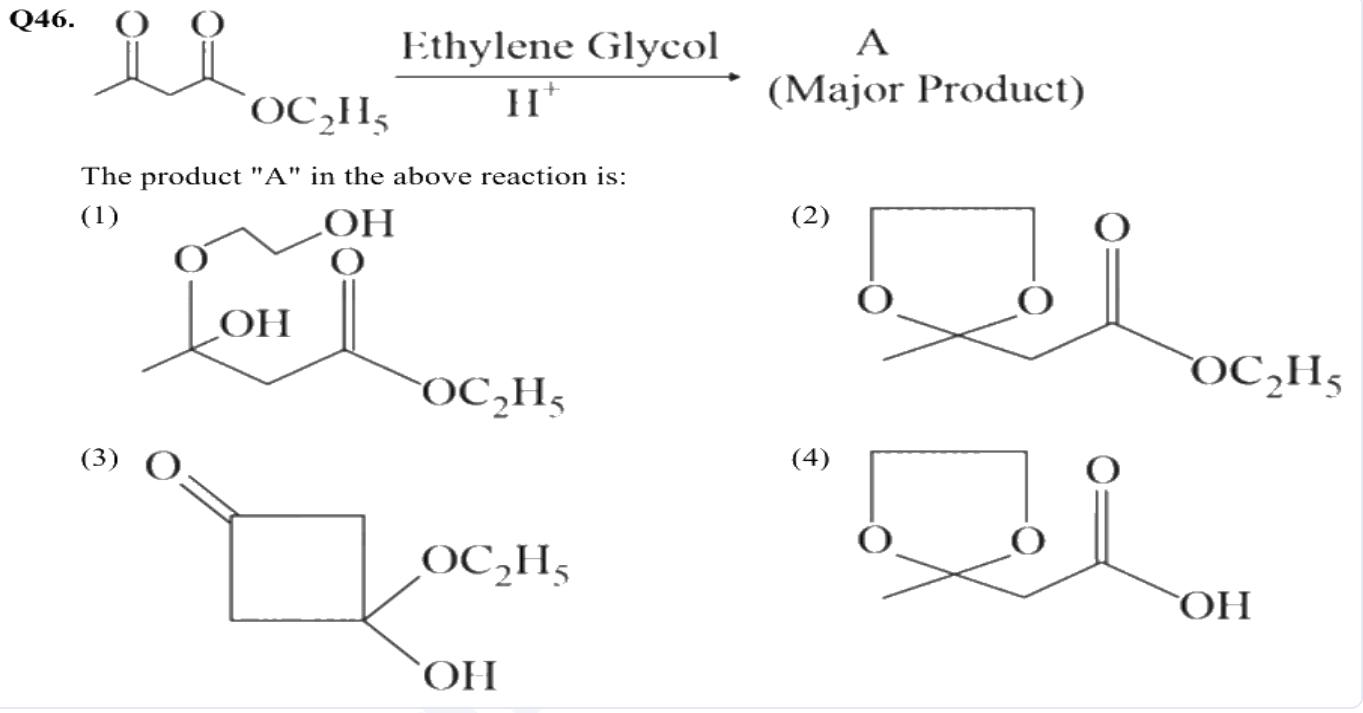
In Tollen's test for aldehyde, the overall number of electron(s) transferred to the Tollen's reagent formula $[Ag(NH_3)_2]^+$ per aldehyde group to form silver mirror is _____ .(Round off to the Nearest integer)

Numerical value type: the answer is a number.

Answer: 2. · Key from source paper

Q165 JEE Main 2021 · 17 Mar · Shift 1 MCQ

see figure



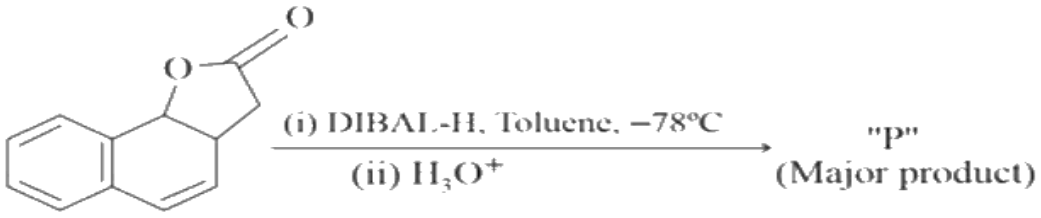
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · Key from source paper

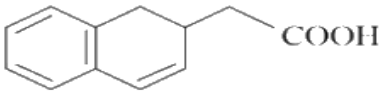
Q166 JEE Main 2021 · 16 Mar · Shift 1 MCQ

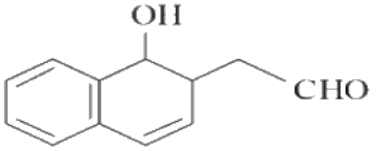
see figure

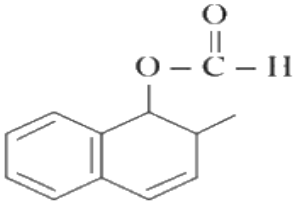
Q46.

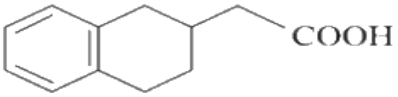


The product "P" in the above reaction is :

(1) 

(2) 

(3) 

(4) 

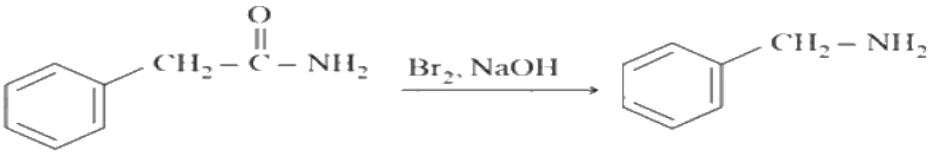
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

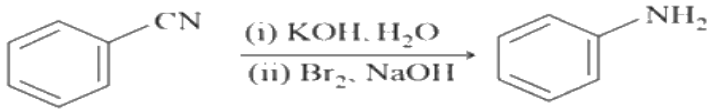
Answer: (B) · Key from source paper

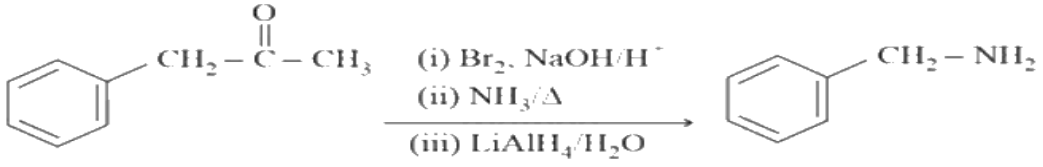
Q167 JEE Main 2021 · 16 Mar · Shift 1 MCQ

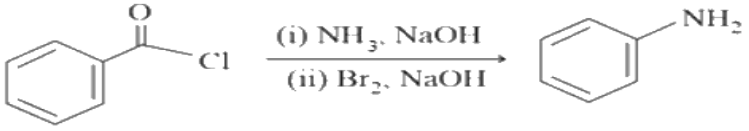
Which of the following reaction DOES NOT involve Hoffmann Bromamide degradation ?

Q48. Which of the following reaction DOES NOT involve Hoffmann Bromamide degradation ?

(1) 

(2) 

(3) 

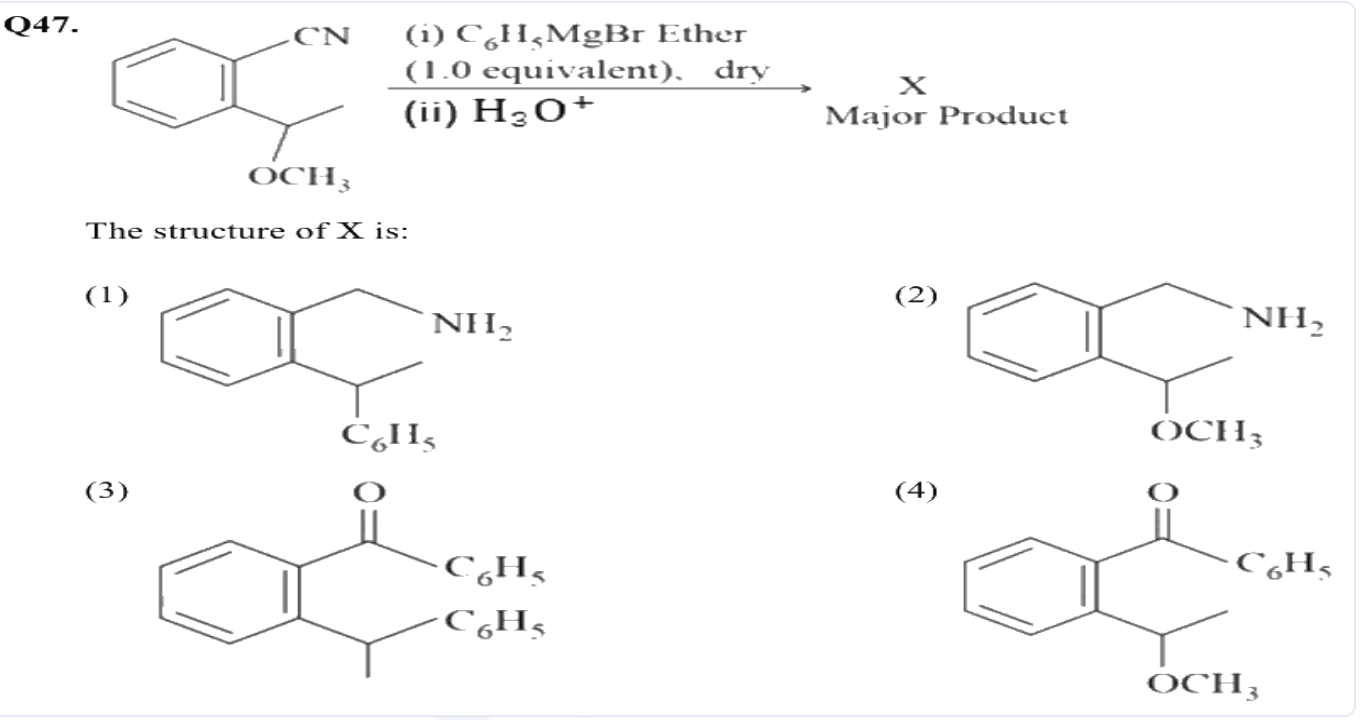
(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

Q168 JEE Main 2021 · 16 Mar · Shift 2 MCQ

see figure



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Key from source paper

Q169 JEE Main 2021 · 26 Feb · Shift 1 MCQ

$A \xrightarrow[373\ K]{\text{Hydrolysis}} B$ (A: $C_4H_8Cl_2$; B: C_4H_8O)

B reacts with Hydroxyl amine but does not give Tollen's test. Identify A and B.

(A) 2, 2-Dichlorobutane and Butanal
(B) 2, 2-Dichlorobutane and Butan-2-one
(C) 1, 1-Dichlorobutane and 2-Butanone
(D) 1, 1-Dichlorobutane and Butanal

Answer: (B) 2, 2-Dichlorobutane and Butan-2-one · Key from source paper

Q170 JEE Main 2021 · 26 Feb · Shift 2 MCQ

2, 4 – DNP test can be used to identify :

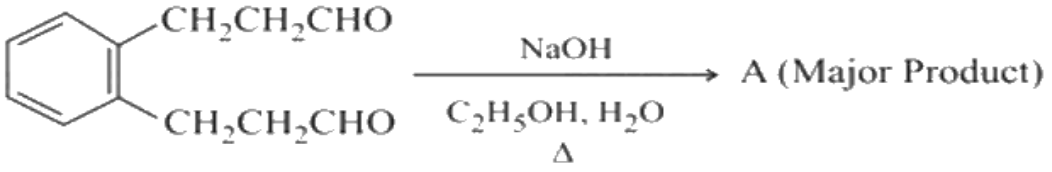
(A) aldehyde
(B) amine
(C) halogens
(D) ether

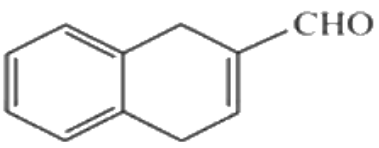
Answer: (A) aldehyde · Key from source paper

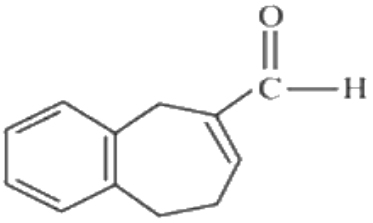
Q171 JEE Main 2021 · 26 Feb · Shift 2 MCQ

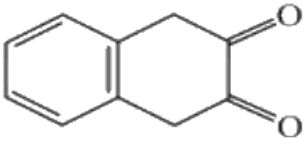
Identify A in the given chemical reaction.
(see the figure above)

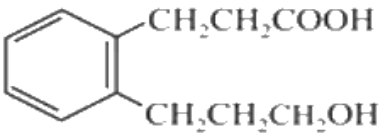
Q45. Identify A in the given chemical reaction.



(1)


(2)


(3)


(4)


(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · Key from source paper

Q172 JEE Main 2021 · 25 Feb · Shift 1 MCQ

Which one of the following reactions will not form acetaldehyde?

(A) $CH_3\ CH_2\ OH \xrightarrow{CrO_3-H_2\ SO_4}$

(B) $CH_2 = CH_2 + O_2 \xrightarrow[H_2O]{Pd(II)/\ Cu(II)}$

(C) $CH_3\ CN \xrightarrow[ii\ )H_2O]{i)\ DIBAL-H}$

(D) $CH_3\ CH_2\ OH \xrightarrow[573\ K]{Cu}$

Answer: (A) $CH_3\ CH_2\ OH \xrightarrow{CrO_3-H_2\ SO_4}$ · Key from source paper

Q173 JEE Main 2021 · 25 Feb · Shift 1 MCQ

The major product of the following chemical reaction is :

$CH_3CH_2CN \xrightarrow[(3)\ Pd/BaSO_4,\ H_2]{(1)\ H_3O^+,\ \Delta\ ;\ (2)\ SOCl_2}$?

