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CHEMISTRY · JEE MAIN

Haloalkanes & Haloarenes

Previous Year Questions with answers

149 questions · **116** papers · **2002–2026** · newest paper first

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What is in this PDF: every Haloalkanes & Haloarenes 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

2.5%
of Chemistry questions, 2019–2026

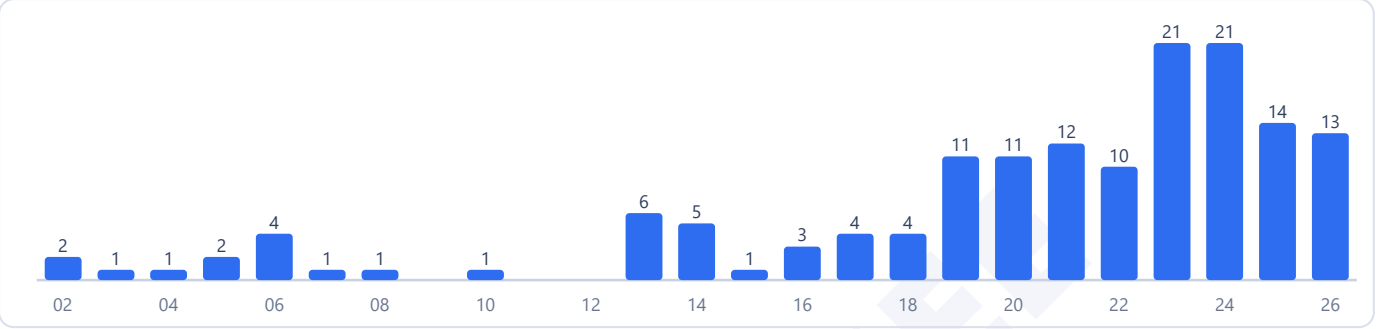
149
questions, 2002–2026

91 of 162
papers asked it, 2019–2026

142 / 7
MCQ / numerical, 2002–2026

Trend. Rising: 0.8 questions per paper in 2024–2026 against 0.6 in 2019–2023.

Questions per year



Counts are the questions we hold: 149 in 116 papers. No question in this chapter was found repeated across papers.

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

Nucleophilic Substitution	77
Elimination & Other Reactions	56
Preparation & Properties	16

How often it comes up

Haloalkanes and haloarenes covers substitution and elimination reactions under Unit 16: Organic Compounds Containing Halogens in the Class 12 curriculum, holding rank 19 of 31 chapters with a 2.5% share of the chemistry section. In the 2019 to 2026 testing window, Haloalkanes & Haloarenes accounted for 113 questions across 162 exam papers, making up 2.5% of the chemistry section and holding rank 19 of 31 chapters. During the 2002 to 2018 timeframe, it contributed 36 questions across 38 papers with a 2.7% share. Across the 2024 to 2026 seasons, the chapter yielded 48 questions across 58 papers, accounting for a 3.1% share. Comparing 2002 to 2018 against 2024 to 2026, its share is about the same, while comparing 2019 to 2026 against 2024 to 2026, the trend is up.

The topic has appeared every year from 2019 to 2026. Across the 2019 to 2026 period, it averaged 0.7 questions per paper, rising to 0.8 questions per paper between 2024 and 2026. Numerical value questions are relatively rare here, with 7 numerical answer questions set between 2019 and 2026.

Most-asked topics

The syllabus divides across three primary topics:

- Nucleophilic Substitution: The dominant focus with 77 total questions (61 in 2019 to 2026), examined continuously through 2026. Focuses on SN1 versus SN2 competition, steric hindrance versus carbocation stability, solvent polarity effects (protic versus aprotic), inversion of configuration at chiral centers, and unreactivity of vinyl and aryl halides due to partial double bond resonance character.
- Elimination & Other Reactions: Produced 56 total questions (38 in 2019 to 2026), evaluated through 2026. Evaluates E2 dehydrohalogenation stereochemistry (anti-periplanar requirement), Saytzeff major alkene orientation with unhindered bases versus Hofmann orientation with bulky bases like potassium tert-butoxide, Grignard reagent formations, and Wurtz-Fittig couplings.

- Preparation & Properties: Accounted for 16 total questions (14 in 2019 to 2026), active through 2026. Covers halogen exchange reactions (Finkelstein reaction using sodium iodide in dry acetone, Swarts reaction using metal fluorides like AgF), Sandmeyer reaction, and physical trends in boiling point and dipole moments.

What the questions look like

Examiners test reaction mechanisms through comparative sequences. Many problems ask students to order four organic halides by their rate of SN1 solvolysis (dependent on allylic, benzylic, or tertiary carbocation stability) or SN2 displacement (inversely proportional to steric crowding around the reacting carbon).

Another frequent pattern examines haloarenes: students must recognize why chlorobenzene resists nucleophilic attack under ambient conditions, and how introducing electron-withdrawing nitro groups at ortho and para positions dramatically accelerates nucleophilic aromatic substitution via Meisenheimer complexes.

How to practise it

Prepare for mechanism questions by focusing on structural constraints and reagent clues:

1. Master SN1 versus SN2 decision trees: Primary halides undergo SN2; tertiary halides undergo SN1; secondary halides depend strongly on nucleophile strength and solvent (polar aprotic like DMSO favors SN2; polar protic favors SN1). 2. Recognize unreactive halides: Vinyl halides, aryl halides, and bridgehead halides resist both SN1 and SN2 substitutions due to resonance stabilization of the C–X bond and Bredt's rule preventing planar carbocation formation. 3. Track stereochemical consequences: SN2 reactions produce pure inversion of configuration (Walden inversion), whereas SN1 reactions proceed with partial or complete racemization. 4. Distinguish substitution from elimination: High temperature and strong, bulky bases favor E2 elimination over SN2 substitution. 5. Memorize named preparation reactions: Be fluent with Finkelstein synthesis of alkyl iodides and Swarts synthesis of alkyl fluorides.

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Q1 JEE Main 2026 · 8 Apr · Shift 2 MCQ

Given below are two statements :

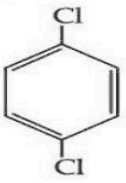
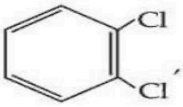
Statement I : Due to increase in van der Waals forces, the order of boiling points is $CH_3CH_2CH_2I > CH_3CH_2I > CH_3I$.

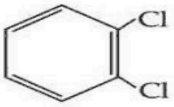
Statement II : As *(see the figure above)* is more symmetric, its melting point is higher than *(see the figure above)*, however its boiling point is lower than *(see the figure above)*

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

Given below are two statements :

Statement I : Due to increase in van der Waals forces, the order of boiling points is $CH_3CH_2CH_2I > CH_3CH_2I > CH_3I$.

Statement II : As  is more symmetric, its melting point is higher than  ,

however its boiling point is lower than 

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

Options :

6911212016. Both **Statement I** and **Statement II** are true

6911212017. Both **Statement I** and **Statement II** are false

6911212018. **Statement I** is true but **Statement II** is false

6911212019. **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: (A) Both **Statement I** and **Statement II** are true · Official NTA final key

Q2 JEE Main 2026 · 5 Apr · Shift 2 Numerical

RMgI when treated with ice cold water liberated a gas which occupied 1.4 dm^3/g at STP. The gas produced is further reacted with iodine in presence of HIO_3 to give compound (X). Compound (X) in presence of Na and dry ether produced compound (Y). Molar mass of compound (Y) is _____ g mol^{-1}. (Nearest integer)

Numerical value type: the answer is a number.

Answer: 30. · Official NTA final key

Q3 JEE Main 2026 · 4 Apr · Shift 1 MCQ

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

List-I Name of reaction	List-II Reagent or catalyst used
A. Finkelstein reaction	I. SbF_3
B. Swarts reaction	II. Na, dry ether
C. Sandmeyer's reaction	III. NaI
D. Fittig reaction	IV. Cu_2Cl_2

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

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

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

Q4 JEE Main 2026 · 2 Apr · Shift 1 MCQ

Given below are two statements :

Statement (I) : Benzyl chloride reacts faster in S_N1 mechanism than ethyl chloride.

Statement (II) : Ethyl carbocation intermediate is less stabilized by hyperconjugation than benzyl carbocation by resonance.

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

(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: (A) Both Statement I and Statement II are true · Official NTA final key

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Q5 JEE Main 2026 · 2 Apr · Shift 2 MCQ

Correct statements regarding alkyl halides (R−X) among the following are :

A. Alcohol being less polar solvent as compared to water, alcoholic KOH favours elimination reaction with R−X.

B. Order of reactivity towards S_N1 mechanism is $C_6H_5-CH_2-Cl > C_6H_5-CHCl-C_6H_5$.

C. Non substituted aryl halides exhibit properties similar to alkyl halides.

D. Vinyl chloride is an example of haloalkene and allyl chloride is an example of haloalkyne.

E. R−Cl can be prepared by reacting R−OH with $SOCl_2$ but Ar−Cl cannot be prepared by reacting Ar−OH with $SOCl_2$.

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

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

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

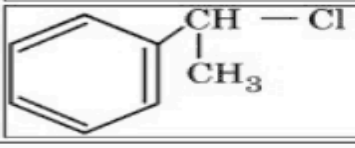
Q6 JEE Main 2026 · 24 Jan · Shift 1 MCQ

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

List-I Chloro derivative	**List-II Example**
A. Vinyl Chloride	I. $CH_2 = CH - CH_2Cl$
B. Benzyl Chloride	II. $CH_3 - CH(Cl)CH_3$
C. Alkyl Chloride	III. $CH_2 = CHCl$
D. Allyl Chloride	IV. *(see the figure above)*

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

Q.51 Match the **LIST-I** with **LIST-II**

List-I Chloro derivative		List-II Example	
A.	Vinyl Chloride	I.	$CH_2 = CH - CH_2Cl$
B.	Benzyl Chloride	II.	$CH_3 - CH(Cl)CH_3$
C.	Alkyl Chloride	III.	$CH_2 = CHCl$
D.	Allyl Chloride	IV.	

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

Options
1. A-III, B-IV, C-I, D-II
2. A-III, B-IV, C-II, D-I
3. A-I, B-II, C-IV, D-III
4. A-IV, B-I, C-III, D-II

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

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

Q7 JEE Main 2026 · 24 Jan · Shift 1 MCQ

Given below are two statements:

Statement I: 'C − Cl' bond is stronger in $CH_2 = CH - Cl$ than $CH_3 - CH_2 - Cl$

Statement II: The given optically active molecule,

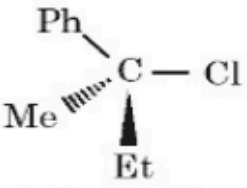
(see the figure above)

on hydrolysis gives a solution that can rotate the plane polarized light.

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

Q.62 Given below are two statements:

Statement I: 'C − Cl' bond is stronger in $CH_2 = CH - Cl$ than $CH_3 - CH_2 - Cl$

Statement II: The given optically active molecule,  on hydrolysis gives a solution that can rotate the plane polarized light.

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

Options

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

(A) Both Statement I and Statement II are false

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

(C) Both Statement I and Statement II are true

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

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

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Q8 JEE Main 2026 · 24 Jan · Shift 2 Numerical

Grignard reagent RMgBr (P) reacts with water and forms a gas (Q). One gram of Q occupies 1.4 dm^3 at STP. (P) on reaction with dry ice in dry ether followed by H_3O^+ forms a compound (Z). 0.1 mole of (Z) will weigh _____ g. (Nearest integer)

Numerical value type: the answer is a number.

Answer: 6. · Official NTA final key

Q9 JEE Main 2026 · 22 Jan · Shift 1 MCQ

The correct order of reactivity of CH_3Br in methanol with the following nucleophiles is

F^-, I^-, $C_2H_5O^-$ and $C_6H_5O^-$

(A) $I^- > C_2H_5O^- > F^- > C_6H_5O^-$
(B) $I^- > C_6H_5O^- > F^- > C_2H_5O^-$
(C) $I^- > F^- > C_6H_5O^- > C_2H_5O^-$
(D) $I^- > C_2H_5O^- > C_6H_5O^- > F^-$

Answer: (D) $I^- > C_2H_5O^- > C_6H_5O^- > F^-$ · Official NTA final key

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Q10 JEE Main 2026 · 22 Jan · Shift 1 MCQ

As compared with chlorocyclohexane, which of the following statements correctly apply to chlorobenzene?

A. The magnitude of negative charge is more on chlorine atom.

B. The C $-$ Cl bond has partial double bond character.

C. C $-$ Cl bond is less polar.

D. C $-$ Cl bond is longer due to repulsion between delocalised electrons of the aromatic ring and lone pairs of electrons of chlorine.