(A) $CH_3\ CH_2\ CHO$

(B) $CH_3\ CH_2\ CH_2\ OH$

(C) $CH_3\ CH_2\ CH_3$

(D) $(CH_3\ CH_2\ CO)_2O$

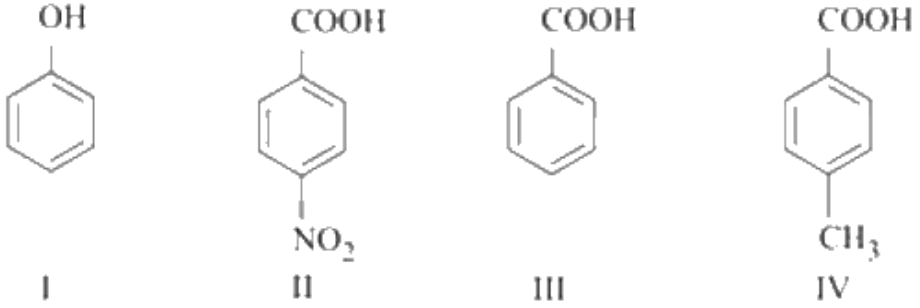
Answer: (A) $CH_3\ CH_2\ CHO$ · Key from source paper

Q174 JEE Main 2021 · 25 Feb · Shift 2 MCQ

The correct order of acid character of the following compounds is :

(see the figure above)

Q35. The correct order of acid character of the following compounds is :



(1) IV > III > II > I

(2) II > III > IV > I

(3) III > II > I > IV

(4) I > II > III > IV

(A) IV > III > II > I

(B) II > III > IV > I

(C) III > II > I > IV

(D) I > II > III > IV

Answer: (B) II > III > IV > I · Key from source paper

Q175 JEE Main 2021 · 25 Feb · Shift 2 MCQ

The major product of the following reaction is :

$CH_3\,CH_2\,CH = CH_2 \xrightarrow[\text{Rh catalyst}]{H_2/CO}$

Q47. The major product of the following reaction is :

$$CH_3\,CH_2\,CH = CH_2 \xrightarrow[\text{Rh catalyst}]{H_2/CO}$$

(1) $CH_3\,CH_2\,CH = CH - CHO$

(2) $CH_3\,CH_2\,CH_2\,CH_2\,CHO$

(3) $CH_3\,CH_2\,CH_2\,CHO$

(4) $CH_3CH_2C(=CH_2)CHO$

(A) $CH_3\,CH_2\,CH = CH - CHO$

(B) $CH_3\,CH_2\,CH_2\,CH_2\,CHO$

(C) $CH_3\,CH_2\,CH_2\,CHO$

(D) *see figure*

Answer: (B) $CH_3\,CH_2\,CH_2\,CH_2\,CHO$ · Key from source paper

Q176 JEE Main 2021 · 25 Feb · Shift 2 Numerical

The number of compound/s given below which contain/s $-$ COOH group is _____ . (Integer answer)

(A) Sulphanilic acid

(B) Picric acid

(C) Aspirin

(D) Ascorbic acid

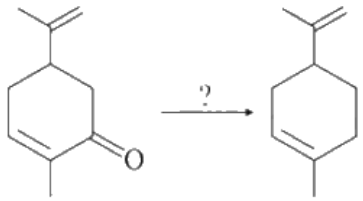
Numerical value type: the answer is a number.

Answer: 1. · Key from source paper

Q177 JEE Main 2021 · 24 Feb · Shift 2 MCQ

see figure

Q45.



Which of the following reagent is suitable for the preparation of the product in the above reaction?

(1) Red $P + Cl_2$

(2) $NaBH_4$

(3) $NH_2 - NH_2\,/C_2H_5\overset{\ominus\,\oplus}{O}Na$

(4) $Ni\,/H_2$

(A) Red P + Cl_2

(B) $NaBH_4$

(C) $NH_2 - NH_2/C_2H_5\overset{\ominus}{O}\overset{\oplus}{Na}$

(D) Ni/H_2

Answer: (C) $NH_2 - NH_2/C_2H_5\overset{\ominus}{O}\overset{\oplus}{Na}$ · Key from source paper

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Q178 JEE Main 2021 · 24 Feb · Shift 2 MCQ

Match List - I with List - II.

List-I (Salt)

(a) $R - C(=O) - Cl \rightarrow R - CHO$

(b) $R - CH_2 - COOH \rightarrow R - CH(Cl) - COOH$

(c) $R - C(=O) - NH_2 \rightarrow R - NH_2$

(d) $R - C(=O) - CH_3 \rightarrow R - CH_2 - CH_3$

List-II (Flame colour wavelength)

(i) $Br_2/NaOH$

(ii) $H_2/Pd - BaSO_4$

(iii) $Zn(Hg)/$ Conc. HCl

(iv) $Cl_2/$ Red P, H_2O

Choose the correct answer from the options given below:

(A) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)

(B) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

(C) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)

(D) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

Answer: (A) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii) · Key from source paper

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Q179 JEE Main 2020 · 6 Sep · Shift 2 MCQ

The correct match between Item-I (starting material) and Item-II (reagent) for the preparation of benzaldehyde is :

Item-I Item-II

(I) Benzene (P) HCl and $SnCl_2$, H_3O+

(II) Benzonitrile (Q) H_2, $Pd - BaSO_4$, S and quinoline

(III) Benzoyl Chloride (R) Co, HCl and $AlCl_3$

(A) (I)-(Q), (II)-(R) and (III)-(P)

(B) (I)-(P), (II)-(Q) and (III)-(R)

(C) (I)-(R), (II)-(P) and (III)-(Q)

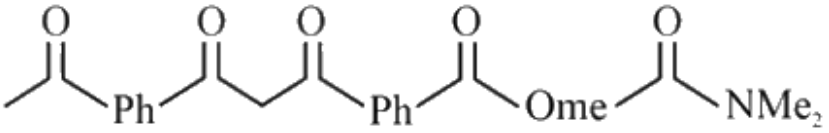
(D) (I)-(R), (II)-(Q) and (III)-(P)

Answer: (C) (I)-(R), (II)-(P) and (III)-(Q) · Key from source paper

Q180 JEE Main 2020 · 5 Sep · Shift 1 MCQ

The increasing order of the acidity of the α-hydrogen of the following compounds is:
(see the figure above)

Q31. The increasing order of the acidity of the α-hydrogen of the following compounds is:



(A) (B) (C) (D)

(1) (D) < (C) < (A) < (B)
(2) (B) < (C) < (A) < (D)
(3) (A) < (C) < (D) < (B)
(4) (C) < (A) < (B) < (D)

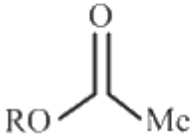
(A) (D) < (C) < (A) < (B)
(B) (B) < (C) < (A) < (D)
(C) (A) < (C) < (D) < (B)
(D) (C) < (A) < (B) < (D)

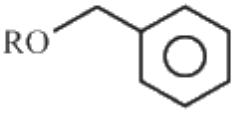
Answer: (A) (D) < (C) < (A) < (B) · Key from source paper

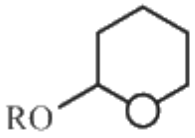
Q181 JEE Main 2020 · 5 Sep · Shift 1 MCQ

Which of the following derivatives of alcohols is unstable in an aqueous base?
(see the figure above)

Q41. Which of the following derivatives of alcohols is unstable in an aqueous base?

(1) 

(2) 

(3) 

(4) $RO - CMe_3$

(A) RO–C(=O)Me, an acetate ester drawn as line structure: RO on the left of a carbonyl C(=O) with Me on the right.
(B) RO–CH2–Ph (benzyl ether): RO attached to a CH2 which is attached to a benzene ring.
(C) a tetrahydropyranyl ether: RO attached to a ring carbon adjacent to the ring oxygen of a six-membered ring.
(D) $RO - CMe_3$

Answer: (A) RO–C(=O)Me, an acetate ester drawn as line structure: RO on the left of a carbonyl C(=O) with Me on the right. · Key from source paper

Q182 JEE Main 2020 · 3 Sep · Shift 2 MCQ

The increasing order of the reactivity of the following compounds in nucleophile addition reaction is:
Propanal, Benzaldehyde, Propanone, Butanone

(A) Benzaldehyde > Butanone < Propanone < Propanal
(B) Butanone < Propanone < Benzaldehyde < Propanal
(C) Propanal < Propanone < Butanone < Benzaldehyde
(D) Benzaldehyde < Propanal < Propanone < Butanone

Answer: (B) Butanone < Propanone < Benzaldehyde < Propanal · Key from source paper

Q183 JEE Main 2020 · 3 Sep · Shift 2 MCQ

The compound A in the following reactions is:

$$\mathrm{A} \xrightarrow[\text{(ii) Conc. } H_2SO_4/\Delta]{\text{(i) } CH_3MgBr/H_2O} \mathrm{B} \xrightarrow[\text{(ii) } Zn/H_2O]{\text{(i) } O_3} \mathrm{C} + \mathrm{D}$$

$$\mathrm{C} \xrightarrow[\text{(ii) } \Delta]{\text{(i) Conc. KOH}} C_6H_5COO^{\ominus}K^{+} + C_6H_5CH_2OH$$

$$\mathrm{D} \xrightarrow[\Delta]{Ba(OH)_2} H_3C - \overset{CH_3}{\overset{|}{C}} = CH - \overset{O}{\overset{\|}{C}} - CH_3$$

(A) $C_6H_5 - \overset{O}{\overset{\|}{C}} = CH_3$

(B) $C_6H_5 - \overset{O}{\overset{\|}{C}} - CH(CH_3)_2$

(C) $C_6H_5 - CH_2 - \overset{O}{\overset{\|}{C}} - CH_3$

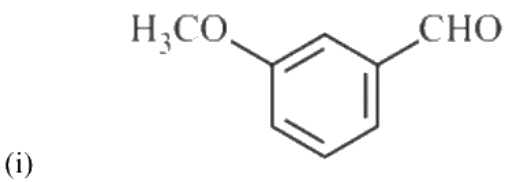
(D) $C_6H_5 - \overset{O}{\overset{\|}{C}} - CH_2CH_3$

Answer: (C) $C_6H_5 - CH_2 - \overset{O}{\overset{\|}{C}} - CH_3$ · Key from source paper

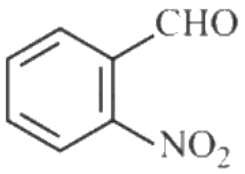
Q184 JEE Main 2020 · 2 Sep · Shift 1 MCQ

The increasing order of the following compounds towards HCN addition is :
(see the figure above)

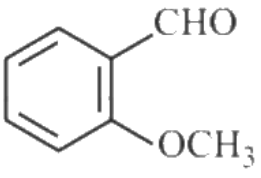
Q36. The increasing order of the following compounds towards HCN addition is :



(i)

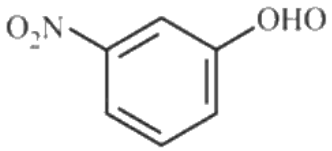


(ii)



(iii)

(iv)



(1) (i) < (iii) < (iv) < (ii)
(2) (iii) < (iv) < (i) < (ii)
(3) (iii) < (i) < (iv) < (ii)
(4) (iii) < (iv) < (ii) < (i)

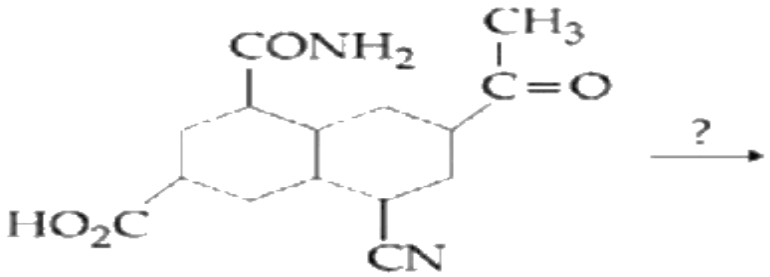
(A) (i) < (iii) < (iv) < (ii)
(B) (iii) < (iv) < (i) < (ii)
(C) (iii) < (i) < (iv) < (ii)
(D) (iii) < (iv) < (ii) < (i)

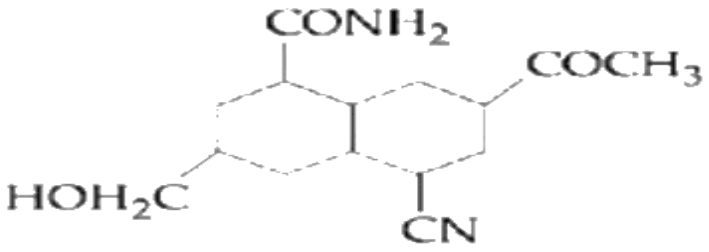
Answer: (C) (iii) < (i) < (iv) < (ii) · Key from source paper

Q185 JEE Main 2020 · 8 Jan · Shift 1 MCQ

The most suitable reagent for the given conversion is:
(see the figure above)

Q43. The most suitable reagent for the given conversion is:





(1) B_2H_6
(2) $NaBH_4$
(3) $LiAlH_4$
(4) H_2/Pd

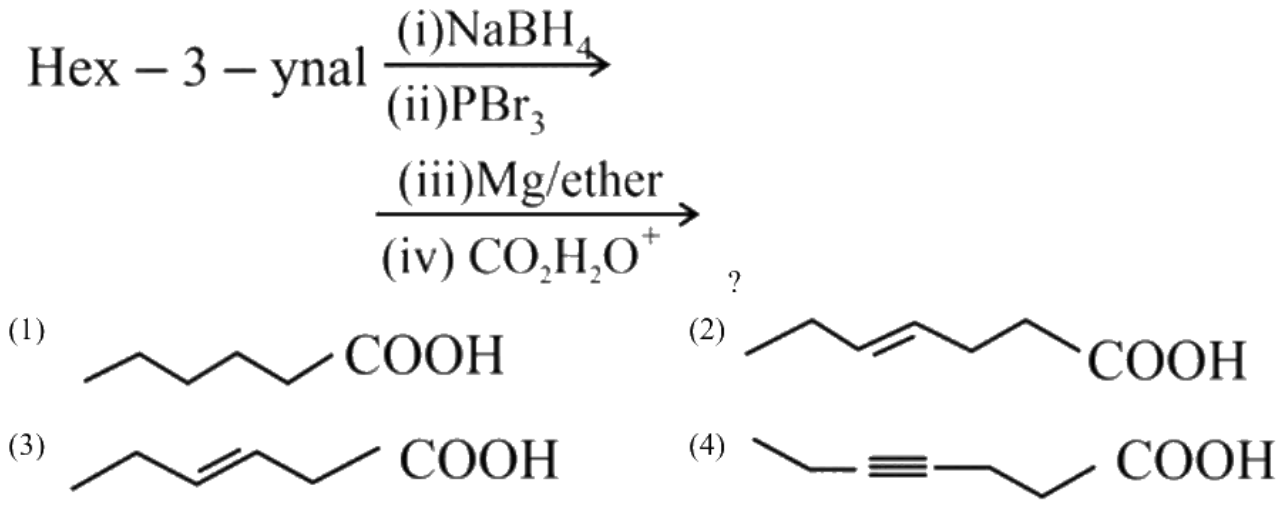
(A) B_2H_6
(B) $NaBH_4$
(C) $LiAlH_4$
(D) H_2/Pd

Answer: (A) B_2H_6 · Key from source paper

Q186 JEE Main 2020 · 7 Jan · Shift 1 MCQ

What is the product of following reaction?
(see the figure above)

Q43. What is the product of following reaction?