E. The C $-$ Cl bond is formed using sp^2 hybridised orbital of carbon.

Choose the correct answer from the options given below:

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

Answer: (D) B, C and E Only · Official NTA final key

Q11 JEE Main 2026 · 22 Jan · Shift 1 MCQ

The correct order of the rate of reaction of the following reactants with nucleophile by S_N1 mechanism is :

(Given : Structures I and II are rigid)

(see the figure above)

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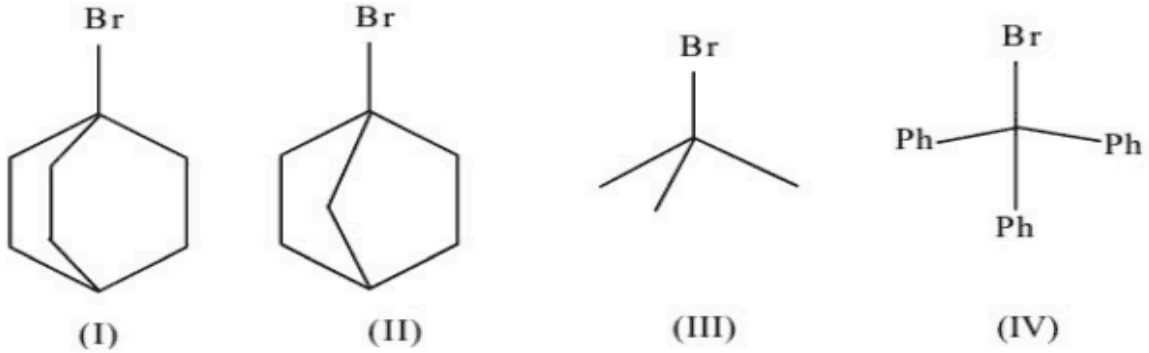
Q.65 The correct order of the rate of reaction of the following reactants with nucleophile by S_N1 mechanism is :
(Given : Structures I and II are rigid)



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

Options
1. $III < I < II < IV$
2. $I < II < III < IV$
3. $II < I < III < IV$
4. $IV < III < II < I$

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

Answer: (C) II < I < III < IV · Official NTA final key

Q12 JEE Main 2026 · 21 Jan · Shift 2 MCQ

The correct order of the rate of the reaction for the following reaction with respect to nucleophiles is :

$CH_3Br + Nu^{\ominus} \longrightarrow CH_3Nu + Br^{\ominus}$

(A) $CH_3COO^- > PhO^- > {}^-OH > ClO_4^-$
(B) $ClO_4^- > CH_3COO^- > {}^-OH > PhO^-$
(C) ${}^-OH > PhO^- > CH_3COO^- > ClO_4^-$
(D) $PhO^- > {}^-OH > CH_3COO^- > ClO_4^-$

Answer: (C) ${}^-OH > PhO^- > CH_3COO^- > ClO_4^-$ · Official NTA final key

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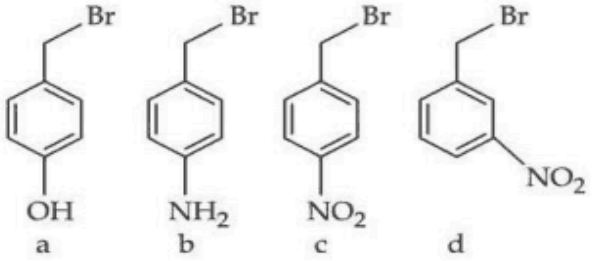
Q13 JEE Main 2026 · 21 Jan · Shift 2 MCQ

The correct order of reactivity of the following benzyl halides towards reaction with KCN is :

(see the figure above)

Q.65 The correct order of reactivity of the following benzyl halides towards reaction with KCN is :



Options

1. $b > a > c > d$
2. $a > b > c > d$
3. $a > b > d > c$
4. $b > a > d > c$

(A) $b > a > c > d$

(B) $a > b > c > d$

(C) $a > b > d > c$

(D) $b > a > d > c$

Answer: (D) $b > a > d > c$ · Official NTA final key

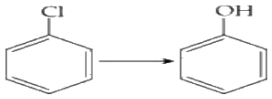
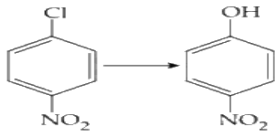
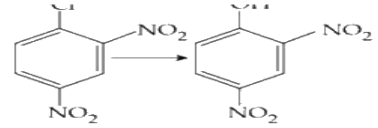
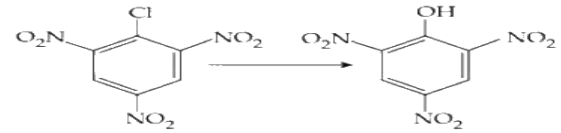
Q14 JEE Main 2025 · 7 Apr · Shift 2 MCQ

Match List - I with List - II.

(see the figure above)

Choose the correct answer from the options given below :

8. Match List - I with List - II.

List – I Conversion	List - II Reagents, Conditions used
(A) 	(I) Warm, H_2O
(B) 	(II) (a) $NaOH, 368\,K$; (b) H_3O^+
(C) 	(III) (a) $NaOH, 443\,K$; (b) H_3O^+
(D) 	(IV) (a) $NaOH, 623\,K, 300\,atm$; (b) H_3O^+

Choose the correct answer from the options given below :

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

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

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

Q15 JEE Main 2025 · 4 Apr · Shift 2 MCQ

Given below are two statements :

Statement (I) : Alcohols are formed when alkyl chlorides are treated with aqueous potassium hydroxide by elimination reaction.

Statement (II) : In alcoholic potassium hydroxide, alkyl chlorides form alkenes by abstracting the hydrogen from the β -carbon.

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

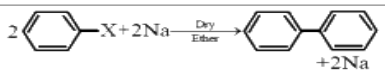
Q16 JEE Main 2025 · 2 Apr · Shift 2 MCQ

Match List - I with List - II.

(see the figure above)

Choose the correct answer from the options given below :

20. Match List - I with List - II.

List-I (Reaction)		List-II (Name of reaction)	
(A)		(I)	Lucas reaction
(B)	$ArN_2^+X^- \xrightarrow[HCl]{Cu} ArCl + N_2 \uparrow + CuX$	(II)	Finkelstein reaction
(C)	$C_2H_5Br + NaI \xrightarrow[Acetone]{Dry} C_2H_5I + NaBr$	(III)	Fittig reaction
(D)	$CH_3C(OH)(CH_3)CH_3 \xrightarrow[ZnCl_2]{HCl} CH_3C(Cl)(CH_3)CH_3$	(IV)	Gatterman reaction

Choose the correct answer from the options given below :

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

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

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

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

SECTION-B

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

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

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

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

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

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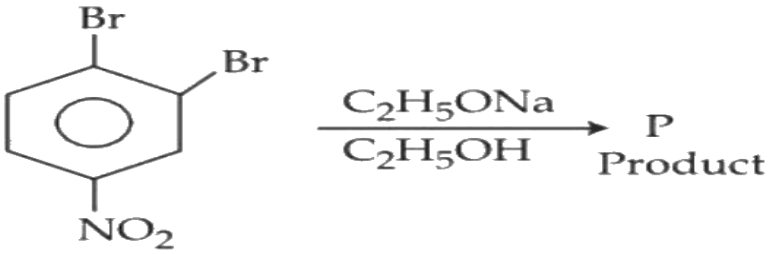
Q17 JEE Main 2025 · 29 Jan · Shift 1 MCQ

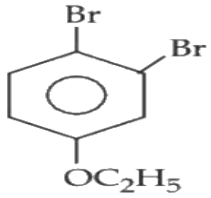
In the following substitution reaction: product 'P' formed is :

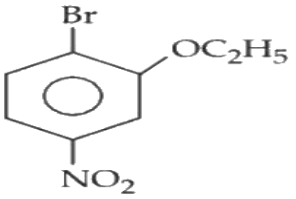
(see the figure above)

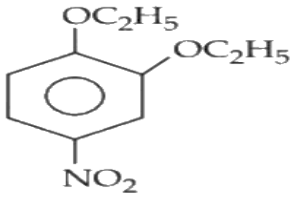
Q69.

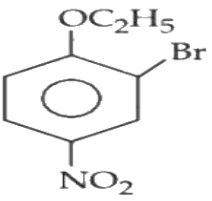


In the following substitution reaction:
product 'P' formed is :

(1) 

(2) 

(3) 

(4) 

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

Answer: (D) · Key from source paper

Q18 JEE Main 2025 · 28 Jan · Shift 1 MCQ

The products A and B in the following reactions, respectively are

$$\mathrm{A} \xleftarrow{\mathrm{Ag-NO_2}} \mathrm{CH_3-CH_2-CH_2-Br} \xrightarrow{\mathrm{AgCN}} \mathrm{B}$$

(A) $\mathrm{CH_3-CH_2-CH_2-NO_2, CH_3-CH_2-CH_2-CN}$
(B) $\mathrm{CH_3-CH_2-CH_2-ONO, CH_3-CH_2-CH_2-NC}$
(C) $\mathrm{CH_3-CH_2-CH_2-ONO, CH_3-CH_2-CH_2-CN}$
(D) $\mathrm{CH_3-CH_2-CH_2-NO_2, CH_3-CH_2-CH_2-NC}$

Answer: (D) $\mathrm{CH_3-CH_2-CH_2-NO_2, CH_3-CH_2-CH_2-NC}$ · Key from source paper

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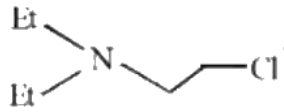
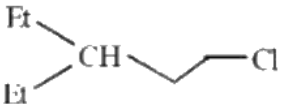
Q19 JEE Main 2025 · 28 Jan · Shift 1 MCQ

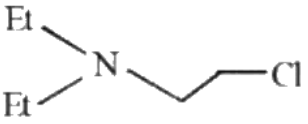
Given below are two statements:

(see the figure above)

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

Q67. Given below are two statements:

Statement I:  will undergo alkaline hydrolysis at a faster rate than 

Statement II: In  , intramolecular substitution takes place first by involving lone pair of electrons on nitrogen. In the light of the above statements, choose the most appropriate answer from the options given below

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

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

(3) Both Statement I and Statement II are correct

(4) Both Statement I and Statement II are incorrect

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

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

(C) Both Statement I and Statement II are correct

(D) Both Statement I and Statement II are incorrect

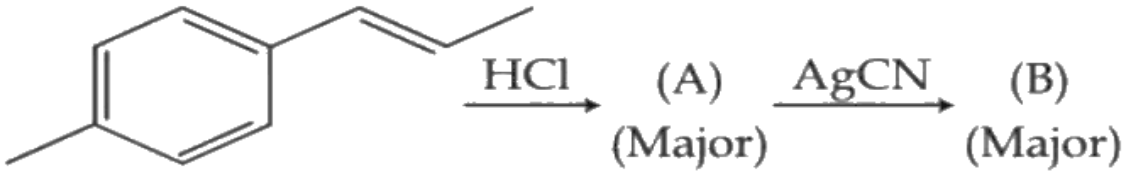
Answer: (C) Both Statement I and Statement II are correct · Key from source paper

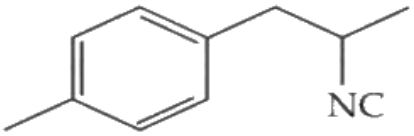
Q20 JEE Main 2025 · 28 Jan · Shift 2 MCQ

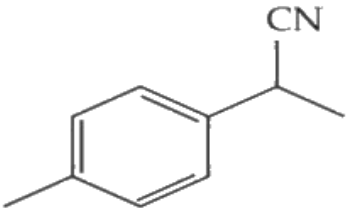
The product B formed in the following reaction sequence is :

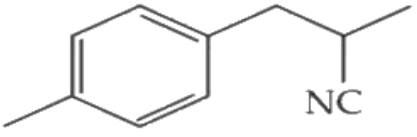
(see the figure above)

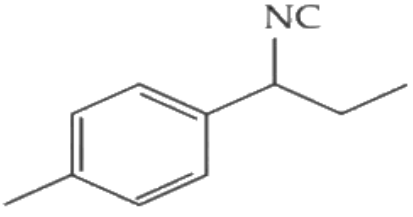
Q63. The product B formed in the following reaction sequence is :



(1) 

(2) 

(3) 

(4) 

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

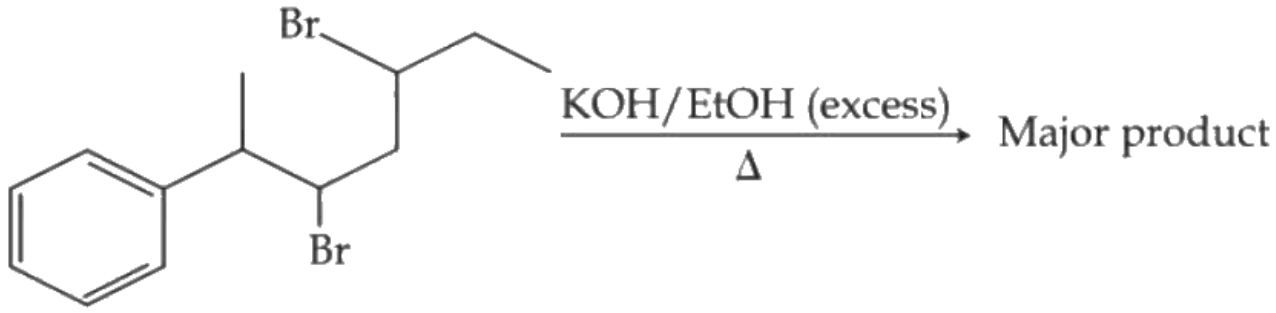
Answer: (D) · Key from source paper

Q21 JEE Main 2025 · 28 Jan · Shift 2 MCQ

The major product of the following reaction is :

(see the figure above)

Q69. The major product of the following reaction is :



(1) 2-Phenylhepta-2,5-diene
(2) 6-Phenylhepta-2,4-diene
(3) 6-Phenylhepta-3,5-diene
(4) 2-Phenylhepta-2,4-diene

(A) 2-Phenylhepta-2,5-diene
(B) 6-Phenylhepta-2,4-diene
(C) 6-Phenylhepta-3,5-diene
(D) 2-Phenylhepta-2,4-diene

Answer: (D) 2-Phenylhepta-2,4-diene · Key from source paper

Q22 JEE Main 2025 · 24 Jan · Shift 1 MCQ

Given below are two statements: Statement I: The conversion proceeds well in the less polar medium. $CH_3-CH_2-CH_2-CH_2-Cl \xrightarrow{HO^-} CH_3-CH_2-CH_2-CH_2-OH + Cl^{(-)}$ Statement II: The conversion proceeds well in the more polar medium.

(see the figure above)

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

Q52. Given below are two statements: Statement I: The conversion proceeds well in the less polar medium.

$CH_3 - CH_2 - CH_2 - CH_2 - Cl \xrightarrow{HO} CH_3 - CH_2 - CH_2 - CH_2 - OH + Cl^{(-)}$ Statement II: The conversion proceeds well in the more polar medium.

$$CH_3-CH_2-CH_2-CH_2-Cl \xrightarrow{R_3\ddot{N}} CH_3-CH_2-CH_2-CH_2-\overset{R}{\underset{R}{\overset{|}{\underset{|}{N^{(+)}}}}}-R\ Cl^{(-)}$$

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

(1) Both Statement I and Statement II are true
(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 false

(A) Both Statement I and Statement II are true
(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 false

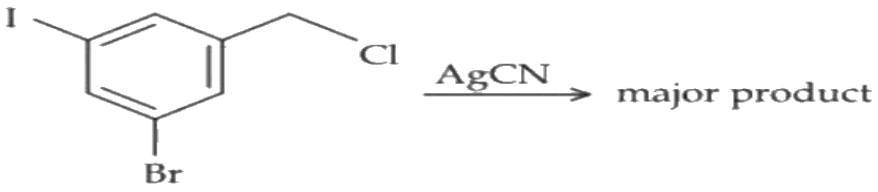
Answer: (A) Both Statement I and Statement II are true · Key from source paper

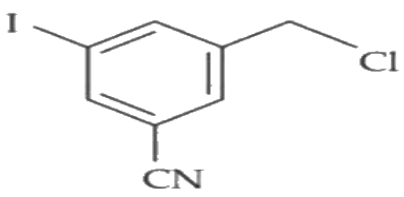
Q23 JEE Main 2025 · 24 Jan · Shift 2 MCQ

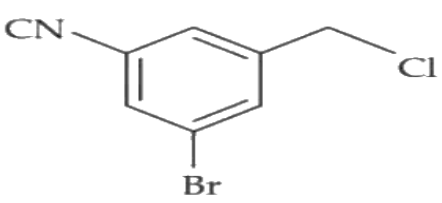
The structure of the major product formed in the following reaction is :

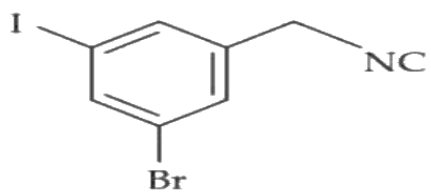
(see the figure above)

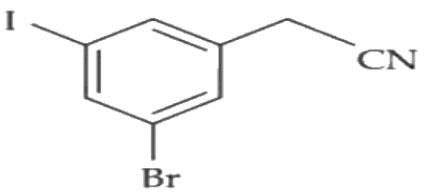
Q65. The structure of the major product formed in the following reaction is :



(1) 

(2) 

(3) 

(4) 

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

Answer: (C) · Key from source paper

Q24 JEE Main 2025 · 23 Jan · Shift 1 MCQ

Match the LIST-I with LIST-II

LIST-I Name reaction	LIST-II Product obtainable
A. Swarts reaction	I. Ethyl benzene
B. Sandmeyer's reaction	II. Ethyl iodide
C. Wurtz Fittig reaction	III. Cyanobenzene
D. Finkelstein reaction	IV. Ethyl fluoride

Choose the correct answer from the options given below:

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

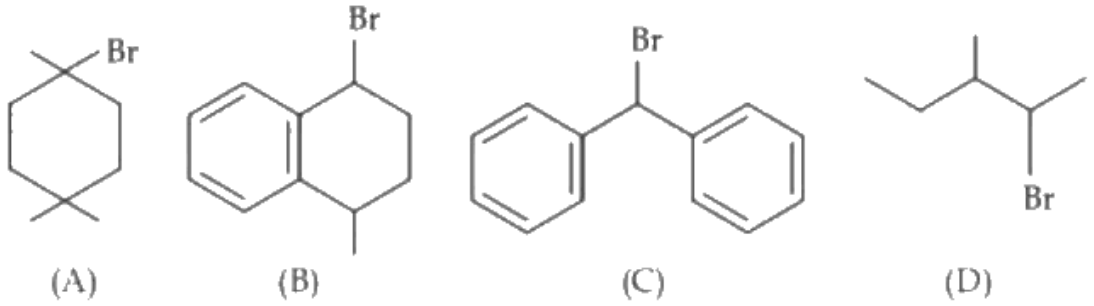
Answer: (D) A-IV, B-III, C-I, D-II · Key from source paper

Q25 JEE Main 2025 · 23 Jan · Shift 2 MCQ

The ascending order of relative rate of solvolysis of following compounds is :

(see the figure above)

Q65. The ascending order of relative rate of solvolysis of following compounds is :



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

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

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

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

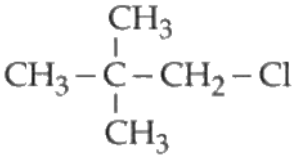
(D) (C) < (D) < (B) < (A)

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

Q26 JEE Main 2025 · 22 Jan · Shift 1 MCQ

Given below are two statements : Statement I : $CH_3 - O - CH_2 - Cl$ will undergo S_N1 reaction though it is a primary halide. Statement II : *(see the figure above)* will not undergo S_N2 reaction very easily though it is a primary halide. In the light of the above statements, choose the most appropriate answer from the options given below :

Q59. Given below are two statements : Statement I : $CH_3 - O - CH_2 - Cl$ will undergo S_N1 reaction though it is a



primary halide. Statement II :

will not undergo S_N2 reaction very easily though it is a primary halide. 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) Both Statement I and Statement II are correct

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

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

(A) Both Statement I and Statement II are incorrect

(B) Both Statement I and Statement II are correct

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

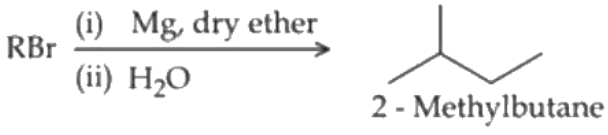
(D) Statement I is correct but Statement II is incorrect

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

Q27 JEE Main 2025 · 22 Jan · Shift 2 MCQ

see figure

Q56.



The maximum number of RBr producing 2-methylbutane by above sequence of reactions is _____ - (Consider the structural isomers only)

(1) 5

(2) 4

(3) 3

(4) 1

(A) 5
(B) 4
(C) 3
(D) 1

Answer: (B) 4 · Key from source paper

Q28 JEE Main 2024 · 9 Apr · Shift 1 MCQ

Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R). Assertion (A): S_N2 reaction of $C_6H_5CH_2Br$ occurs more readily than the S_N2 reaction of CH_3CH_2Br. Reason (R) : The partially bonded unhybridized p-orbital that develops in the trigonal bipyramidal transition state is stabilized by conjugation with the phenyl ring. In the light of the above statements, choose the most appropriate answer from the options given below :

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

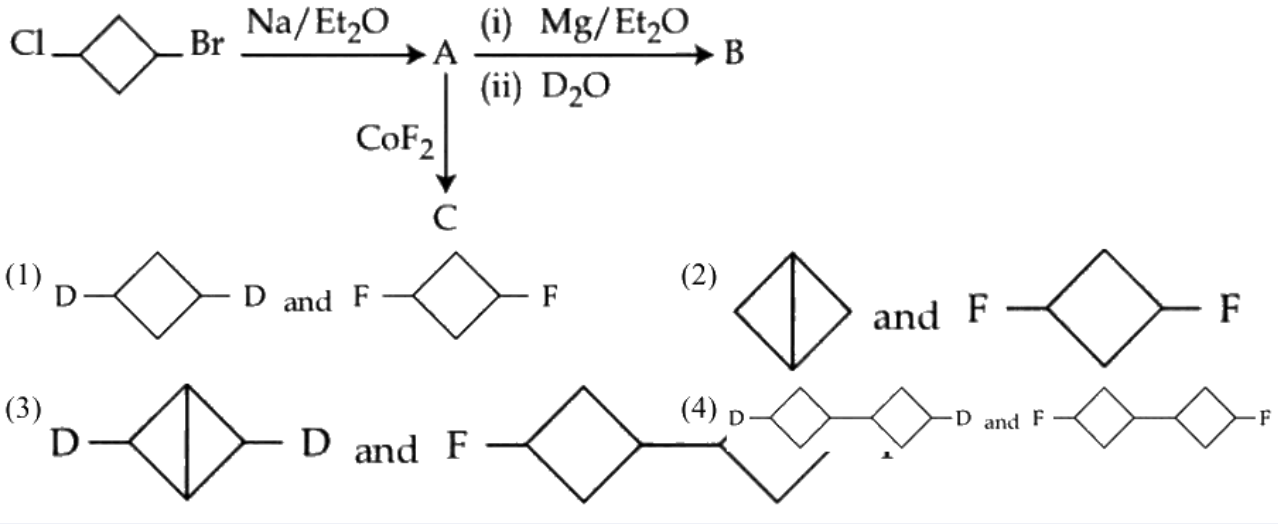
Answer: (D) Both (A) and (R) are correct and (R) is the correct explanation of (A) · Key from source paper

Q29 JEE Main 2024 · 9 Apr · Shift 1 MCQ

In the following sequence of reaction, the major products B and C respectively are :

(see the figure above)

Q48. In the following sequence of reaction, the major products B and C respectively are :

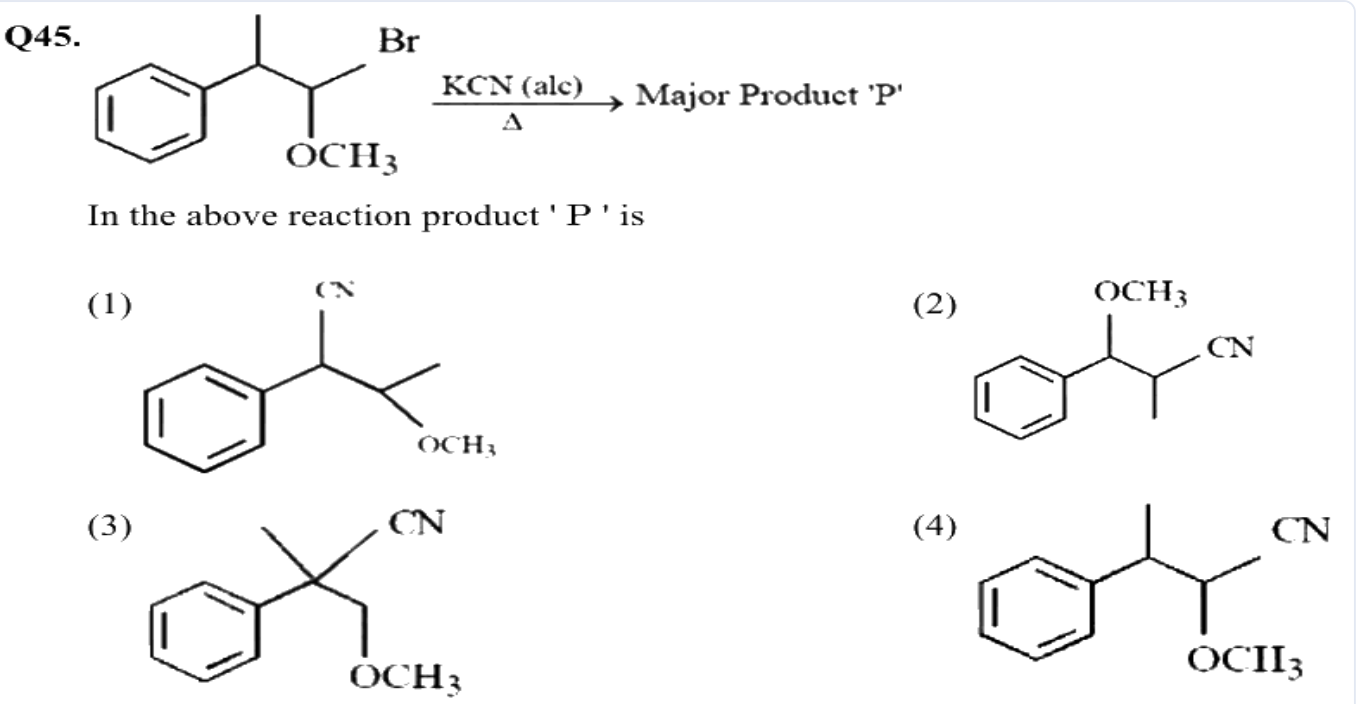


(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Key from source paper

Q30 JEE Main 2024 · 9 Apr · Shift 2 MCQ

see figure



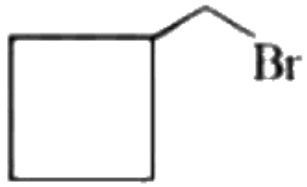
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

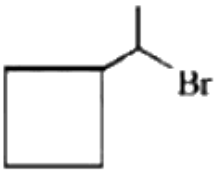
Answer: (D) · Key from source paper

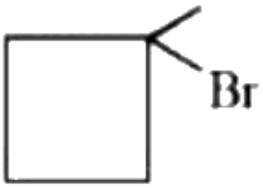
Q31 JEE Main 2024 · 8 Apr · Shift 1 MCQ

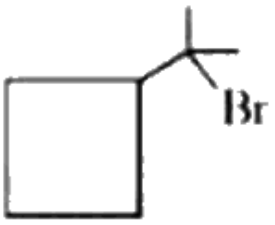
Which among the following compounds will undergo fastest S_N2 reaction.

Q46. Which among the following compounds will undergo fastest S_N2 reaction.