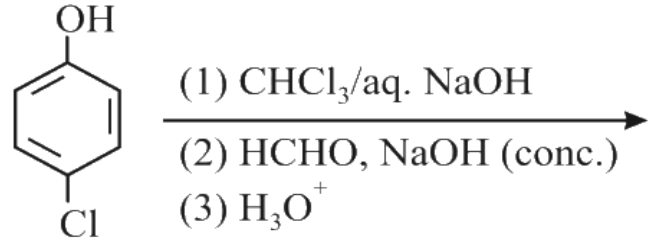
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

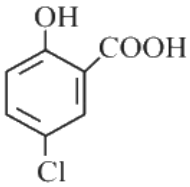
Answer: (D) · Key from source paper

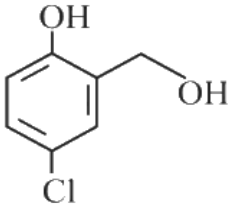
Q187 JEE Main 2019 · 12 Apr · Shift 1 MCQ

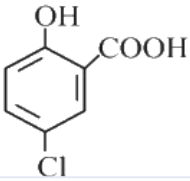
The major products of the following reaction are:

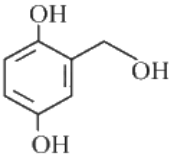
Q55. The major products of the following reaction are:



(1)  and Methanol

(2)  and Formic acid

(3)  and Methanol

(4)  and Formic acid

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · Key from source paper

Q188 JEE Main 2019 · 12 Apr · Shift 2 MCQ

The decreasing order of electrical conductivity of the following aqueous solutions is:
(A) 0.1 M Formic acid,
(B) 0.1 M Acetic acid,
(C) 0.1 M Benzoic acid.

(A) (A) > (B) > (C)
(B) (A) > (C) > (B)
(C) (C) > (B) > (A)
(D) (C) > (A) > (B)

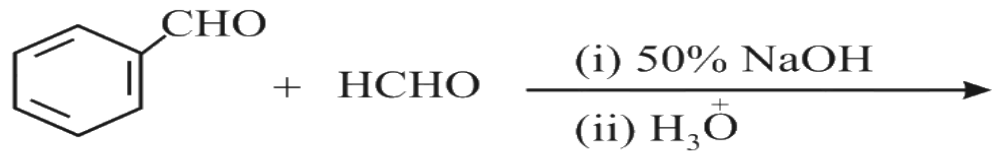
Answer: (B) (A) > (C) > (B) · Key from source paper

Q189 JEE Main 2019 · 10 Apr · Shift 1 MCQ

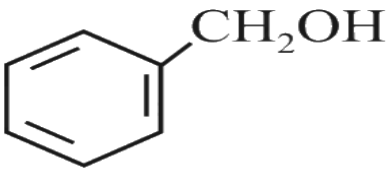
Major products of the following reaction are:

(see the figure above)

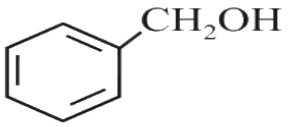
Q56. Major products of the following reaction are:

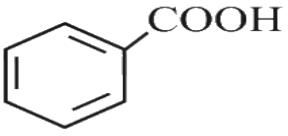


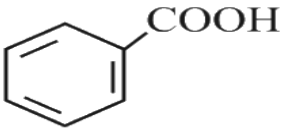
(1) CH_3OH and HCO_2H

(2) 

HCOOH and

(3) 

and


(4) 

CH_3OH and

(A) CH_3OH and HCO_2H

(B) $HCOOH$ and *(see the figure above)* benzyl alcohol (benzene ring with CH_2OH)

(C) *see figure*

(D) CH_3OH and *(see the figure above)* benzoic acid (benzene ring with $COOH$)

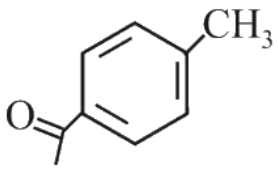
Answer: (B) $HCOOH$ and *(see the figure above)* **benzyl alcohol (benzene ring with CH_2OH)** · Key from source paper

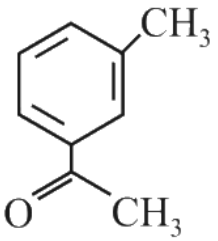
Q190 JEE Main 2019 · 10 Apr · Shift 2 MCQ

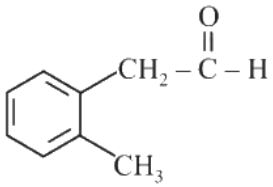
Compound A $C_9H_{10}O$ shows positive iodoform test. Oxidation of A with $KMnO_4$ / KOH gives acid B $C_8H_6O_4$. Anhydride of B is used for the preparation of phenolphthalein. Compound A is:

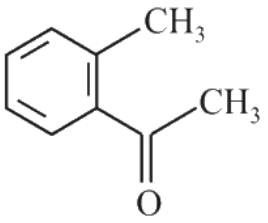
(see the figure above)

Q56. Compound A$C_9H_{10}O$ shows positive iodoform test. Oxidation of A with $KMnO_4$ / KOH gives acid B$C_8H_6O_4$. Anhydride of B is used for the preparation of phenolphthalein. Compound A is:

(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

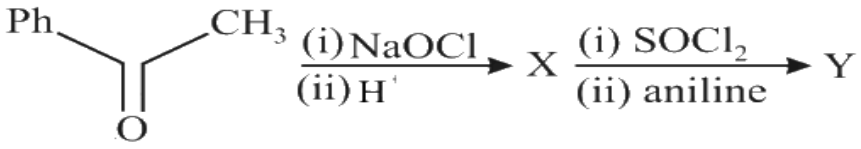
Answer: (D) · Key from source paper

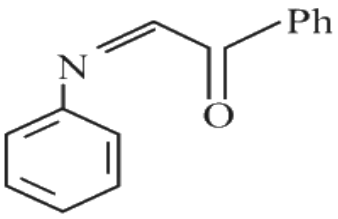
Q191 JEE Main 2019 · 10 Apr · Shift 2 MCQ

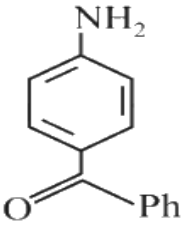
The major product Y in the following reaction is:

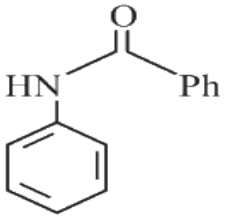
(see the figure above)

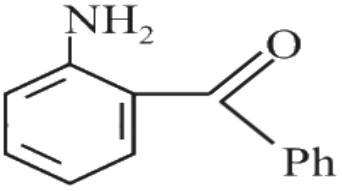
Q57. The major product Y in the following reaction is:



(1)


(2)


(3)


(4)


(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

Q192 JEE Main 2019 · 9 Apr · Shift 1 MCQ

The major product of the following reaction is:

$CH_3CH = CHCO_2CH_3 \xrightarrow{LiAlH_4}$

(A) $CH_3CH_2CH_2CO_2CH_3$
(B) $CH_3CH = CHCH_2OH$
(C) $CH_3CH_2CH_2CH_2OH$
(D) $CH_3CH_2CH_2CHO$

Answer: (B) $CH_3CH = CHCH_2OH$ · Key from source paper

Q193 JEE Main 2019 · 9 Apr · Shift 2 MCQ

In the following reaction carbonyl compound +MeOH $\overset{HCl}{\rightleftharpoons}$ acetal Rate of the reaction is the highest for:

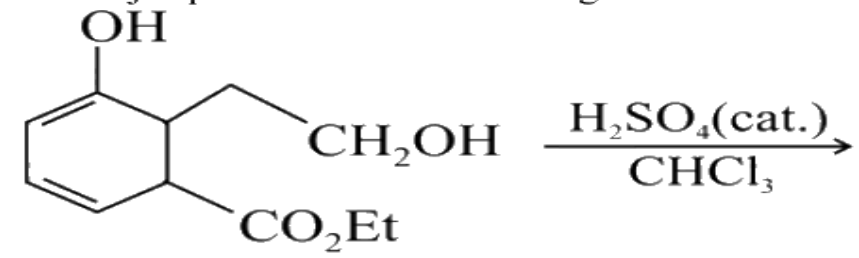
(A) Acetone as substrate and methanol in stoichiometric amount
(B) Propanal as substrate and methanol in excess
(C) Propanal as substrate and methanol in stoichiometric amount
(D) Acetone as substrate and methanol in excess

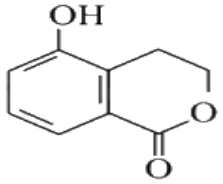
Answer: (B) Propanal as substrate and methanol in excess · Key from source paper

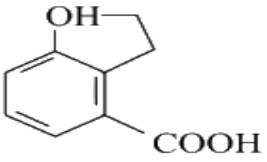
Q194 JEE Main 2019 · 9 Apr · Shift 2 MCQ

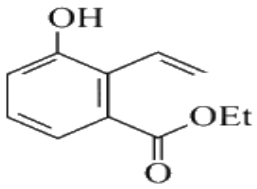
The major product of the following reaction is:
(see the figure above)

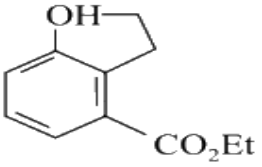
Q55. The major product of the following reaction is:



(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

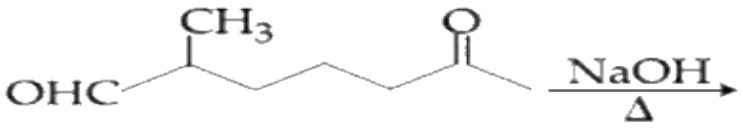
Answer: (A) · Key from source paper

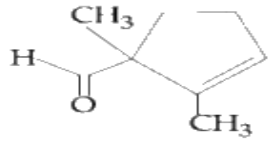
Q195 JEE Main 2019 · 8 Apr · Shift 2 MCQ

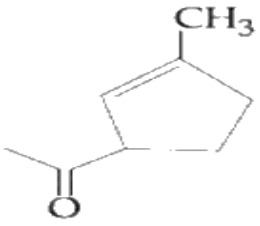
The major product obtained in the following reaction is:

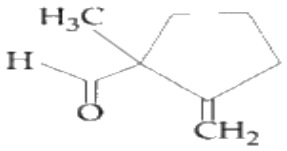
(see the figure above)

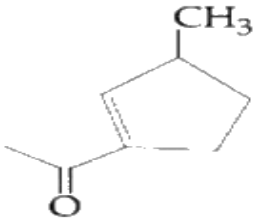
Q56. The major product obtained in the following reaction is:



(1)


(2)


(3)


(4)