(1) 

(2) 

(3) 

(4) 

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

Answer: (A) · Key from source paper

Q32 JEE Main 2024 · 8 Apr · Shift 2 MCQ

Given below are two statements : Statement (I) : S_N2 reactions are 'stereospecific', indicating that they result in the formation of only one stereo-isomer as the product. Statement (II) : S_N1 reactions generally result in formation of product as racemic mixtures. In the light of the above statements, choose the correct answer from the options given below :

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

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

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Q33 JEE Main 2024 · 6 Apr · Shift 1 MCQ

Match List I with List II Choose the correct answer from the options given below:

List - I (Compound)	List - II (Uses)
A. Iodoform	I. Fire extinguisher
B. Carbon tetrachloride	II. Insecticide
C. CFC	III. Antiseptic
D. DDT	IV. Refrigerants

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

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

Q34 JEE Main 2024 · 6 Apr · Shift 1 Numerical

The major products from the following reaction sequence are product A and product B.

(see the figure above)

The total sum of π electrons in product A and product B are _____ (nearest integer)

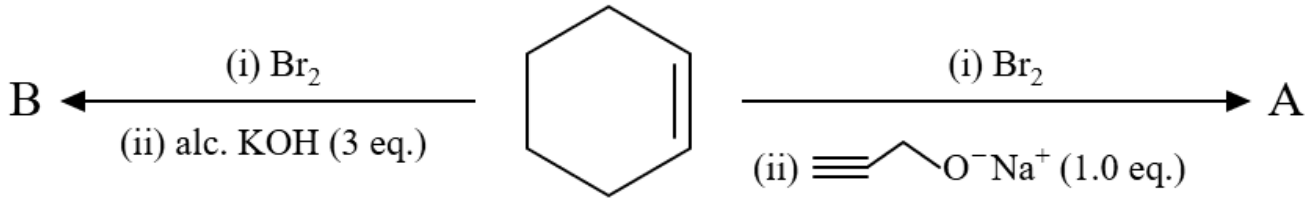


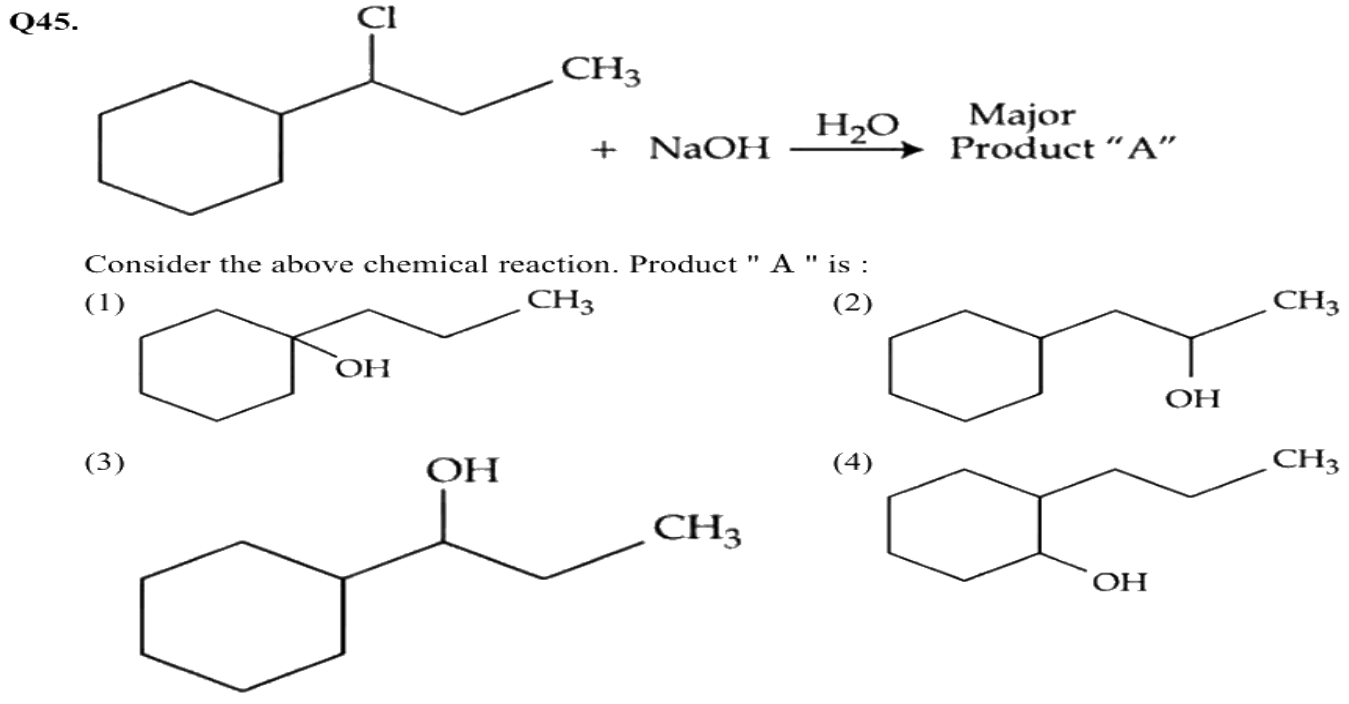
Figure redrawn by EdLoop

Numerical value type: the answer is a number.

Answer: 8. · Key from source paper

Q35 JEE Main 2024 · 6 Apr · Shift 2 MCQ

see figure



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

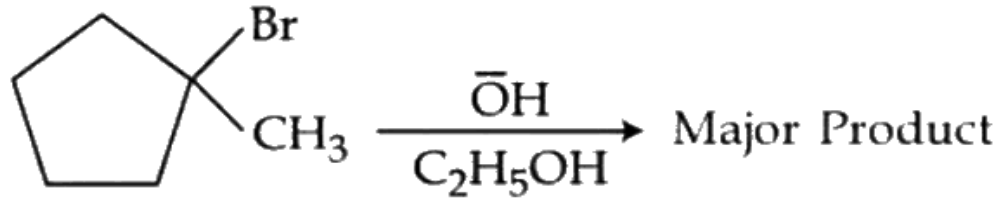
Answer: (A) · Key from source paper

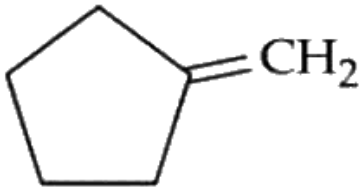
Q36 JEE Main 2024 · 5 Apr · Shift 2 MCQ

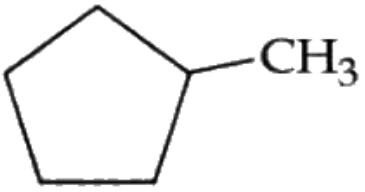
Identify the major product in the following reaction.

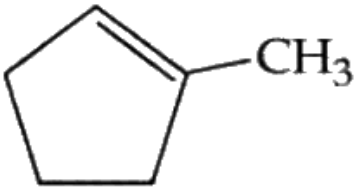
(see the figure above)

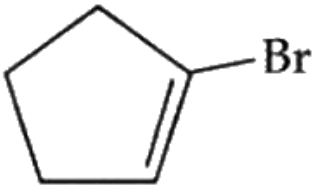
Q47. Identify the major product in the following reaction.



(1)


(2)


(3)


(4)


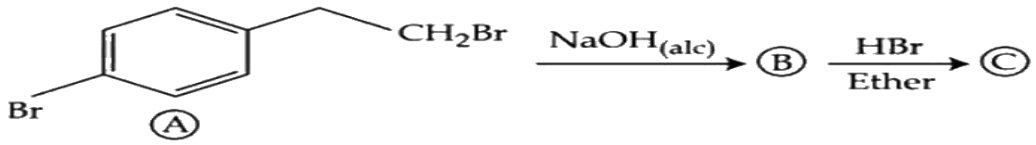
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

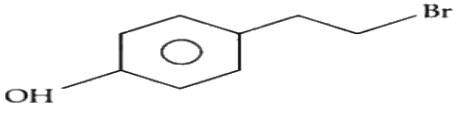
Q37 JEE Main 2024 · 4 Apr · Shift 1 MCQ

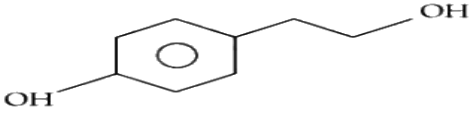
see figure

Q38.

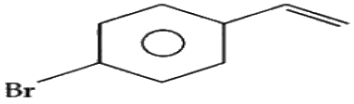


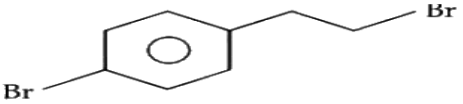
Identify (B) and (C) and how are (A) and (C) related ?

(1) 

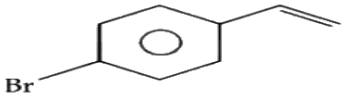


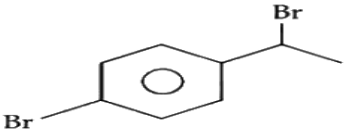
; functional group isomers

(2) 

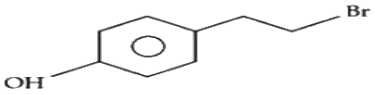


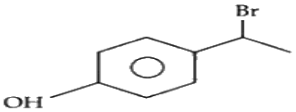
; chain isomers

(3) 



; positon isomers

(4) 



; Derivative

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

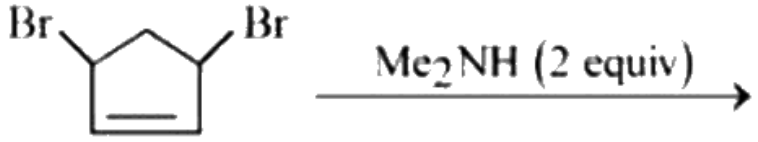
Answer: (C) · Key from source paper

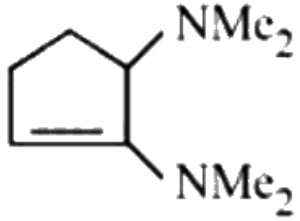
Q38 JEE Main 2024 · 4 Apr · Shift 2 MCQ

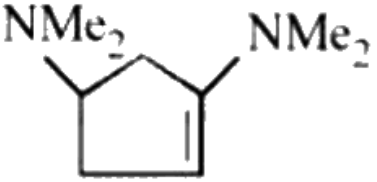
Find out the major product formed from the following reaction. [Me : $-CH_3$]

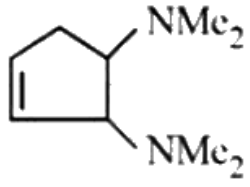
(see the figure above)

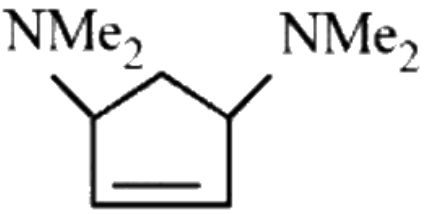
Q49. Find out the major product formed from the following reaction. [Me : $-CH_3$]



(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 2024 · 1 Feb · Shift 2 MCQ

Match List - I with List - II.

List - I Compound		List-II Use
(A) Carbon tetrachloride	(I)	Paint remover
(B) Methylene chloride	(II)	Refrigerators and air conditioners
(C) DDT	(III)	Fire extinguisher
(D) Freons	(IV)	Non Biodegradable insecticide

Choose the correct answer from the options given below:

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

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

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Q40 JEE Main 2024 · 31 Jan · Shift 1 MCQ

The product (C) in the below mentioned reaction is:

(see the figure above)

Q39. The product (C) in the below mentioned reaction is:

$$CH_3 - CH_2 - CH_2 - Br \xrightarrow[\Delta]{KOH_{alc}} A \xrightarrow{HBr} B \xrightarrow[KOH_{aq}]{\Delta} C$$

(1) Propan-1-ol
(2) Propene
(3) Propyne
(4) Propan-2-ol

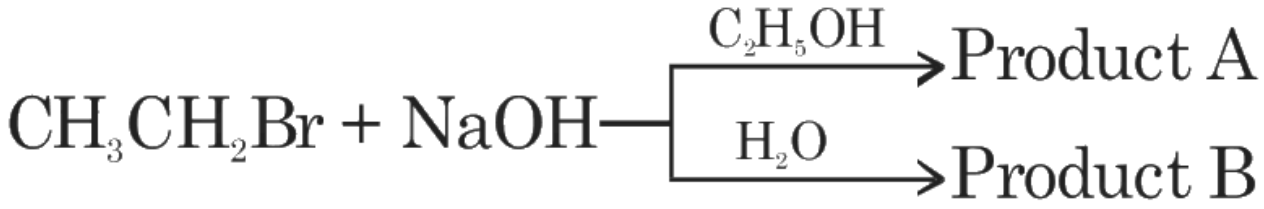
(A) Propan-1-ol
(B) Propene
(C) Propyne
(D) Propan-2-ol

Answer: (D) Propan-2-ol · Key from source paper

Q41 JEE Main 2024 · 31 Jan · Shift 1 Numerical

see figure

Q58.



The total number of hydrogen atoms in product A and product B is_____.

Numerical value type: the answer is a number.

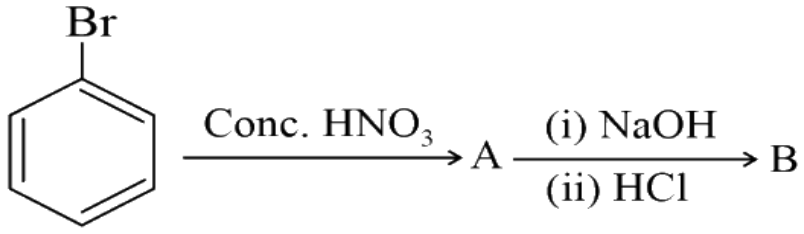
Answer: 10. · Key from source paper

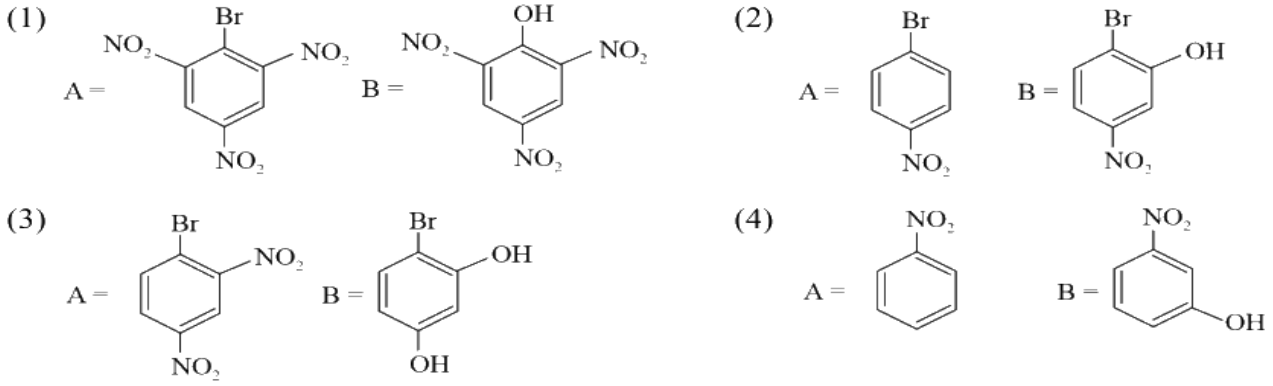
Q42 JEE Main 2024 · 31 Jan · Shift 2 MCQ

Identify A and B in the following reaction sequence.

(see the figure above)

Q41. Identify A and B in the following reaction sequence.





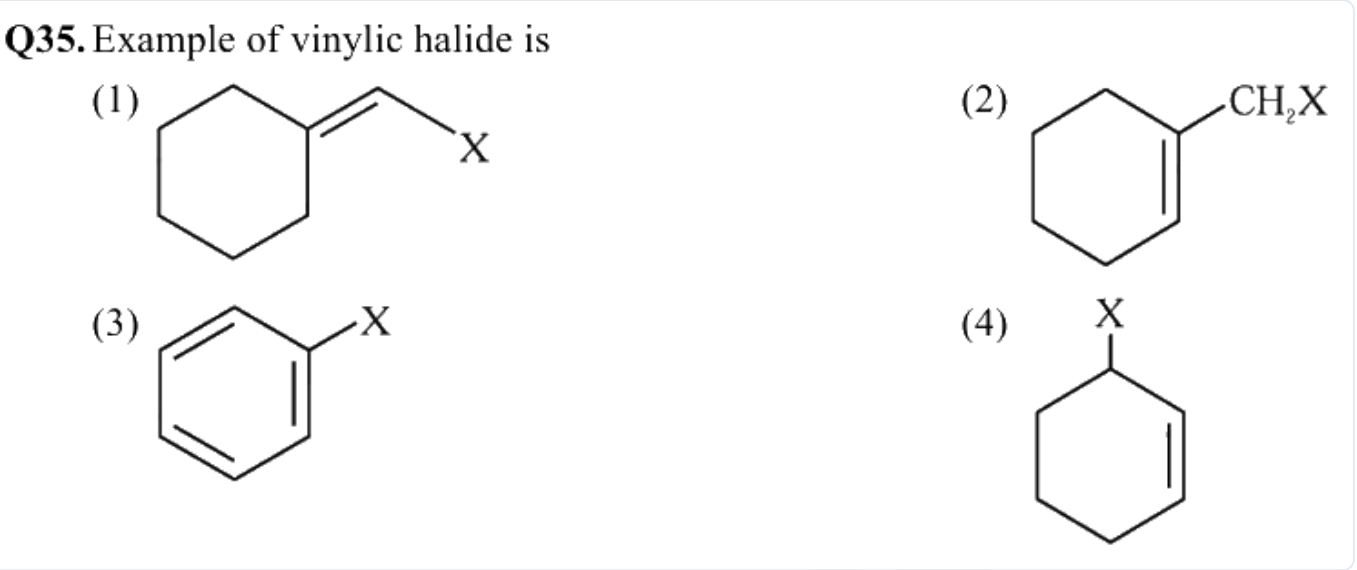
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q43 JEE Main 2024 · 30 Jan · Shift 1 MCQ

Example of vinylic halide is

(see the figure above)



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

Answer: (A) · Key from source paper

Q44 JEE Main 2024 · 30 Jan · Shift 1 MCQ

Given below are two statement one is labeled as Assertion (A) and the other is labeled as Reason (R).

Assertion (A): $CH_2 = CH - CH_2 - Cl$ is an example of allyl halide

Reason (R): Allyl halides are the compounds in which the halogen atom is attached to sp^2 hybridised carbon atom.

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

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

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

Q45 JEE Main 2024 · 30 Jan · Shift 2 MCQ

Given below are two statements:

Statement - I: High concentration of strong nucleophilic reagent with secondary alkyl halides which do not have bulky substituents will follow S_N2 mechanism.

Statement - II: A secondary alkyl halide when treated with a large excess of ethanol follows S_N1 mechanism.

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

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

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

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Q46 JEE Main 2024 · 29 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 : Aryl halides cannot be prepared by replacement of hydroxyl group of phenol by halogen atom.

Reason R : Phenols react with halogen acids violently.

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

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

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

Q47 JEE Main 2024 · 27 Jan · Shift 1 MCQ

The correct statement regarding nucleophilic substitution reaction in a chiral alkyl halide is ;

(A) Retention occurs in S_N1 reaction and inversion occurs in S_N2 reaction.
(B) Racemisation occurs in S_N1 reaction and retention occurs in S_N2 reaction.
(C) Racemisation occurs in both S_N1 and S_N2 reactions.
(D) Racemisation occurs in S_N1 reaction and inversion occurs in S_N2 reaction.

Answer: (D) Racemisation occurs in S_N1 reaction and inversion occurs in S_N2 reaction. · Key from source paper

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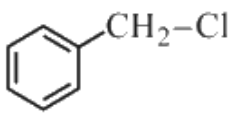
Q48 JEE Main 2024 · 27 Jan · Shift 2 MCQ

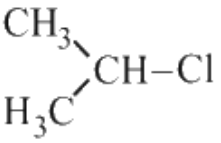
Which among the following halide/s will not show S_N1 reaction:

Q45. Which among the following halide/s will not show S_N1 reaction:

(1) $H_2C = CH - CH_2Cl$

(2) $CH_3 - CH = CH - Cl$

(3) 

(4) 

(A) $H_2C = CH - CH_2Cl$

(B) $CH_3 - CH = CH - Cl$

(C) *see figure*

(D) *see figure*

Answer: (B) $CH_3 - CH = CH - Cl$ · Key from source paper

Q49 JEE Main 2023 · 13 Apr · Shift 1 MCQ

2-Methyl propyl bromide reacts with $C_2H_5O^-$ and gives A whereas on reaction with C_2H_5OH it gives B.

The mechanism followed in these reactions and the products A and B respectively are:

(A) S_N2, A =iso-butyl ethyl ether; S_N1, B =tert-butyl ethyl ether

(B) S_N1, A =tert-butyl ethyl ether; S_N1, B = 2-butyl ethyl ether

(C) S_N2, A = 2-butyl ethyl ether; S_N2, B =iso-butyl ethyl ether

(D) S_N1, A =tert-butyl ethyl ether; S_N2, B =iso-butyl ethyl ether

Answer: (A) S_N2, A =iso-butyl ethyl ether; S_N1, B =tert-butyl ethyl ether · Key from source paper

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Q50 JEE Main 2023 · 13 Apr · Shift 2 MCQ

Match List-I with List-II.

1-Bromopropane is reacted with reagents in List-I to give product in List-II

List-I Reagent | List-II Product

A. KOH (alc) | I. Nitrile

B. KCN (alc) | II. Ester

C. $AgNO_2$ | III. Alkene

D. $H_3CCOOAg$ | IV. Nitroalkane

Choose the correct answer from the options given below

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

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

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

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

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

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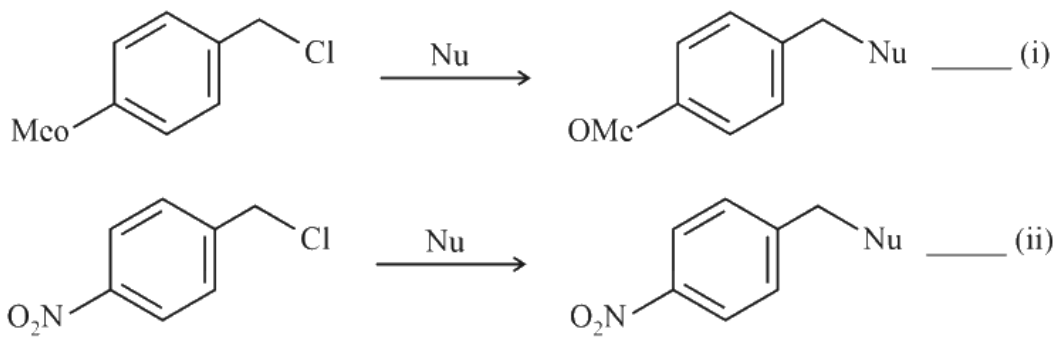
Q51 JEE Main 2023 · 11 Apr · Shift 1 MCQ

see figure

Q37.



Where Nu = Nucleophile

Find out the correct statement from the options given below for the above two reactions.

(1) Reaction (I) is of 2nd order and reaction (II) is of 1st order

(2) Reactions (I) and (II) both are of 2nd order

(3) Reactions (I) is of 1st order and reaction (II) is of 2nd order

(4) Reaction (I) and (II) both are of 1st order

(A) Reaction (I) is of 2nd order and reaction (II) is of 1st order

(B) Reactions (I) and (II) both are of 2nd order

(C) Reactions (I) is of 1st order and reaction (II) is of 2nd order

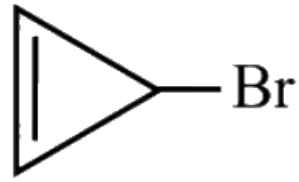
(D) Reaction (I) and (II) both are of 1st order

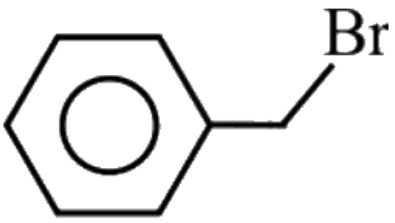
Answer: (C) Reactions (I) is of 1st order and reaction (II) is of 2nd order · Key from source paper

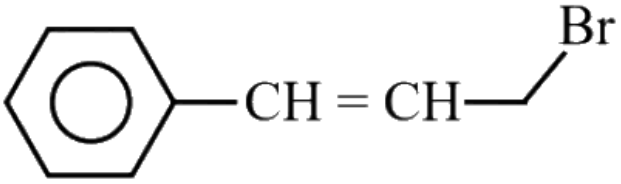
Q52 JEE Main 2023 · 11 Apr · Shift 2 MCQ

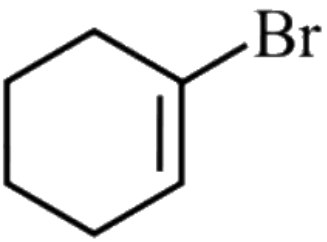
Compound from the following that will not produce precipitate on reaction with $AgNO_3$ is

Q41. Compound from the following that will not produce precipitate on reaction with $AgNO_3$ is

(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 2023 · 11 Apr · Shift 2 MCQ

Which of the following compounds is an example of Freon?

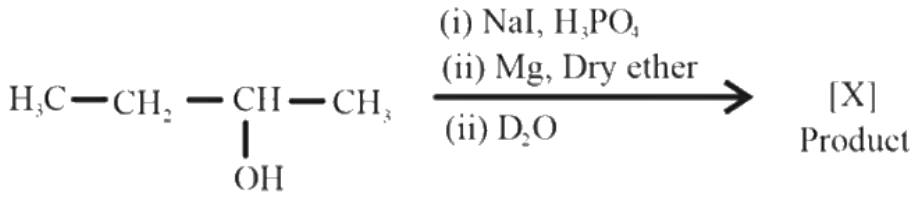
(A) $C_2H_2F_2$
(B) C_2F_4
(C) C_2HF_3
(D) $C_2Cl_2F_2$

Answer: (D) $C_2Cl_2F_2$ · Key from source paper

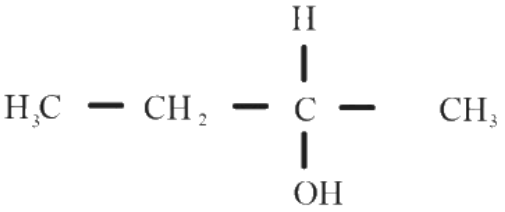
Q54 JEE Main 2023 · 11 Apr · Shift 2 MCQ

see figure

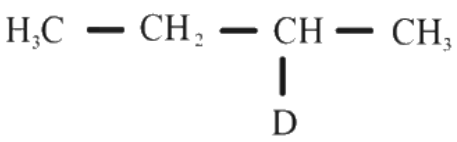
Q57.