(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

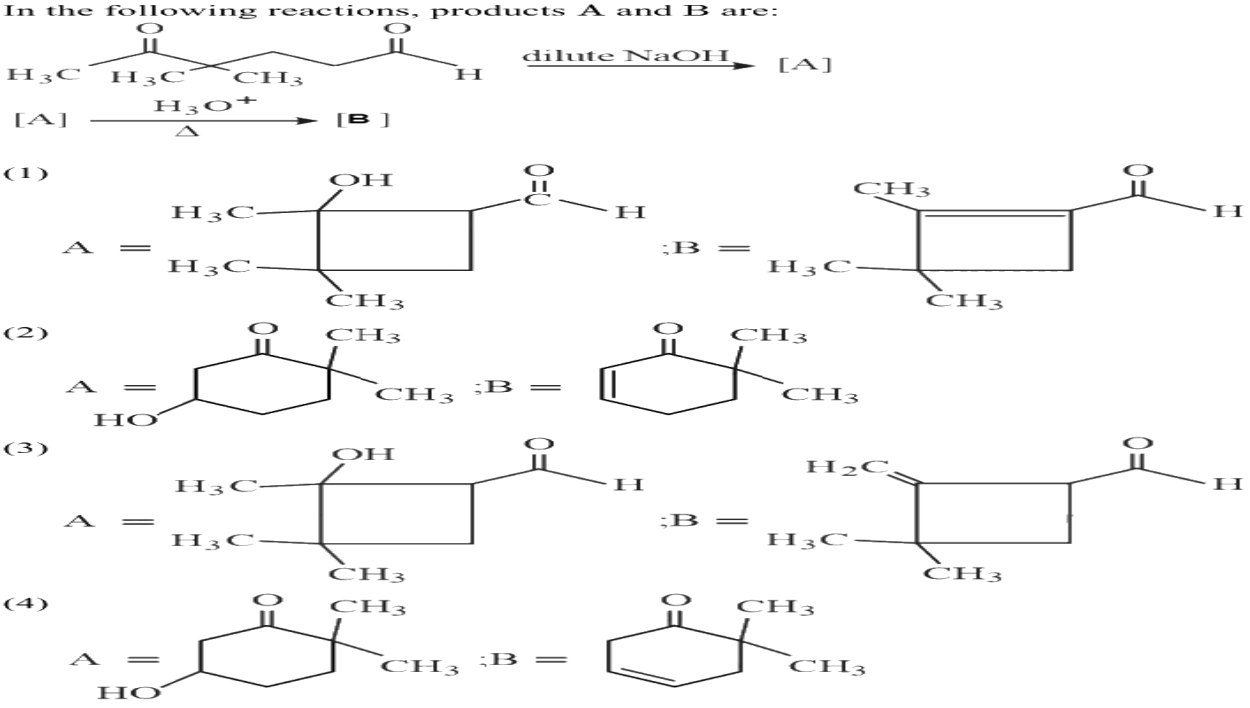
Answer: (D) · Key from source paper

Q196 JEE Main 2019 · 12 Jan · Shift 1 MCQ

In the following reactions, products A and B are:

(see the figure above)

Q55. In the following reactions, products A and B are:



(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

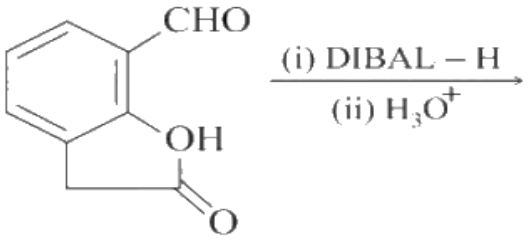
Answer: (B) · Key from source paper

Q197 JEE Main 2019 · 12 Jan · Shift 1 MCQ

The major product of the following reaction is:

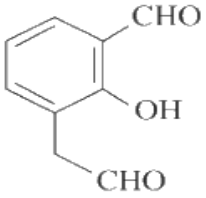
(see the figure above)

Q56.

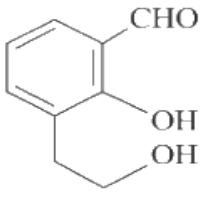


The major product of the following reaction is:

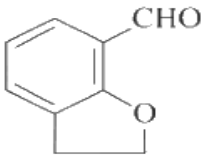
(1)



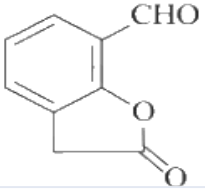
(2)



(3)



(4)



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q198 JEE Main 2019 · 12 Jan · Shift 1 MCQ

In the following reaction
Aldehyde + Alcohol $\xrightarrow{HCl}$ Acetal
Aldehyde: HCHO, $CH_3\ CHO$
Alcohol: $t-BuOH$, MeOH
The best combination is:

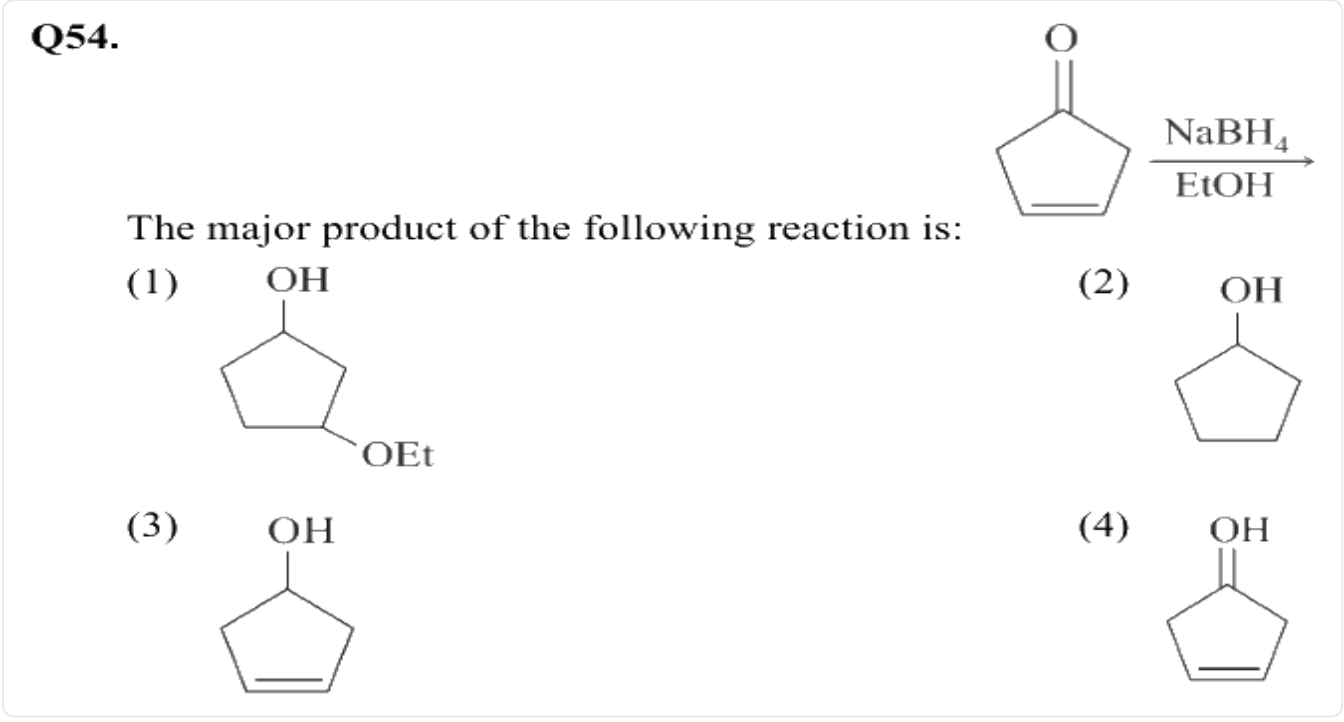
(A) HCHO and MeOH
(B) $CH_3\ CHO$ and $t-BuOH$
(C) $CH_3\ CHO$ and MeOH
(D) HCHO and t- BuOH

Answer: (A) HCHO and MeOH · Key from source paper

Q199 JEE Main 2019 · 12 Jan · Shift 2 MCQ

The major product of the following reaction is:

(see the figure above)



(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (C) · Key from source paper

Q200 JEE Main 2019 · 12 Jan · Shift 2 MCQ

The aldehydes which will not form Grignard product with one equivalent of Grignard reagents are

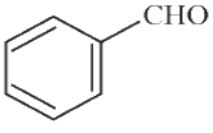
(A) *(see the figure above)*

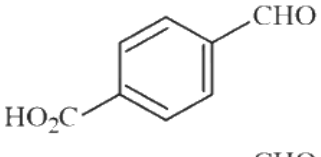
(B) *(see the figure above)*

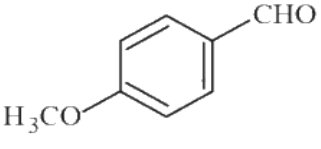
(C) *(see the figure above)*

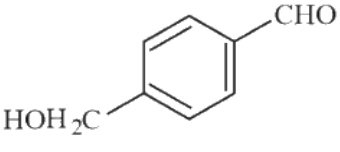
(D) *(see the figure above)*

Q55. The aldehydes which will not form Grignard product with one equivalent of Grignard reagents are

(A) 

(B) 

(C) 

(D) 

(1) (B), (C)
(2) (B), (C), (D)
(3) (C), (D)
(4) (B), (D)

(A) (B), (C)

(B) (B), (C), (D)

(C) (C), (D)

(D) (B), (D)

Answer: (D) (B), (D) · Key from source paper

Q201 JEE Main 2019 · 12 Jan · Shift 2 MCQ

The increasing order of the reactivity of the following with $LiAlH_4$ is:

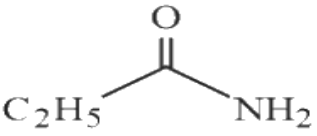
(A) *(see the figure above)*

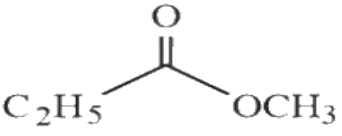
(B) *(see the figure above)*

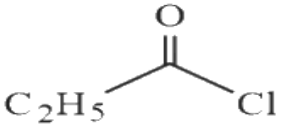
(C) *(see the figure above)*

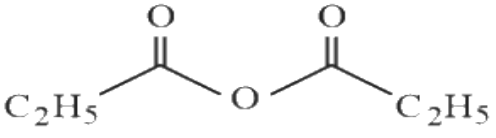
(D) *(see the figure above)*

Q56. The increasing order of the reactivity of the following with $LiAlH_4$ is:

(A) 

(B) 

(C) 

(D) 

(1) $(B) < (A) < (D) < (C)$
(2) $(A) < (B) < (C) < (D)$
(3) $(A) < (B) < (D) < (C)$
(4) $(B) < (A) < (C) < (D)$

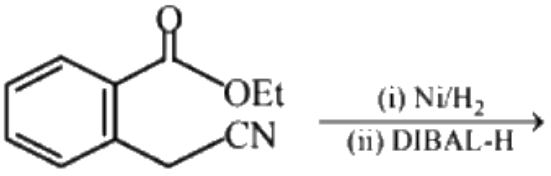
A (B) < (A) < (D) < (C)
B (A) < (B) < (C) < (D)
C (A) < (B) < (D) < (C)
D (B) < (A) < (C) < (D)

Answer: (C) (A) < (B) < (D) < (C) · Key from source paper

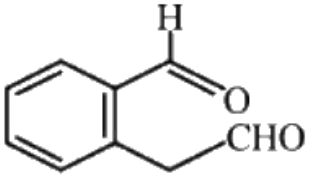
Q202 JEE Main 2019 · 11 Jan · Shift 1 MCQ

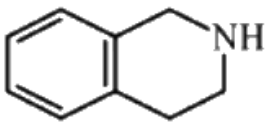
see figure

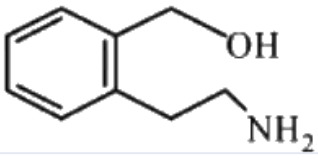
Q55.

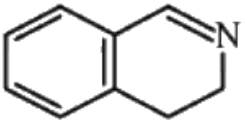


The major product of the following reaction is:

(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Key from source paper

Q203 JEE Main 2019 · 11 Jan · Shift 2 MCQ

A compound 'X' on treatment with Br /NaOH, provided C_3H_9N, which gives positive carbylamine test. Compound X' is:

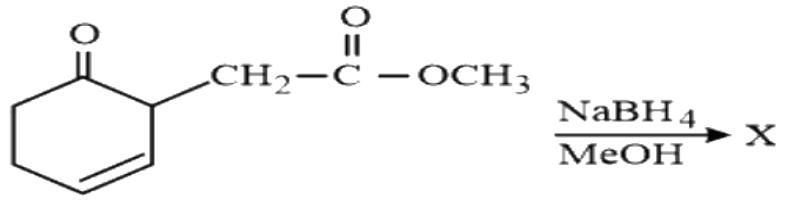
(A) $CH_3COCH_2NHCH_3$
(B) $CH_3CH_2COCH_2NH_2$
(C) $CH_3CH_2CH_2CONH_2$
(D) $CH_3CON(CH_3)_2$

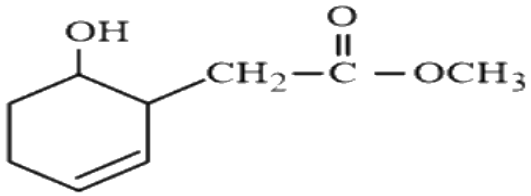
Answer: (C) $CH_3CH_2CH_2CONH_2$ · Key from source paper

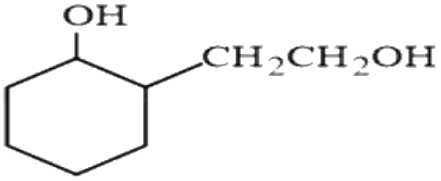
Q204 JEE Main 2019 · 10 Jan · Shift 1 MCQ

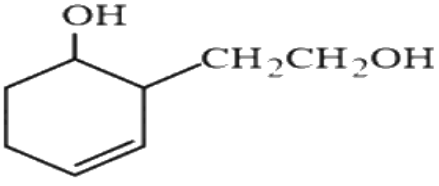
The major product 'X' formed in the following reaction is:
(see the figure above)

Q56. The major product 'X' formed in the following reaction is:



(1)


(2)


(3)


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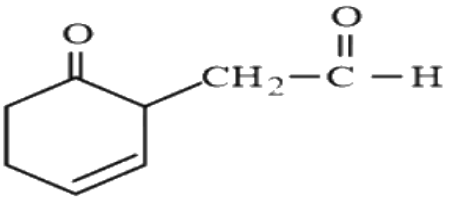


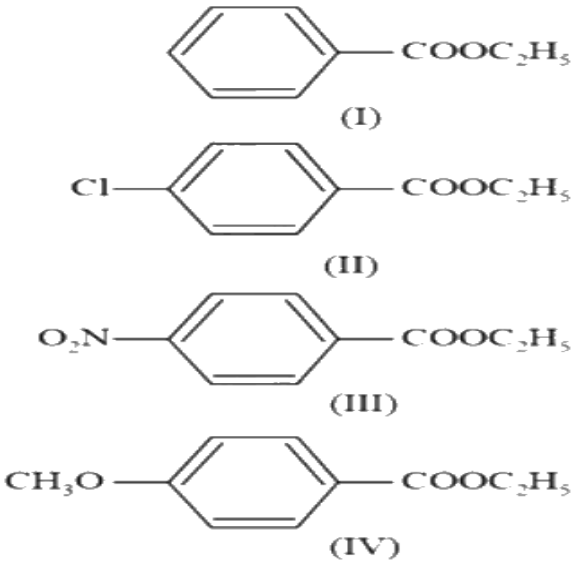
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q205 JEE Main 2019 · 10 Jan · Shift 1 MCQ

The decreasing order of ease of alkaline hydrolysis for the following esters is
(see the figure above)

Q57. The decreasing order of ease of alkaline hydrolysis for the following esters is



(1) III > II > IV > I
(2) III > II > I > IV
(3) IV > II > III > I
(4) II > III > I > IV

(A) III > II > IV > I
(B) III > II > I > IV
(C) IV > II > III > I
(D) II > III > I > IV

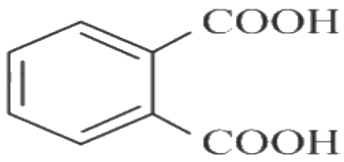
Answer: (B) III > II > I > IV · Key from source paper

Q206 JEE Main 2019 · 10 Jan · Shift 1 MCQ

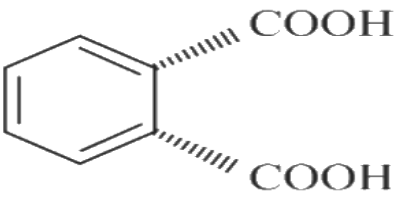
With dehydrating agent present which dicarboxylic acid is least reactive towards forming an anhydride?
(see the figure above)

Q58. With dehydrating agent present which dicarboxylic acid is least reactive towards forming an anhydride?