Product [X] formed 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

Q55 JEE Main 2023 · 10 Apr · Shift 1 MCQ

Identify the correct order of reactivity for the following pairs towards the respective mechanism

(A) S_N2 *(see the figure above)* > *(see the figure above)*

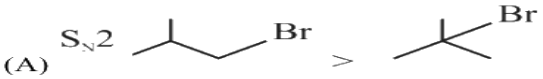
(B) S_N1 *(see the figure above)* > *(see the figure above)*

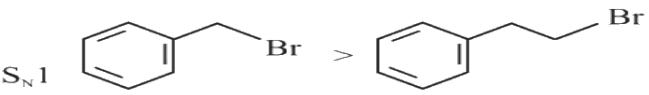
(C) Electrophilic substitution *(see the figure above)* > *(see the figure above)*

(D) Nucleophilic substitution *(see the figure above)* < *(see the figure above)*

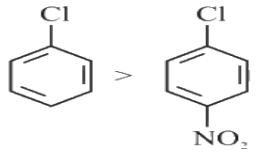
Choose the correction answer from the options given below:

Q46. Identify the correct order of reactivity for the following pairs towards the respective mechanism

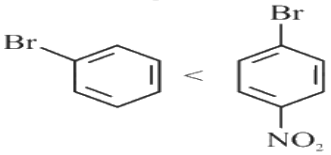
(A) S_N2  Br > Br

(B) S_N1  Br > Br

(C) Electrophilic substitution



(D) Nucleophilic substitution



Choose the correction answer from the options given below:

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

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

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

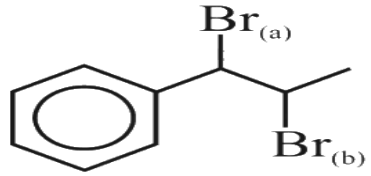
Q56 JEE Main 2023 · 8 Apr · Shift 1 MCQ

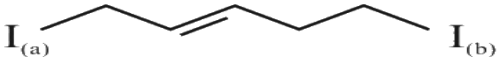
Choose the halogen which is most reactive towards SN1 reaction in the given compounds (A, B, C & D)

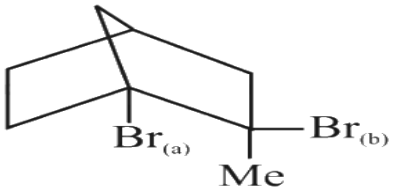
A. *(see the figure above)*
B. *(see the figure above)*
C. *(see the figure above)*
D. *(see the figure above)*

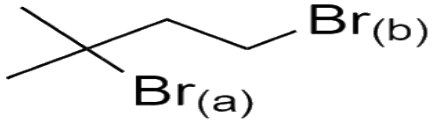
EdLoop JEE

Q55. Choose the halogen which is most reactive towards SN1 reaction in the given compounds (A, B, C & D)

A. 

B. 

C. 

D. 

(1) $A-Br_{(b)}; B-I_{(a)}; C-Br_{(a)}; D-Br_{(a)}$
(2) $A-Br(b); B-I_{(b)}; C-Br(b); D-Br(b)$
(3) $A-Br_{(a)}; B-I_{(a)}; C-Br_{(b)}; D-Br_{(a)}$
(4) $A-Br_{(a)}; B-I_{(a)}; C-Br_{(a)}; D-Br_{(a)}$

(A) $A-Br_{(b)}; B-I_{(a)}; C-Br_{(a)}; D-Br_{(a)}$
(B) $A-Br(b); B-I_{(b)}; C-Br(b); D-Br(b)$
(C) $A-Br_{(a)}; B-I_{(a)}; C-Br_{(b)}; D-Br_{(a)}$
(D) $A-Br_{(a)}; B-I_{(a)}; C-Br_{(a)}; D-Br_{(a)}$

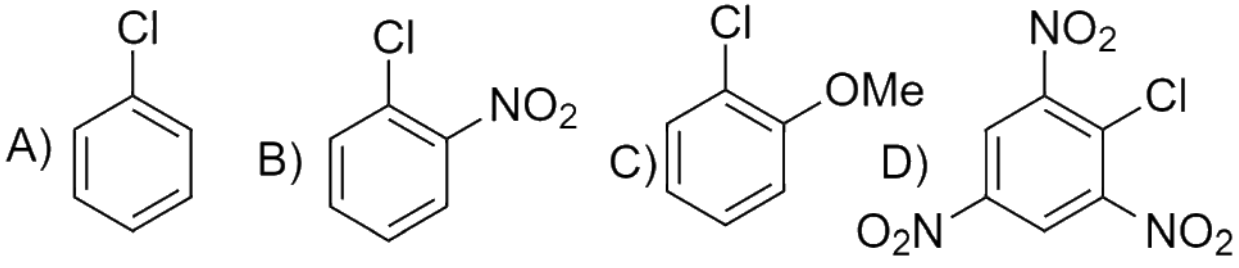
Answer: (C) $A-Br_{(a)}; B-I_{(a)}; C-Br_{(b)}; D-Br_{(a)}$ · Key from source paper

Q57 JEE Main 2023 · 8 Apr · Shift 2 MCQ

The correct order of reactivity of following haloarenes towards nucleophilic substitution with aqueous NaOH is:

(see the figure above)

Q56. The correct order of reactivity of following haloarenes towards nucleophilic substitution with aqueous NaOH is:



Choose the correct answer from the options given below:

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

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

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

Q58 JEE Main 2023 · 6 Apr · Shift 1 MCQ

For the reaction

$$RCH_2Br + I^- \xrightarrow{\text{Acetone}} \underset{\text{major}}{RCH_2I} + Br^-$$

The correct statement is

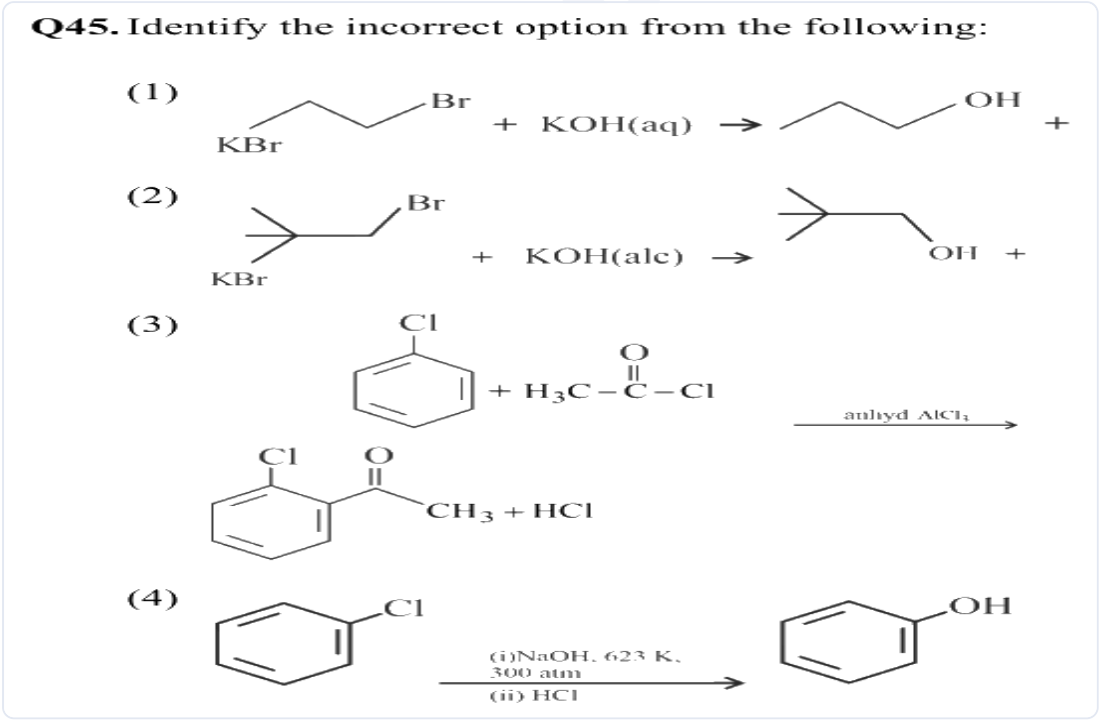
(A) Br^- can act as competing nucleophile.
(B) The reaction can occur in acetic acid also.
(C) The transition state formed in the above reaction is less polar than the localised anion.
(D) The solvent used in the reaction solvates the ions formed in rate determining step

Answer: (C) The transition state formed in the above reaction is less polar than the localised anion. · Key from source paper

Q59 JEE Main 2023 · 1 Feb · Shift 1 MCQ

Identify the incorrect option from the following:

(see the figure above)



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

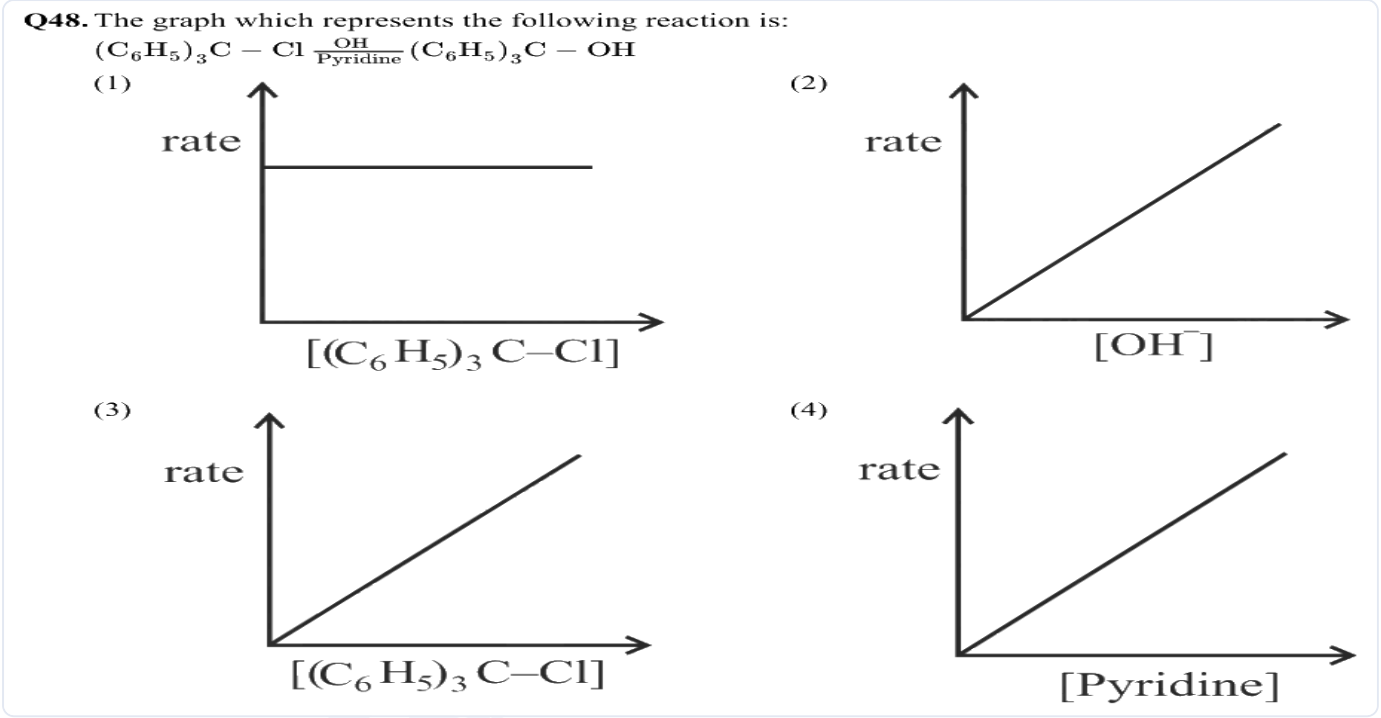
Answer: (B) · Key from source paper

Q60 JEE Main 2023 · 1 Feb · Shift 2 MCQ

The graph which represents the following reaction is:

$$(C_6H_5)_3C-Cl \xrightarrow[\text{Pyridine}]{OH^-} (C_6H_5)_3C-OH$$

(see the figure above)



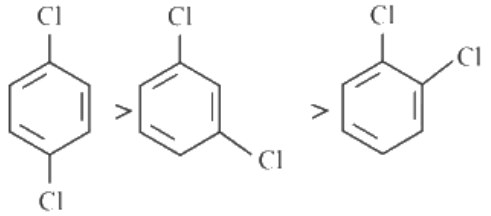
(A) (graph 1, see figure)
(B) (graph 2, see figure)
(C) (graph 3, see figure)
(D) (graph 4, see figure)

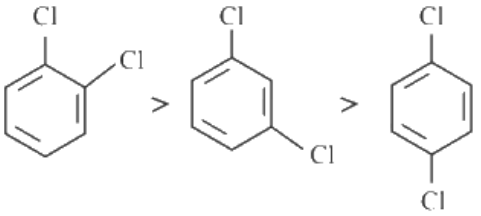
Answer: (C) (graph 3, see figure) · Key from source paper

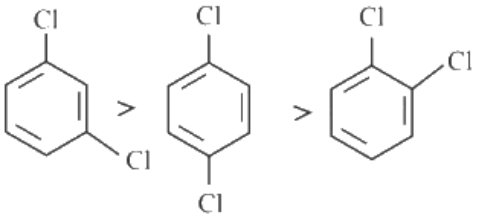
Q61 JEE Main 2023 · 31 Jan · Shift 1 MCQ

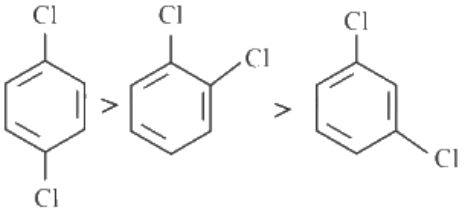
The correct order of melting point of dichlorobenzenes is

Q45. The correct order of melting point of dichlorobenzenes is

(1) 

(2) 

(3) 

(4) 

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

Answer: (D) · Key from source paper

Q62 JEE Main 2023 · 31 Jan · Shift 2 MCQ

In the following halogenated organic compounds the one with maximum number of chlorine atoms in its structure is:

(A) Chloral
(B) Gammaxene
(C) Chloropicrin
(D) Freon-12

Answer: (B) Gammaxene · Key from source paper

Q63 JEE Main 2023 · 30 Jan · Shift 1 MCQ

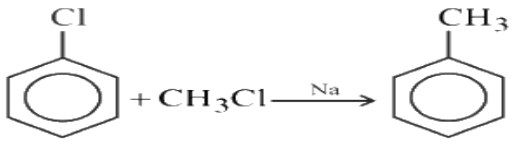
Match List I with List II

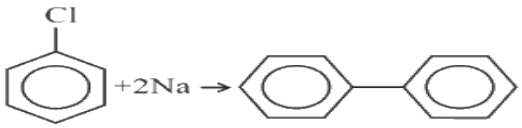
List I
A *(see the figure above)*
B *(see the figure above)*
C *(see the figure above)*
D $C_2H_5Cl + NaI \rightarrow C_2H_5I + NaCl$