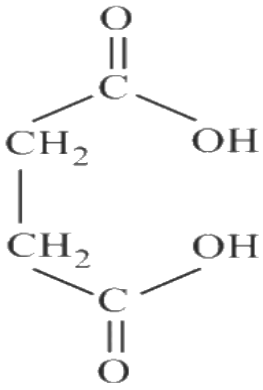
(1)



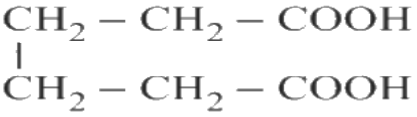
(2)



(3)



(4)



(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) $CH_2 - CH_2 - COOH$ over $CH_2 - CH_2 - COOH$ joined by a vertical bond between the two CH2 groups on the left

Answer: (D) $CH_2 - CH_2 - COOH$ **over** $CH_2 - CH_2 - COOH$ **joined by a vertical bond between the two CH2 groups on the left** · Key from source paper

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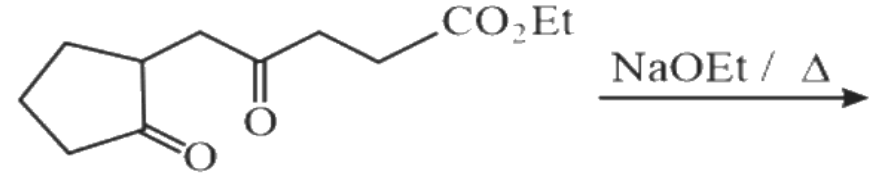
Q207

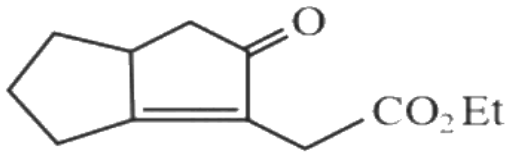
JEE Main 2019 · 10 Jan · Shift 2 MCQ

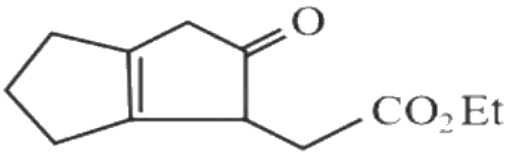
The major product obtained in the following reaction is:

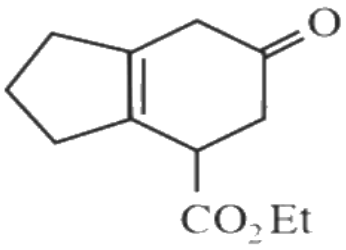
(see the figure above)

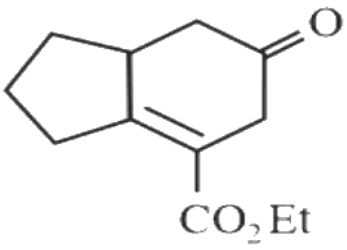
Q54. The major product obtained in the following reaction is:



(1)


(2)


(3)


(4)


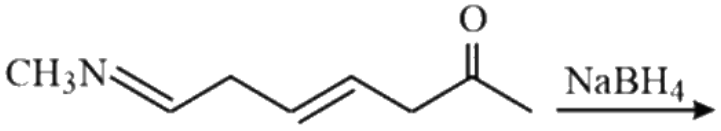
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

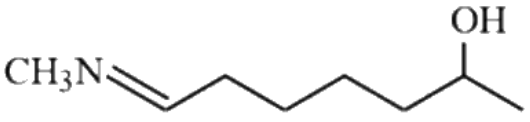
Answer: (A) · Key from source paper

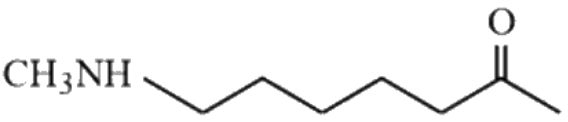
Q208 JEE Main 2019 · 10 Jan · Shift 2 MCQ

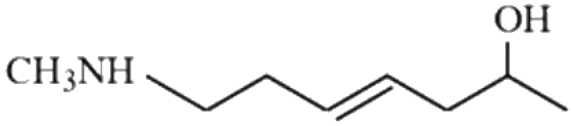
The major product of the following reaction is:
(see the figure above)

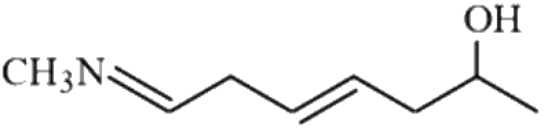
Q55. The major product of the following reaction is:



(1)


(2)


(3)


(4)


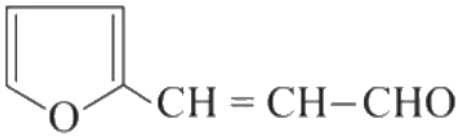
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

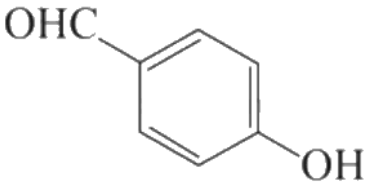
Answer: (C) · Key from source paper

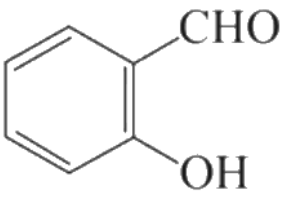
Q209 JEE Main 2019 · 10 Jan · Shift 2 MCQ

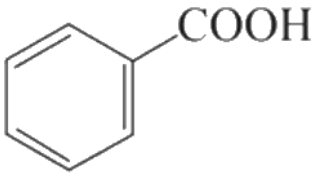
An aromatic compound 'A' having molecular formula $C_7H_6O_2$, on treating with aqueous ammonia and heating forms compound 'B'. The compound 'B' on reaction with molecular bromine and potassium hydroxide provides compound 'C' having molecular formula C_6H_7N. The structure of 'A' is:
(see the figure above)

Q57. An aromatic compound 'A' having molecular formula $C_7H_6O_2$, on treating with aqueous ammonia and heating forms compound 'B'. The compound 'B' on reaction with molecular bromine and potassium hydroxide provides compound 'C' having molecular formula C_6H_7N. The structure of 'A' is:

(1) 

(2) 

(3) 

(4) 

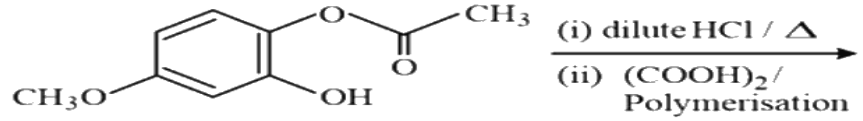
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Key from source paper

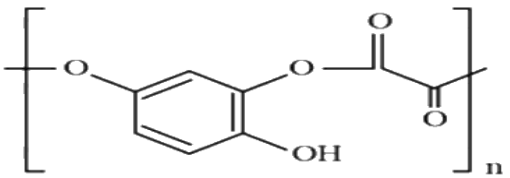
Q210 JEE Main 2019 · 10 Jan · Shift 2 MCQ

The major product of the following reaction is:
(see the figure above)

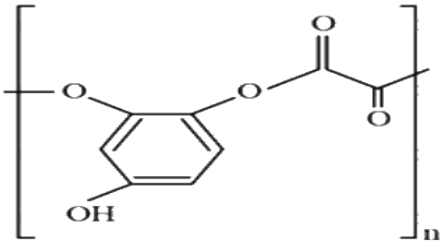
Q58. The major product of the following reaction is:



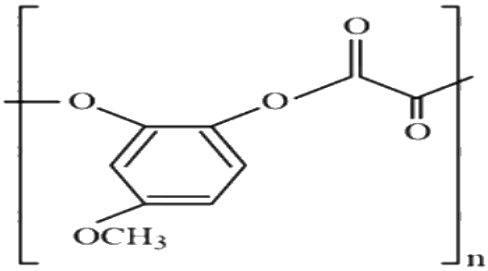
(1)



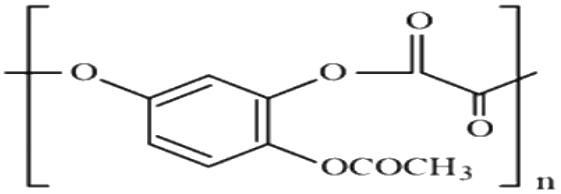
(2)



(3)



(4)



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Checked by our team

Q211 JEE Main 2019 · 9 Jan · Shift 1 MCQ

The major product of the following reaction is,
(see the figure above)

Q52. The major product of the following reaction is,

$$R-C\equiv N \xrightarrow[(2)\ H_2O]{(1)\ AlH(i\text{-}Bu)_2}$$

(1) RCOOH
(2) RCHO
(3) RCH_2NH_2
(4) $RCONH_2$

(A) RCOOH
(B) RCHO
(C) RCH_2NH_2
(D) $RCONH_2$

Answer: (B) RCHO · Key from source paper

Q212 JEE Main 2019 · 9 Jan · Shift 1 MCQ

Acid strength given below the correct decreasing order will be :

(A) $NO_2CH_2COOH > FCH_2COOH > CNCH_2COOH > ClCH_2COOH$

(B) $NO_2CH_2COOH > NCCH_2COOH > FCH_2COOH > ClCH_2COOH$

(C) $CNCH_2COOH > O_2NCH_2COOH > FCH_2COOH > ClCH_2COOH$

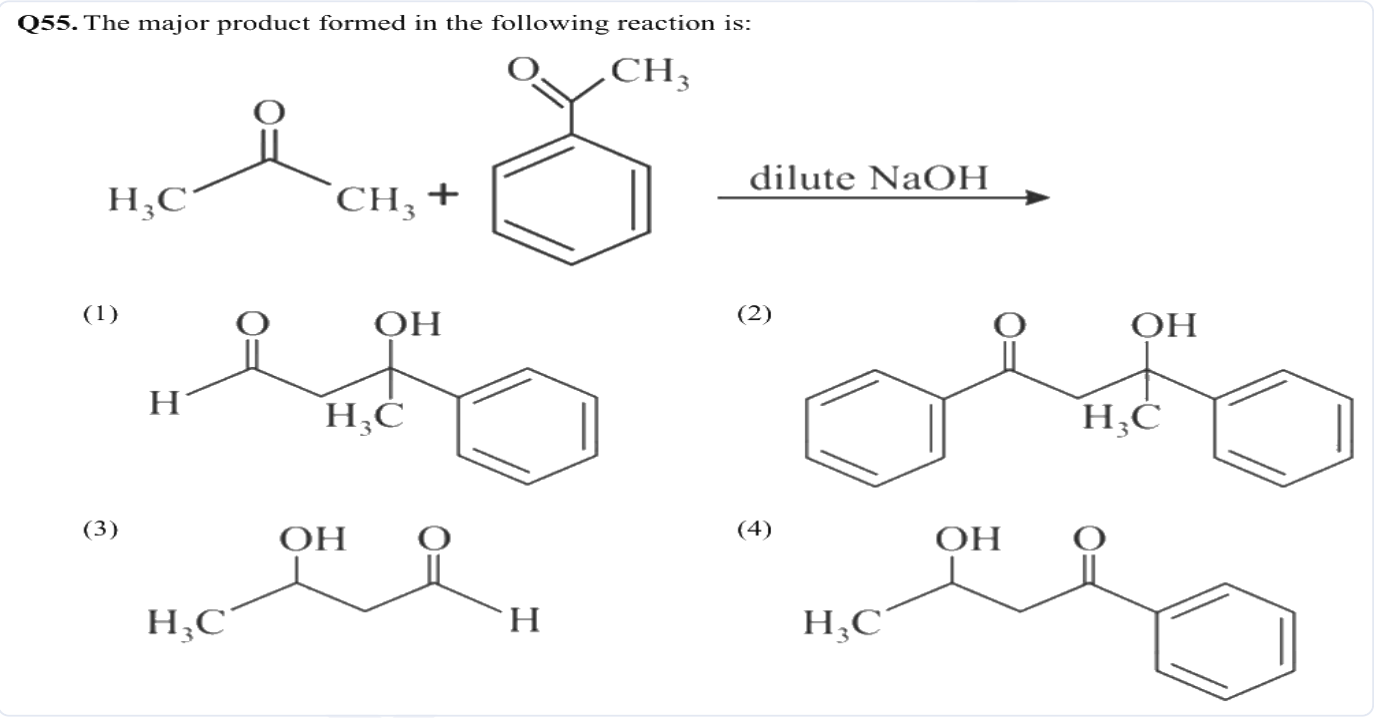
(D) $FCH_2COOH > NCCH_2COOH > NO_2CH_2COOH > ClCH_2COOH$

Answer: (B) $NO_2CH_2COOH > NCCH_2COOH > FCH_2COOH > ClCH_2COOH$ · Key from source paper

Q213 JEE Main 2019 · 9 Jan · Shift 2 MCQ

The major product formed in the following reaction is:

(see the figure above)



(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (D) · Key from source paper

Q214 JEE Main 2019 · 9 Jan · Shift 2 MCQ

The test performed on compound x and their inferences are:

Test | Inference

(a) $2,\ 4-DNP$ test | Coloured precipitate yellow

(b) Iodoform test | Yellow precipitate

(c) Azo-dye test | No dye formation

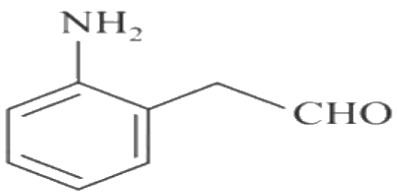
Compound x is:

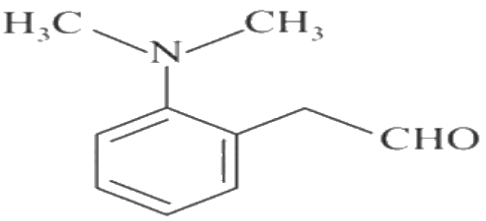
(see the figure above)

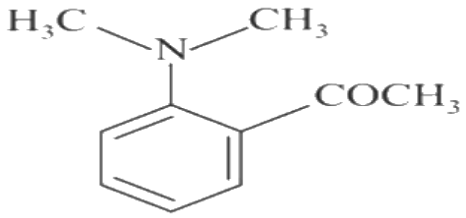
Q56. The test performed on compound x and their inferences are:

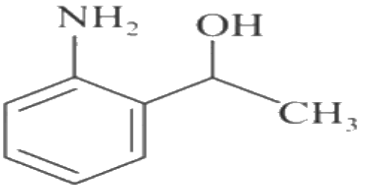
Test	Inference
(a) 2, 4 - DNP test	Coloured precipitate yellow
(b) Iodoform test	Yellow precipitate
(c) Azo-dye test	No dye formation

Compound *x* is:

(1) 

(2) 

(3) 

(4) 

(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

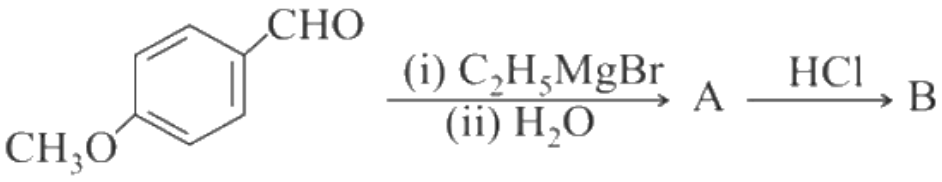
Answer: (C) · Key from source paper

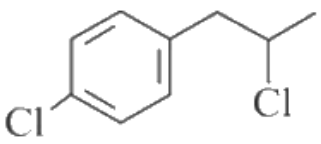
Q215 JEE Main 2018 · 16 Apr · Online MCQ

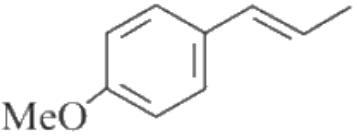
The major product B formed in the following reaction sequence is:

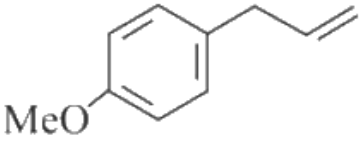
(see the figure above)

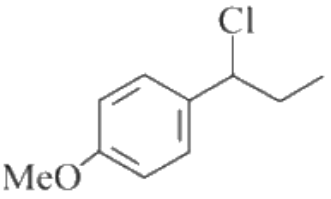
Q57. The major product B formed in the following reaction sequence is:



(1)


(2)


(3)


(4)


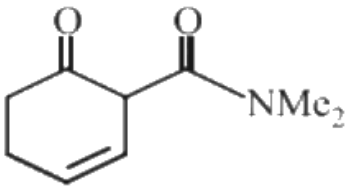
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

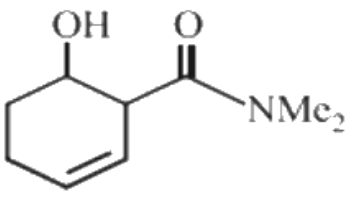
Answer: (D) · Key from source paper

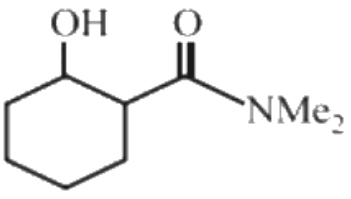
Q216 JEE Main 2018 · 15 Apr · Shift 1 MCQ

The main reduction product of the following compound with $NaBH_4$ in methanol is :
(see the figure above)

Q56. The main reduction product of the following compound with $NaBH_4$ in methanol is :



(1)


(2)


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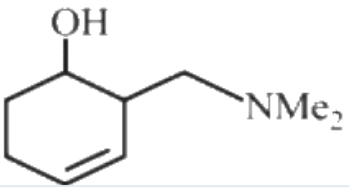

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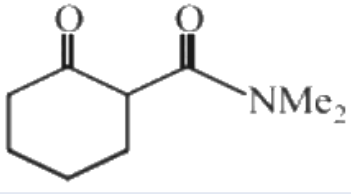


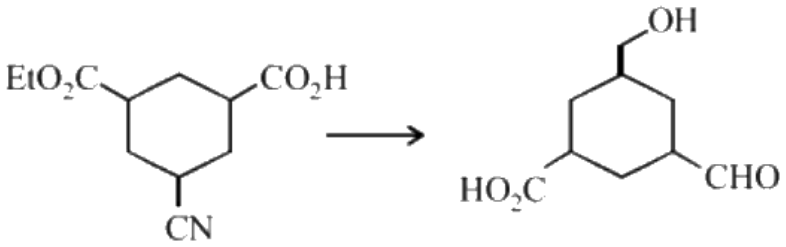
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q217 JEE Main 2018 · 15 Apr · Shift 1 MCQ

The reagent(s) required for the following conversion are:
(see the figure above)

Q57. The reagent(s) required for the following conversion are:



(1) (i) $NaBH_4$, (ii) Raney Ni/H_2, (iii) H_3O^+
(2) (i) $LiAlH_4$, (ii) H_3O^+
(3) (i) B_2H_6, (ii) DIBAL $-$ H, (iii) H_3O^+
(4) (i) B_2H_6, (ii) $SnCl_2/HCl$, (iii) H_3O^+

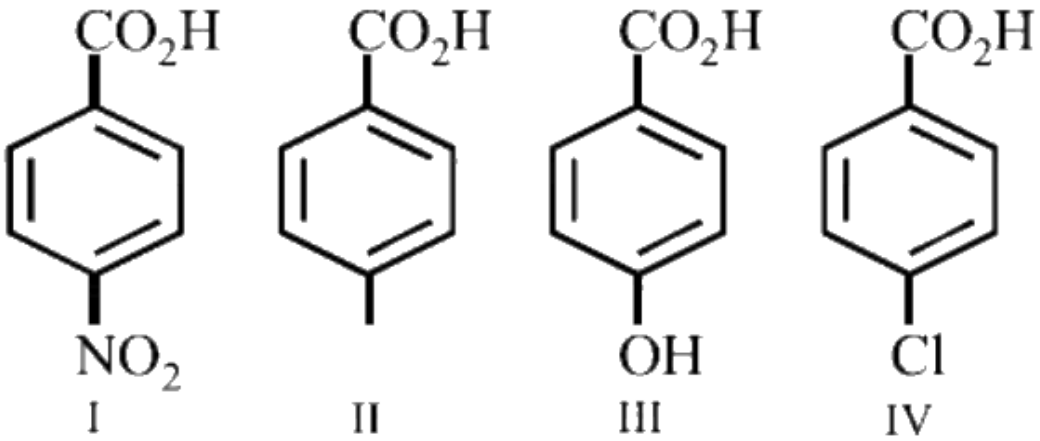
(A) (i) $NaBH_4$, (ii) Raney Ni/H_2, (iii) H_3O^+
(B) (i) $LiAlH_4$, (ii) H_3O^+
(C) (i) B_2H_6, (ii) DIBAL $-$ H, (iii) H_3O^+
(D) (i) B_2H_6, (ii) $SnCl_2/HCl$, (iii) H_3O^+

Answer: (D) (i) B_2H_6, (ii) $SnCl_2/HCl$, (iii) H_3O^+ · Key from source paper

Q218 JEE Main 2018 · 15 Apr · Shift 2 MCQ

The increasing order of the acidity of the following carboxylic acids is:
(see the figure above)

Q57. The increasing order of the acidity of the following carboxylic acids is:



(1) III < II < IV < I
(2) I < III < II < IV
(3) IV < II < III < I
(4) II < IV < III < I

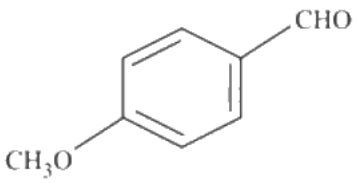
(A) III < II < IV < I
(B) I < III < II < IV
(C) IV < II < III < I
(D) II < IV < III < I

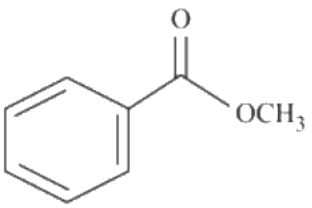
Answer: (A) III < II < IV < I · Key from source paper

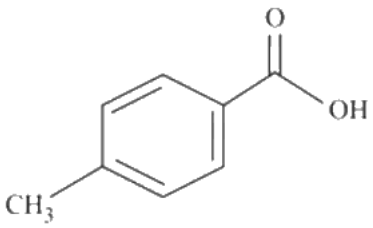
Q219 JEE Main 2017 · 9 Apr · Online MCQ

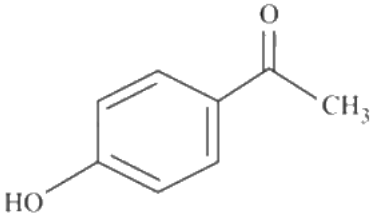
A compound of molecular formula $C_8H_8O_2$ reacts with acetophenone to form a single cross-aldol product in the presence of base. The same compound on reaction with concentrated NaOH forms benzyl alcohol as one of the products. The structure of the compound is:

Q57. A compound of molecular formula $C_8H_8O_2$ reacts with acetophenone to form a single cross-aldol product in the presence of base. The same compound on reaction with concentrated NaOH forms benzyl alcohol as one of the products. The structure of the compound is:

(1) 

(2) 

(3) 

(4) 

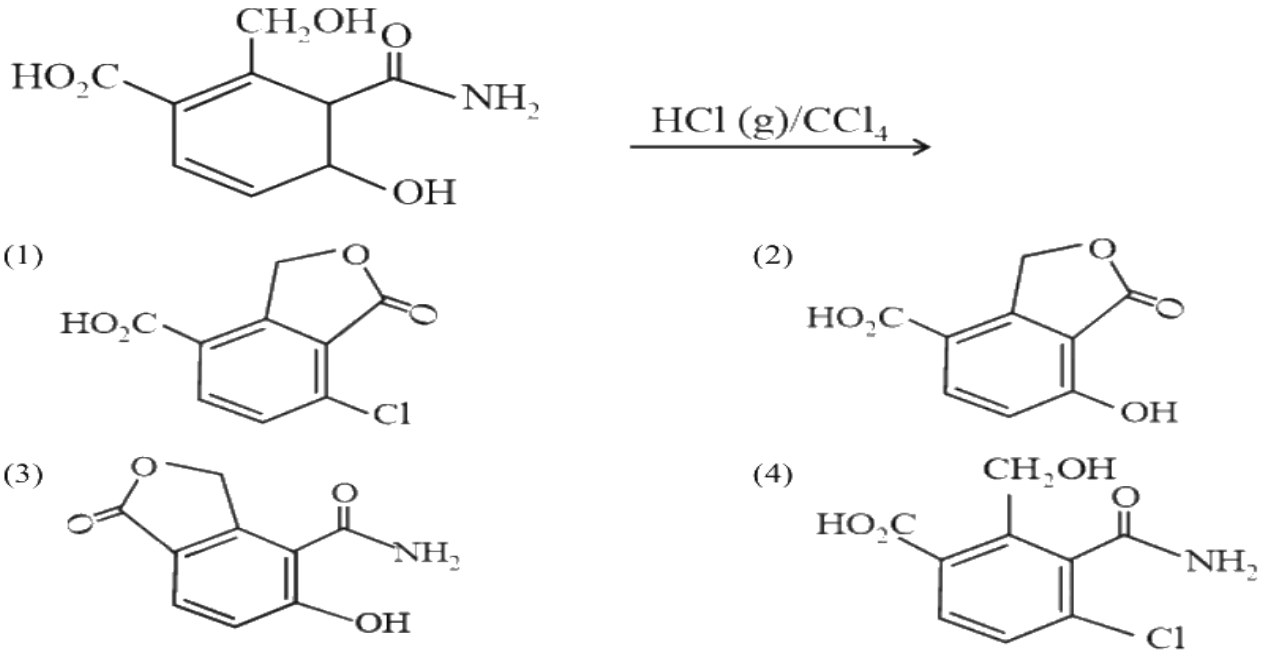
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q220 JEE Main 2017 · 8 Apr · Online MCQ