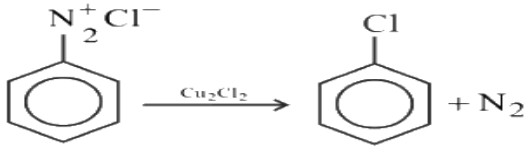
List II
I Fittig reaction
II Wurtz Fittig reaction
III Finkelstein reaction
IV Sandmeyer reaction

Q44. Match List I with List II

List I

A 

B 

C 

D $C_2H_5Cl + NaI \rightarrow C_2H_5I + Nacl$

List II

I Fittig reaction

II Wurtz Fittig reaction

III Finkelstein reaction

IV Sandmeyer reaction

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

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

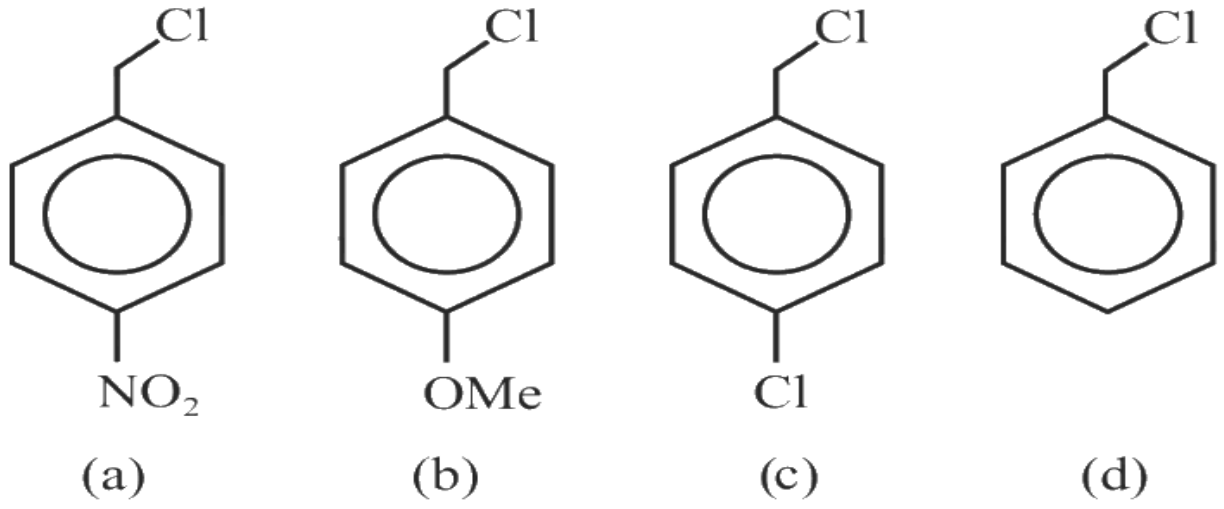
Answer: (D) A-II, B-I, C-IV, D-III · Key from source paper

Q64 JEE Main 2023 · 30 Jan · Shift 2 MCQ

Decreasing order towards S_N1 reaction for the following compounds is:

(see the figure above)

Q56. Decreasing order towards S_N1 reaction for the following compounds is:



(1) a > c > d > b
(2) a > b > c > d
(3) b > d > c > a
(4) d > b > c > a

(A) a > c > d > b
(B) a > b > c > d
(C) b > d > c > a
(D) d > b > c > a

Answer: (C) b > d > c > a · Key from source paper

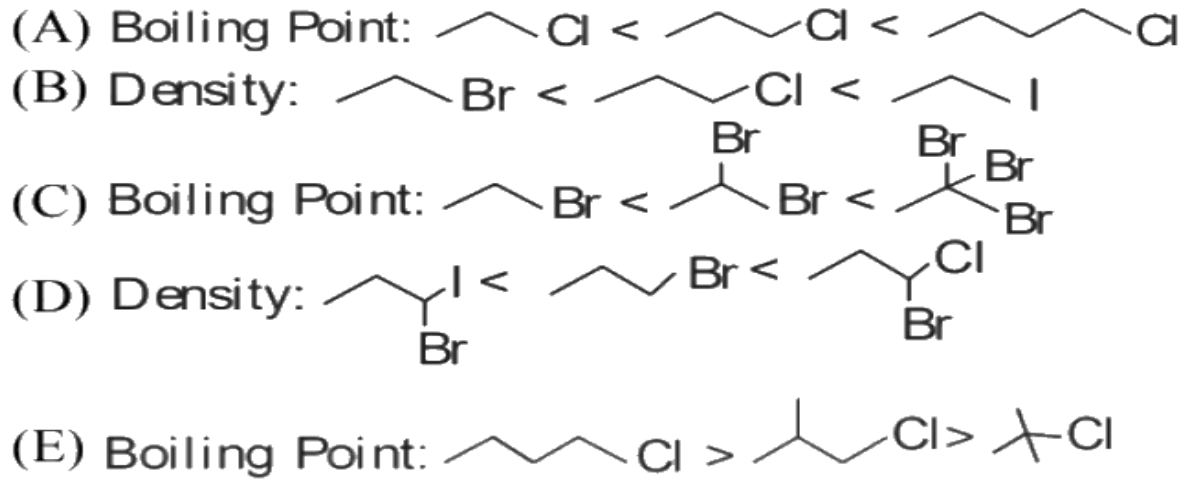
Q65 JEE Main 2023 · 29 Jan · Shift 1 MCQ

Identify the correct order for the given property for following compounds

(A) Boiling Point: *(see the figure above)* < *(see the figure above)* < *(see the figure above)*
(B) Density: *(see the figure above)* < *(see the figure above)* < *(see the figure above)*
(C) Boiling Point: *(see the figure above)* < *(see the figure above)* < *(see the figure above)*
(D) Density: *(see the figure above)* < *(see the figure above)* < *(see the figure above)*
(E) Boiling Point: *(see the figure above)* > *(see the figure above)* > *(see the figure above)*

Choose the correct answer from the option given below :-

Q55. Identify the correct order for the given property for following compounds



Choose the correct answer from the option given below :-

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

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

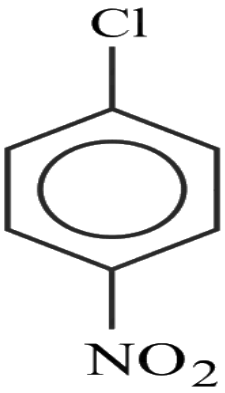
Answer: (B) (A), (C) and (E) only · Key from source paper

Q66 JEE Main 2023 · 25 Jan · Shift 1 MCQ

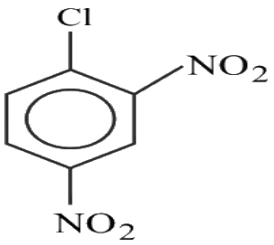
The compound which will have the lowest rate towards nucleophilic aromatic substitution on treatment with OH^- is

Q39. The compound which will have the lowest rate towards nucleophilic aromatic substitution on treatment with OH^- is

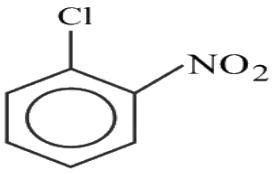
(1)



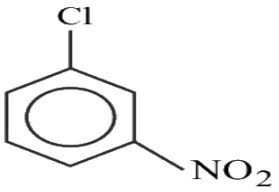
(2)



(3)



(4)



(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (D) · Key from source paper

Q67 JEE Main 2023 · 24 Jan · Shift 1 MCQ

Which of the following is true about freons?

(A) These are chlorofluorocarbon compounds

(B) These are chemicals causing skin cancer

(C) These are radicals of chlorine and chlorine monoxide

(D) All radicals are called freons

Answer: (A) These are chlorofluorocarbon compounds · Key from source paper

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Q68 JEE Main 2023 · 24 Jan · Shift 1 MCQ

Assertion A: Hydrolysis of an alkyl chloride is a slow reaction but in the presence of NaI, the rate of hydrolysis increases.

Reason R: I^- is a good nucleophile as well as a good leaving group.

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

(A) A is false but R is true
(B) A is true but R is false
(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: (C) Both A and R are true and R is the correct explanation of A · Key from source paper

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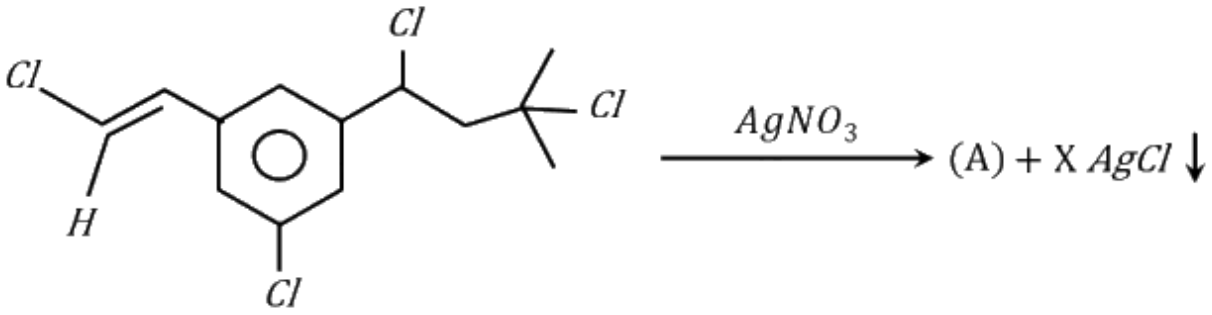
Q69 JEE Main 2023 · 24 Jan · Shift 1 Numerical

Number of moles of AgCl formed in the following reaction is _____ .

(see the figure above)

Q60. Number of moles of AgCl formed in the following reaction is _____ .



Numerical value type: the answer is a number.

Answer: 2. · Key from source paper

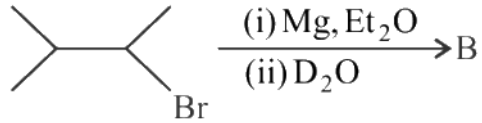
Q70 JEE Main 2022 · 29 Jul · Shift 2 MCQ

Compound 'A' undergoes following sequence of reactions to give compound 'B'. The correct structure and chirality of compound 'B' is [where Et is $-C_2H_5$]

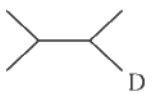
(see the figure above)

Compound 'A'

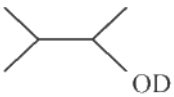
Q46. Compound 'A' undergoes following sequence of reactions to give compound 'B'. The correct structure and chirality of compound 'B' is [where Et is -C_2H_5]



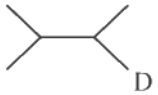
Compound 'A'

(1) 

, Achiral

(2) 

, Chiral

(3) 

, Chiral

(4) 

, Achiral

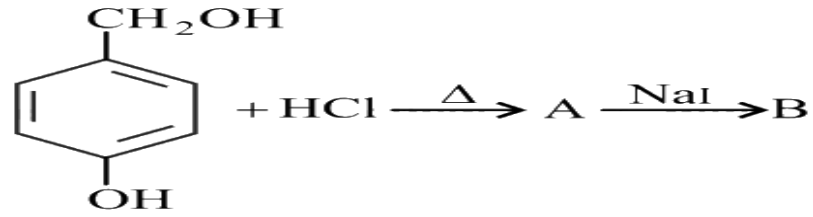
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

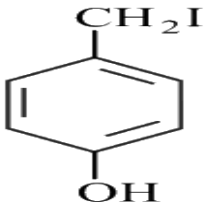
Q71 JEE Main 2022 · 27 Jul · Shift 1 MCQ

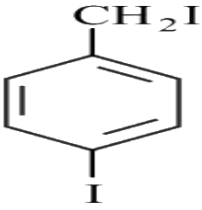
see figure

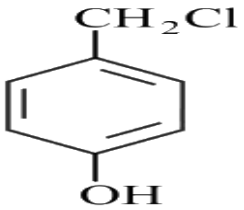
Q46.

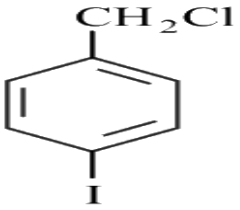


In the above reaction product B is

(1) 

(2) 

(3) 

(4) 

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

Answer: (A) · Key from source paper

Q72 JEE Main 2022 · 26 Jul · Shift 2 Numerical

A 100 mL solution of CH_3CH_2MgBr on treatment with methanol produces 2.24 mL of a gas at STP. The weight of gas produced is_____mg (nearest integer)

Numerical value type: the answer is a number.