The major product expected from the following reaction is:
(see the figure above)

Q57. The major product expected from the following reaction is:



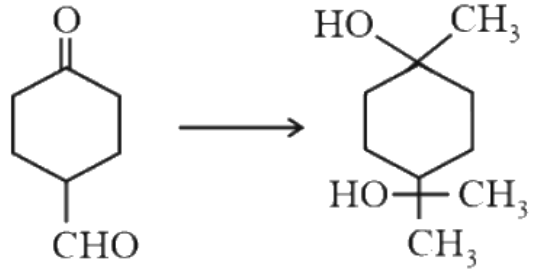
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

Q221 JEE Main 2017 · 2 Apr · Offline MCQ

The correct sequence of reagents for the following conversion will be
(see the figure above)

Q57. The correct sequence of reagents for the following conversion will be



(1) $CH_3MgBr,\ H^+ / CH_3OH,\ AgNH_{32}{}^+OH^-$
(2) $CH_3MgBr,\ AgNH_{32}{}^+OH^-,\ H^+ / CH_3OH$
(3) $AgNH_{32}{}^+OH^-,\ CH_3MgBr,\ H^+ / CH_3OH$
(4) $AgNH_{32}{}^+OH^-,\ H^+ / CH_3OH,\ CH_3MgBr$

(A) $CH_3MgBr,\ H^+ / CH_3OH,\ AgNH_{32}^+OH^-$
(B) $CH_3MgBr,\ AgNH_{32}^+OH^-,\ H^+ / CH_3OH$
(C) $AgNH_{32}^+OH^-,\ CH_3MgBr,\ H^+ / CH_3OH$
(D) $AgNH_{32}^+OH^-,\ H^+ / CH_3OH,\ CH_3MgBr$

Answer: (D) $AgNH_{32}^+OH^-,\ H^+ / CH_3OH,\ CH_3MgBr$ · Key from source paper

Q222 JEE Main 2016 · 10 Apr · Online MCQ

The correct statement about the synthesis of erythritol $(C(CH_2OH)_4)$ used in the preparation of PETN is

(A) The synthesis requires three aldol condensations and one Cannizzaro reaction.
(B) Alpha hydrogen of ethanol and methanol are involved in this reaction.
(C) The synthesis requires two aldol condensation and two Cannizzaro reactions.
(D) The synthesis requires four aldol condensations between methanol and ethanol.

Answer: (A) The synthesis requires three aldol condensations and one Cannizzaro reaction. · Key from source paper

Q223 JEE Main 2015 · 11 Apr · Online MCQ

In the reaction sequence
$2CH_3CHO \xrightarrow{OH^-} A \xrightarrow{\Delta} B$; the product B is:

(A) $CH_3 - CH = CH - CHO$
(B) $CH_3 - C(=O) - CH_3$
(C) $CH_3 - CH_2 - CH_2 - CH_3$
(D) $CH_3 - CH_2 - CH_2 - CH_2 - OH$

Answer: (A) $CH_3 - CH = CH - CHO$ · Key from source paper

Q224 JEE Main 2015 · 10 Apr · Online MCQ

In the presence of a small amount of phosphorous, aliphatic carboxylic acid reacts with chlorine or bromine to yield a reaction in which, $\alpha-$hydrogen is been replaced by halogen. This reaction is known as

(A) Etard reaction
(B) Wolff-Kischner reaction
(C) Rosenmund reaction
(D) Hell-volhard-zelinsky reaction

Answer: (D) Hell-volhard-zelinsky reaction · Key from source paper

Q225 JEE Main 2015 · 4 Apr · Offline MCQ

In the following sequence of reactions:

Toluene $\xrightarrow{KMnO_4}$ A $\xrightarrow{SOCl_2}$ B $\xrightarrow[BaSO_4]{H_2/Pd}$ C

The Product C is:

(A) C_6H_5CHO
(B) C_6H_5COOH
(C) $C_6H_5CH_3$
(D) $C_6H_5CH_2OH$

Answer: (A) C_6H_5CHO · Key from source paper

Q226 JEE Main 2014 · 19 Apr · Online MCQ

The major product formed when 1, 1, 1- trichloropropane is treated with aqueous potassium hydroxide is :

(A) 2 - Propanol
(B) Propyne
(C) Propionic acid
(D) 1 - Propanol

Answer: (C) Propionic acid · Key from source paper

Q227 JEE Main 2014 · 19 Apr · Online MCQ

Among the following organic acids, the acid present in rancid butter is :

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(A) Pyruvic acid
(B) Acetic acid
(C) Butyric acid
(D) Lactic acid

Answer: (C) Butyric acid · Key from source paper

Q228 JEE Main 2014 · 11 Apr · Online MCQ

Tischenko reaction is a modification of:

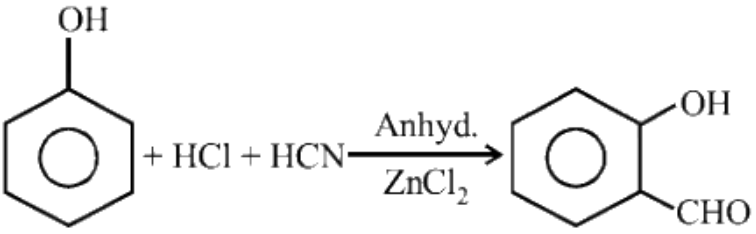
(A) Aldol condensation
(B) Claisen condensation
(C) Cannizzaro reaction
(D) Pinacol-pinacolon reaction

Answer: (C) Cannizzaro reaction · Key from source paper

Q229 JEE Main 2014 · 11 Apr · Online MCQ

see figure

Q57.



The following reaction is known as:

(1) Perkin reaction
(2) Gatterman-Koch Formylation
(3) Kolbe's reaction
(4) Gattermann reaction

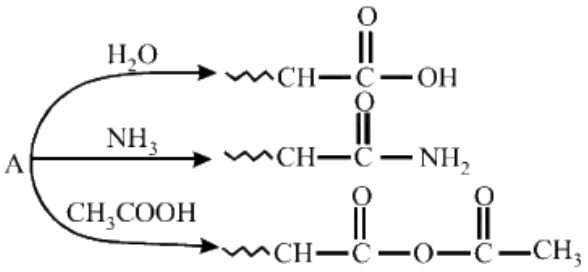
(A) Perkin reaction
(B) Gatterman-Koch Formylation
(C) Kolbe's reaction
(D) Gattermann reaction

Answer: (D) Gattermann reaction · Key from source paper

Q230 JEE Main 2014 · 11 Apr · Online MCQ

An organic compound A, C_5H_8O; reacts with H_2O, NH_3 and CH_3COOH as described below:
(see the figure above)
A is:

Q58. An organic compound A, C_5H_8O; reacts with H_2O, NH_3 and CH_3COOH as described below:



A is:

(1) $CH_3CH = \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}} - CHO$

(2) $CH_2 = CH\,\underset{\displaystyle CH_3}{\overset{\displaystyle |}{CH}} - CHO$

(3) $CH_3 - CH_2 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}} = C = O$

(4) $CH_3 - CH_2 - \underset{\displaystyle CH_2H}{\overset{\displaystyle \|}{C}} - \overset{\displaystyle |}{C} = O$

(A) $CH_3CH = C - CHO$, with CH_3 drawn below the middle carbon (the carbon bearing CHO)

(B) $CH_2 = CH\,CH - CHO$, with CH_3 drawn below the second CH (the carbon bearing CHO)

(C) $CH_3 - CH_2 - C = C = O$, with CH_3 drawn below the first of the two doubly bonded carbons

(D) $CH_3 - CH_2 - C - C = O$, with a double bond from the first of these carbons down to CH_2 and a single bond from the carbon of C=O down to H (drawn as "CH_2H" under the two carbons)

Answer: (C) $CH_3 - CH_2 - C = C = O$**, with** CH_3 **drawn below the first of the two doubly bonded carbons** · Key from source paper

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Q231 JEE Main 2014 · 9 Apr · Online MCQ

Which is the major product formed when acetone is heated with iodine and potassium hydroxide?

(A) Acetophenone

(B) Iodoform

(C) Iodoacetone

(D) Acetic acid

Answer: (B) Iodoform · Key from source paper

Q232 JEE Main 2014 · 9 Apr · Online MCQ

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

(A) Friedel Craft's acylation

(B) Reimer-Tieman reaction

(C) Cannizaro reaction

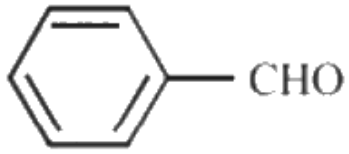
(D) Wurtz reaction

Answer: (C) Cannizaro reaction · Key from source paper

Q233 JEE Main 2013 · 25 Apr · Online MCQ

Cannizaro's reaction is not given by :

Q54. Cannizaro's reaction is not given by :

(1) 

(2) 

(3) CH_3CHO

(4) HCHO

(A) *see figure*
(B) *see figure*
(C) CH_3CHO
(D) HCHO

Answer: (C) CH_3CHO · Key from source paper

Q234 JEE Main 2013 · 25 Apr · Online MCQ

Which of the following reagent(s) used for the conversion?
(see the figure above)

Q56. Which of the following reagent(s) used for the conversion?



(1) glycol/$LiAlH_4/H_3O^+$

(2) glycol/ NaH/H_3O^+

(3) $LiAlH_4$

(4) $NaBH_4$

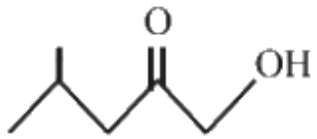
(A) glycol/$LiAlH_4/H_3O^+$
(B) glycol/ NaH/H_3O^+
(C) $LiAlH_4$
(D) $NaBH_4$

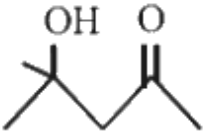
Answer: (A) glycol/$LiAlH_4/H_3O^+$ · Key from source paper

Q235 JEE Main 2013 · 23 Apr · Online MCQ

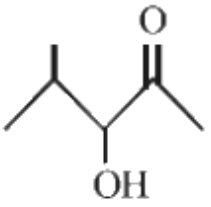
Which of the following is the product of aldol condensation?

Q55. Which of the following is the product of aldol condensation?

(1) 

(2) 

(3) 

(4) 

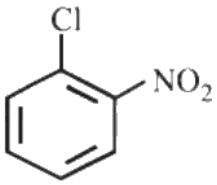
A *see figure*
B *see figure*
C *see figure*
D *see figure*

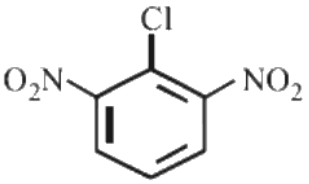
Answer: (B) · Key from source paper

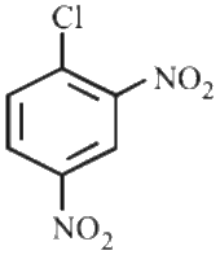
Q236 JEE Main 2013 · 22 Apr · Online MCQ

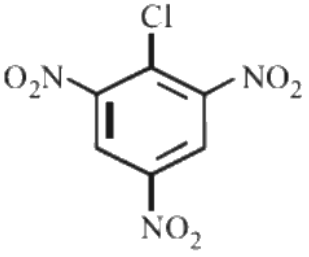
A major component of Borsch reagent is obtained by reacting hydrazine hydrate with which of the following ?

Q43. A major component of Borsch reagent is obtained by reacting hydrazine hydrate with which of the following ?

(1) 

(2) 

(3) 

(4) 

A *see figure*
B *see figure*
C *see figure*
D *see figure*

Answer: (C) · Key from source paper

Q237 JEE Main 2013 · 22 Apr · Online MCQ

Clemmensen reduction of a ketone is carried out in the presence of :

(A) $LiAlH_4$
(B) Zn − Hg with HCl
(C) Glycol with KOH
(D) H_2 with Pt as catalyst

Answer: (B) Zn − Hg with HCl · Key from source paper

Q238 JEE Main 2013 · 9 Apr · Online MCQ

Formaldehyde can be distinguished from acetaldehyde by the use of :

(A) Schiff's reagent
(B) Tollen's reagent
(C) I_2 /Alkali
(D) Fehling's solution

Answer: (C) I_2 /Alkali · Key from source paper

Q239 JEE Main 2013 · 7 Apr · Offline MCQ

An organic compound A upon reacting with NH_3 gives B. On heating, B gives C. C in presence of KOH reacts with Br_2 to give $CH_3CH_2NH_2$. A is :

Q58. An organic compound A upon reacting with NH_3 gives B. On heating, B gives C. C in presence of KOH reacts with Br_2 to give $CH_3CH_2NH_2$. A is :

(1) $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle |}{CH}}-COOH$ (2) CH_3CH_2COOH

(3) CH_3COOH (4) $CH_3CH_2CH_2COOH$

(A) *see figure*
(B) CH_3CH_2COOH
(C) CH_3COOH
(D) $CH_3CH_2CH_2COOH$

Answer: (B) CH_3CH_2COOH · Key from source paper

Q240 AIEEE 2012 · 26 May · Online MCQ

Tollen's reagent and Fehling solutions are used to distinguish between

(A) acids and alcohols
(B) alkanes and alcohols
(C) ketones and aldehydes
(D) n-alkaens (sic) and branched alkanes

Answer: (C) ketones and aldehydes · Key from source paper

Q241 AIEEE 2012 · 12 May · Online MCQ

The reaction, $CH_3CHO \xrightarrow[Zn(Hg)/\ Conc.\ HCl]{[H]} CH_3CH_3$

(A) Cannizaro's reaction
(B) Rosenmund reduction
(C) Wolf-Kishner reduction
(D) Clemmenson reduction

Answer: (D) Clemmenson reduction · Key from source paper

Q242 AIEEE 2012 · 12 May · Online MCQ

Which of the following statements is wrong?

(A) Ethyl chloride on reduction with $Zn - Cu$ couple and alcohol gives ethane.
(B) The reaction of methyl magnesium bromide with acetone gives butanol-2.
(C) Alkyl halides follow the following reactivity sequence on reaction with alkenes. $R - I > R - Br > R - Cl > R - I$
(D) $C_2H_4Cl_2$ may exist in two isomeric forms

Answer: (B) The reaction of methyl magnesium bromide with acetone gives butanol-2. · Key from source paper

Q243 AIEEE 2012 · 7 May · Online MCQ

Among the following the order of reactivity towards nucleophilic addition is

(A) $CH_3CHO > CH_3COCH_3 > HCHO$
(B) $HCHO > CH_3CHO > CH_3COCH_3$
(C) $CH_3CHO > HCHO > CH_3COCH_3$
(D) $CH_3COCH_3 > CH_3CHO > HCHO$

Answer: (B) $HCHO > CH_3CHO > CH_3COCH_3$ · Key from source paper

Q244 AIEEE 2012 · Offline MCQ

Iodoform can be prepared from all except :

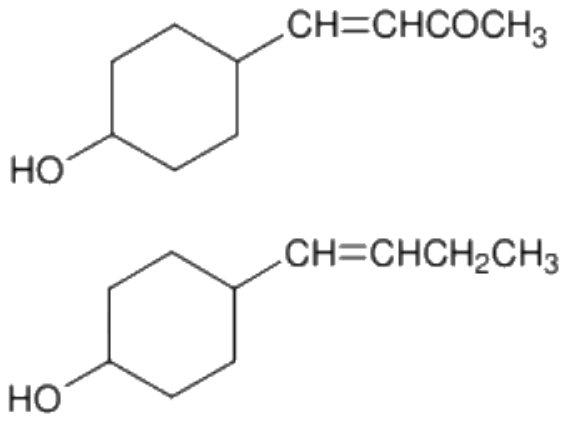
(A) Ethyl methyl ketone
(B) Isopropyl alcohol
(C) 3−Methyl−2− butanone
(D) Isobutyl alcohol

Answer: (D) Isobutyl alcohol · Key from source paper

Q245 AIEEE 2012 · Offline MCQ

In the given transformation, which of the following is the most appropriate reagent?
(see the figure above)

Q57. In the given transformation, which of the following is the most appropriate reagent?



(1) $NH_2NH_2, \overset{(-)}{O}H$
(2) $Zn - Hg/HCl$
(3) Na, Liq. NH_3
(4) $NaBH_4$

(A) $NH_2NH_2, \overset{(-)}{O}H$
(B) $Zn - Hg/HCl$
(C) Na, Liq. NH_3
(D) $NaBH_4$

Answer: (A) $NH_2NH_2, \overset{(-)}{O}H$ · Key from source paper

Q246 AIEEE 2011 MCQ

The strongest acid amongst the following compounds is :

(A) $HCOOH$
(B) $CH_3CH_2CH(Cl)CO_2H$
(C) $ClCH_2CH_2CH_2COOH$
(D) CH_3COOH

Answer: (B) $CH_3CH_2CH(Cl)CO_2H$ · Key from source paper

Q247 AIEEE 2011 MCQ

Sodium ethoxide has reacted with ethanoyl chloride. The compound that is produced in the above reaction is :

(A) 2-Butanone
(B) Ethyl chloride
(C) Ethyl ethanoate
(D) Diethyl ether

Answer: (C) Ethyl ethanoate · Key from source paper

Q248 AIEEE 2011 MCQ

Trichloroacetaldehyde was subjected to Cannizzaro's reaction by using NaOH. The mixture of the products contains sodium trichloroacetate and another compound. The other compound is :

(A) Trichloromethanol
(B) 2, 2, 2-Trichloropropanol
(C) Chloroform
(D) 2, 2, 2-Trichloroethanol

Answer: (D) 2, 2, 2-Trichloroethanol · Key from source paper

Q249 AIEEE 2011 MCQ

Silver Mirror test is given by which one of the following compounds ?

(A) Acetone
(B) Formaldehyde
(C) Benzophenone
(D) None of these

Answer: (B) Formaldehyde · Key from source paper

Q250 AIEEE 2009 MCQ

Which of the following on heating with aqueous KOH, produces acetaldehyde ?

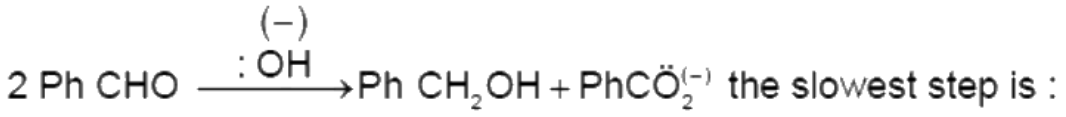
(A) CH_3COCl
(B) CH_3CH_2Cl
(C) CH_2ClCH_2Cl
(D) CH_3CHCl_2

Answer: (D) CH_3CHCl_2 · Key from source paper

Q251 AIEEE 2009 MCQ

In Cannizzaro reaction qiven below
(see the figure above)
the slowest step is :

Q57. In Cannizzaro reaction qiven below



the slowest step is :

(1) the attack of : OH at the carboxyl group
(2) the transfer of hydride to the carbonyl group
(3) the abstraction of proton from the carboxylic group
(4) the deprotonation of $PhCH_2OH$

(A) the attack of : OH at the carboxyl group
(B) the transfer of hydride to the carbonyl group
(C) the abstraction of proton from the carboxylic group
(D) the deprotonation of $PhCH_2OH$

Answer: (B) the transfer of hydride to the carbonyl group · Key from source paper

Q252 AIEEE 2006 MCQ

The increasing order of the rate of HCN addition to compounds A - D is (A) HCHO (B) CH_3COCH_3 (C) $PhCOCH_3$ (D) PhCOPh

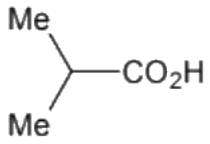
(A) $A < B < C < D$
(B) $D < B < C < A$
(C) $D < C < B < A$
(D) $C < D < B < A$

Answer: (C) $D < C < B < A$ · Key from source paper

Q253 AIEEE 2006 MCQ

The correct order of increasing acid strength of the compounds is (a) CH_3CO_2H (b) $MeOCH_2CO_2H$ (c) CF_3CO_2H (d) *(see the figure above)*

Q109. The correct order of increasing acid strength of the compounds is (a) CH_3CO_2H (b) $MeOCH_2CO_2H$ (c)



CF_3CO_2H (d)

(1) b < d < a < c
(2) d < a < c < b
(3) d < a < b < c
(4) a < d < c < b

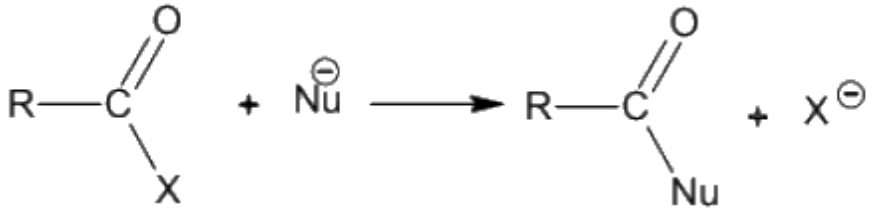
(A) $b < d < a < c$
(B) $d < a < c < b$
(C) $d < a < b < c$
(D) $a < d < c < b$

Answer: (C) $d < a < b < c$ · Key from source paper

Q254 AIEEE 2005 MCQ

see figure

Q115.



The reaction is fastest when X is

(1) Cl (2) NH_2
(3) OC_2H_5 (4) OCOR

(A) Cl
(B) NH_2
(C) OC_2H_5
(D) OCOR

Answer: (A) Cl · Key from source paper

Q255 AIEEE 2005 MCQ

The highest electrical conductivity of the following aqueous solutions is of

(A) 0.1 M acetic acid
(B) 0.1 M chloroacetic acid
(C) 0.1 M fluoroacetic acid
(D) 0.1 M difluoroacetic acid

Answer: (D) 0.1 M difluoroacetic acid · Key from source paper

Q256 AIEEE 2005 MCQ

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

(A) a Schiff's base
(B) an enamine
(C) an imine
(D) an amine

Answer: (B) an enamine · Key from source paper

Q257 AIEEE 2005 MCQ

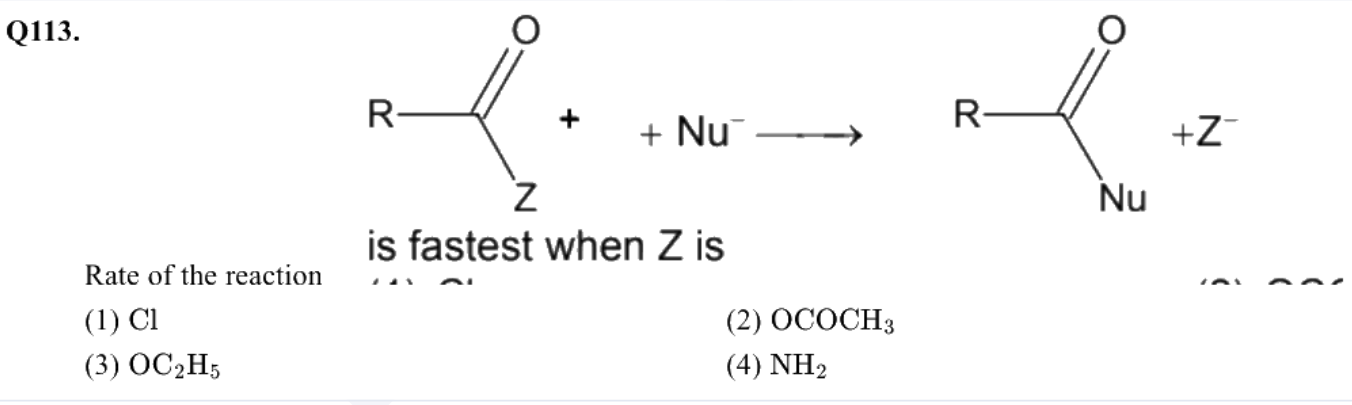
Among the following acids which has the lowest pK_a value

(A) CH_3COOH
(B) $HCOOH$
(C) $(CH_3)_2COOH$
(D) CH_3CH_2COOH

Answer: (B) $HCOOH$ · Key from source paper

Q258 AIEEE 2004 MCQ

Rate of the reaction
(see the figure above)
is fastest when Z is



(A) Cl
(B) $OCOCH_3$
(C) OC_2H_5
(D) NH_2

Answer: (A) Cl · Key from source paper

Q259 AIEEE 2004 MCQ

Acetyl bromide reacts with excess of CH_3MgI followed by treatment with a saturated solution of NH_4Cl given

(A) acetone
(B) acetyl iodide
(C) 2- methyl -2-propanol
(D) acetamide

Answer: (C) 2- methyl -2-propanol · Key from source paper

Q260 AIEEE 2004 MCQ

Which one of the following reduced with zinc and hydrochloric acid to give the corresponding hydrocarbon?

(A) Ethyl acetate
(B) Butan -2-one
(C) Acetamide
(D) Acetic acid

Answer: (B) Butan -2-one · Key from source paper

Q261 AIEEE 2004 MCQ

Consider the acidity of the carboxylic acids:
(a) PhCOOH
(b) $\mathrm{o\text{-}NO_2C_6H_4COOH}$
(c) $\mathrm{p\text{-}NO_2C_6H_4COOH}$
(d) $\mathrm{m\text{-}NO_2C_6H_4COOH}$
Which of the following order is correct?

(A) (b) > (d) > (a) > (c)
(B) (b) > (d) > (c) > (a)
(C) (a) > (b) > (c) > (d)
(D) (b) > (c) > (d) > (a)

Answer: (D) (b) > (c) > (d) > (a) · Checked by our team

Q262 AIEEE 2004 MCQ

On mixing ethyl acetate with aqueous sodium chloride, the composition of the resultant solution is

(A) $\mathrm{CH_3COOC_2H_5 + NaCl}$
(B) $\mathrm{CH_3Cl + C_2H_5COONa}$
(C) $\mathrm{CH_3COCl + C_2H_5OH + NaOH}$
(D) $\mathrm{CH_3COONa + C_2H_5OH}$

Answer: (A) $\mathrm{CH_3COOC_2H_5 + NaCl}$ · Key from source paper

EdLoop JEE

Q263 AIEEE 2004 MCQ

Which of the following undergoes reaction with 50% sodium hydroxide solution to give the corresponding alcohol and acid?

(A) Phenol
(B) Benzoic acid
(C) Butanal
(D) Benzaldehyde

Answer: (D) Benzaldehyde · Key from source paper

Q264 AIEEE 2003 MCQ

When $CH_2 = CH - COOH$ is reduced with $LiAlH_4$, the compound obtained will be

(A) $CH_2 = CH - CH_2OH$
(B) $CH_3 - CH_2 - CH_2OH$
(C) $CH_3 - CH_2 - CHO$
(D) $CH_3 - CH_2 - COOH$

Answer: (A) $CH_2 = CH - CH_2OH$ · Key from source paper

Q265 AIEEE 2002 MCQ

$CH_3CH_2COOH \xrightarrow[\text{red P}]{Cl_2} A \xrightarrow{\text{alc. KOH}} B$. What is B ?

(A) CH_3CH_2COCl
(B) CH_3CH_2CHO
(C) $CH_2 = CHCOOH$
(D) $ClCH_2CH_2COOH$

Answer: (C) $CH_2 = CHCOOH$ · Key from source paper

EdLoop JEE