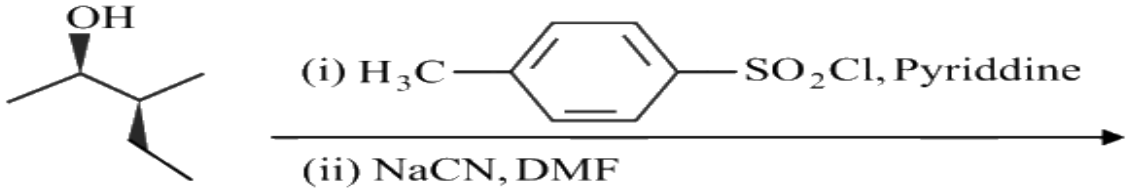
Answer: 3. · Key from source paper

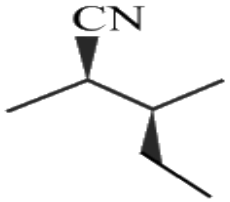
Q73 JEE Main 2022 · 25 Jul · Shift 1 MCQ

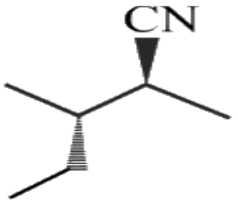
Most stable product of the following reaction is

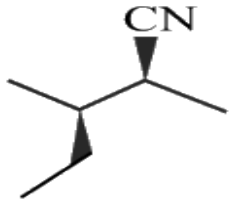
(see the figure above)

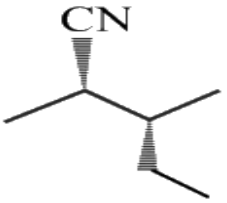
Q44. Most stable product of the following reaction is



(1) 

(2) 

(3) 

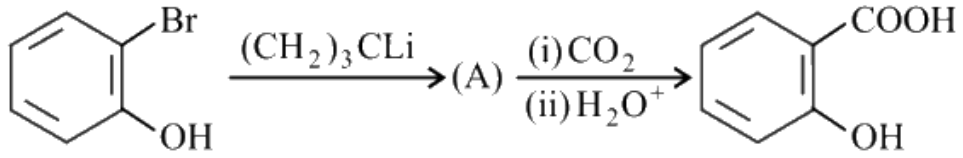
(4) 

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

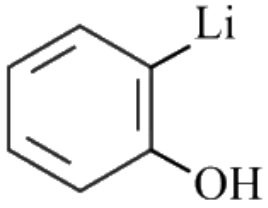
Answer: (B) · Key from source paper

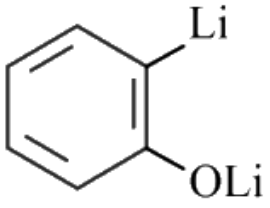
Q74 JEE Main 2022 · 29 Jun · Shift 1 MCQ

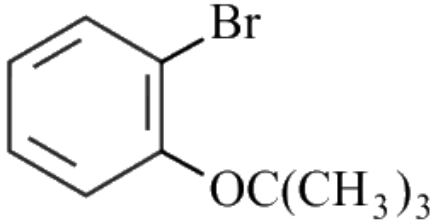
see figure

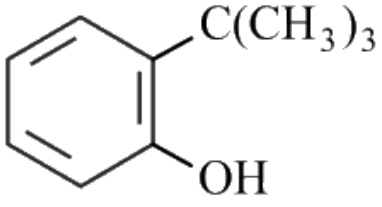
Q44. 

In the given conversion the compound A is

(1) 

(2) 

(3) 

(4) 

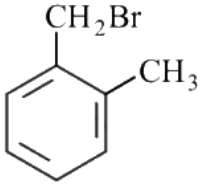
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

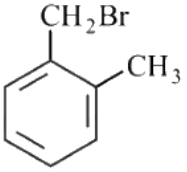
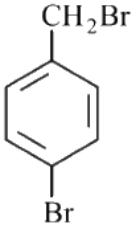
Answer: (B) · Key from source paper

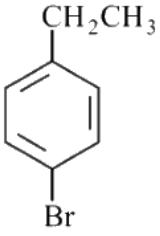
Q75 JEE Main 2022 · 29 Jun · Shift 2 MCQ

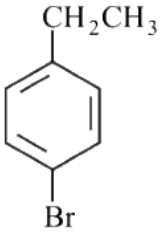
Two isomers (A) and (B) with Molar mass $184\ g/\ mol$ and elemental compositio C, 52.2%; H, 49% and Br 42.9% gave benzoic acid and p$-$ bromobenzoic acid, respectively on oxidation with $KMnO_4$. Isomer 'A' is optically active and gives a pale yellow precipitate when warmed with alcoholic $AgNO_3$. Isomer 'A' and 'B' are, respectively :

Q45. Two isomers (A) and (B) with Molar mass $184\ g/\ mol$ and elemental compositio C, 52.2%; H, 49% and Br 42.9% gave benzoic acid and p$-$ bromobenzoic acid, respectively on oxidation with $KMnO_4$. Isomer 'A' is optically active and gives a pale yellow precipitate when warmed with alcoholic $AgNO_3$. Isomer 'A' and 'B' are, respectively :

(1) $H_3C-CHBr-C_6H_5$ and 

(2)  and 

(3)  $H_3C-CHBr-C_6H_5$ and

(4)  and $H_3C-CHBr-C_6H_5$

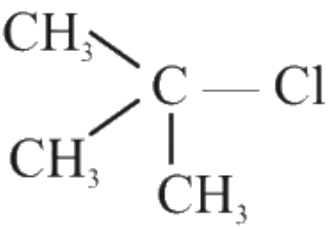
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

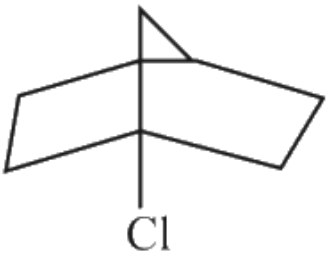
Q76 JEE Main 2022 · 28 Jun · Shift 1 MCQ

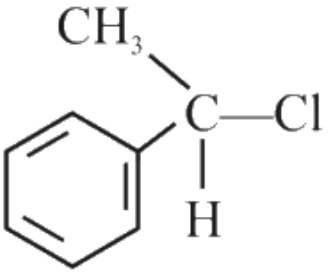
Which one of the following compounds is inactive towards S_N1 reaction?

Q45. Which one of the following compounds is inactive towards S_N1 reaction?

(1) 

(2) 

(3) 

(4) 

(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

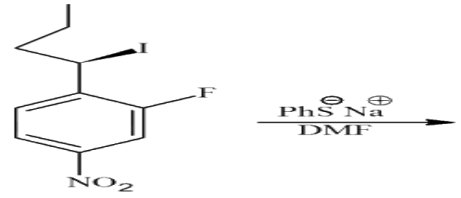
Answer: (C) · Key from source paper

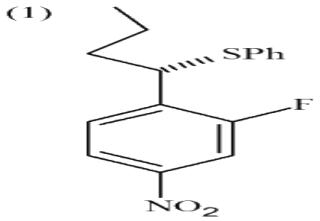
Q77 JEE Main 2022 · 27 Jun · Shift 1 MCQ

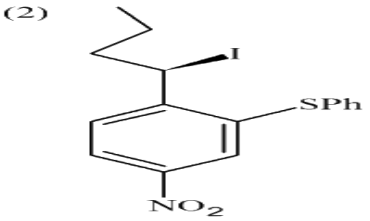
The major product of the following reaction is

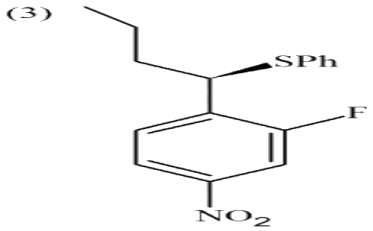
(see the figure above)

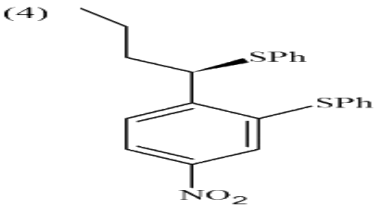
Q44. The major product of the following reaction is



(1) 

(2) 

(3) 

(4) 

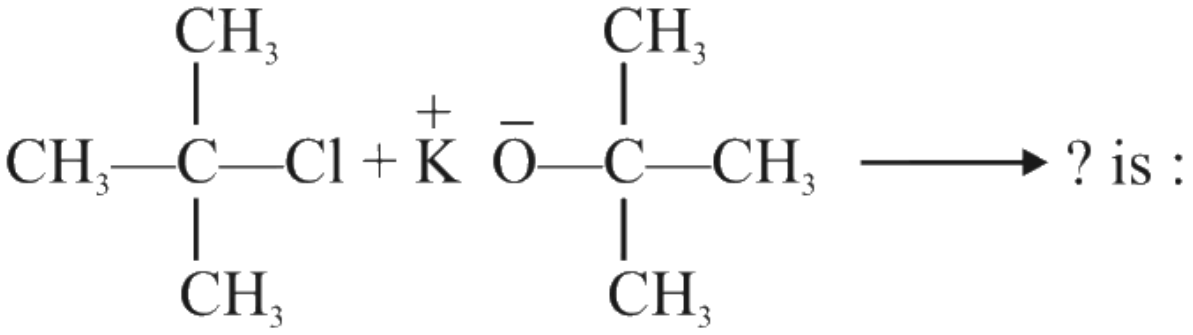
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q78 JEE Main 2022 · 25 Jun · Shift 1 MCQ

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

Q45. The major product in the reaction



(1) *t*-Butyl ethyl ether
(2) 2 -Methyl pent-1-ene
(3) 2, 2 -Dimethyl butane
(4) 2 -Methyl prop-1-ene

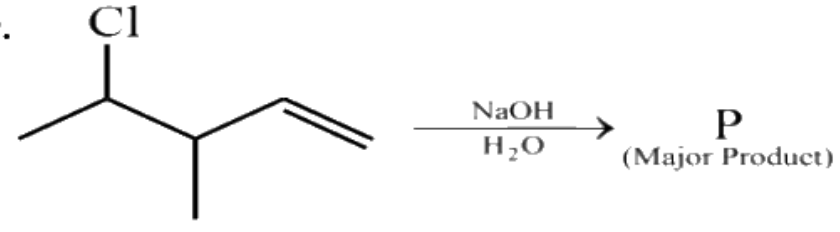
(A) *t*-Butyl ethyl ether
(B) 2 -Methyl pent-1-ene
(C) 2, 2 -Dimethyl butane
(D) 2 -Methyl prop-1-ene

Answer: (D) 2 -Methyl prop-1-ene · Key from source paper

Q79 JEE Main 2022 · 24 Jun · Shift 2 Numerical

see figure

Q59.



Consider the above reaction. The number of π electrons present in the product 'P' is

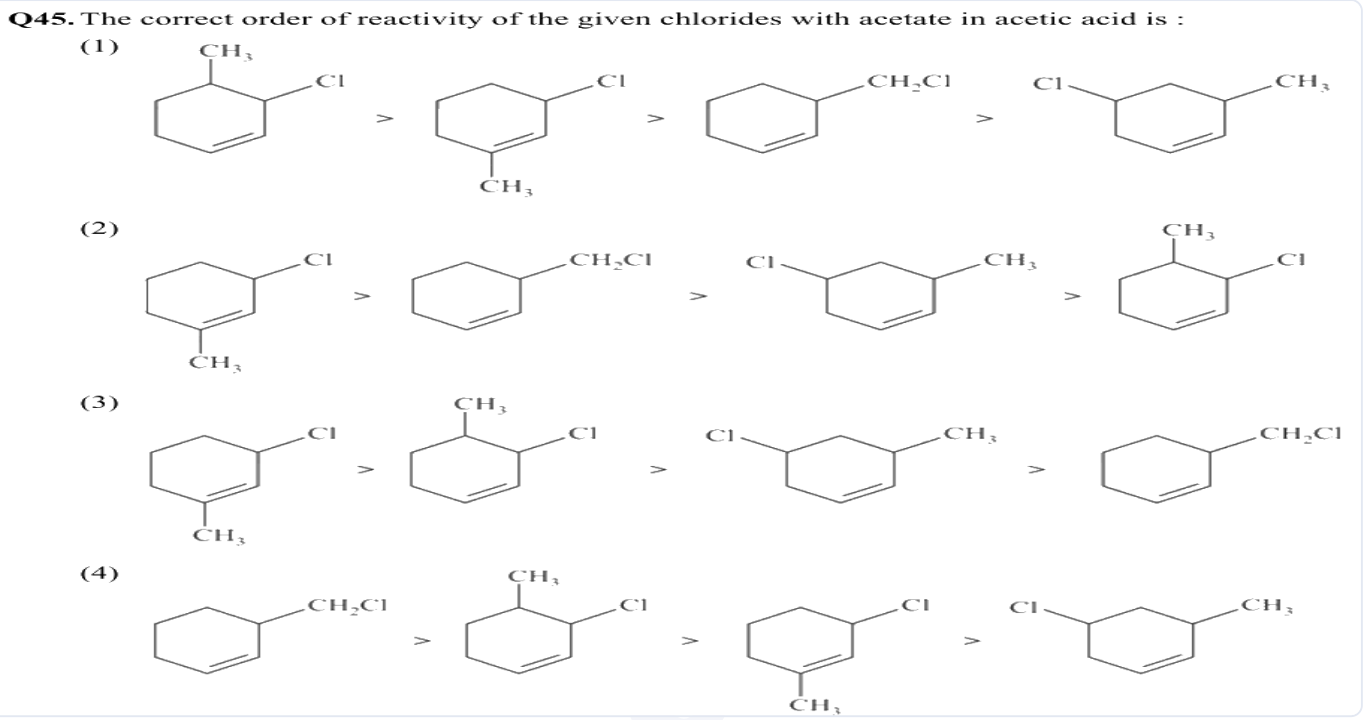
Numerical value type: the answer is a number.

Answer: 2. · Key from source paper

Q80 JEE Main 2021 · 31 Aug · Shift 1 MCQ

The correct order of reactivity of the given chlorides with acetate in acetic acid is :

(see the figure above)



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

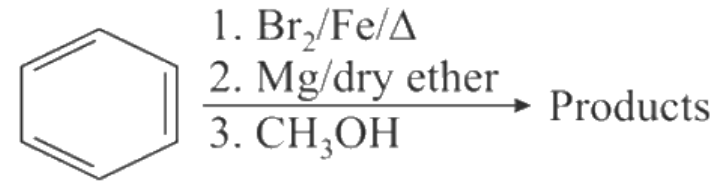
Answer: (C) · Key from source paper

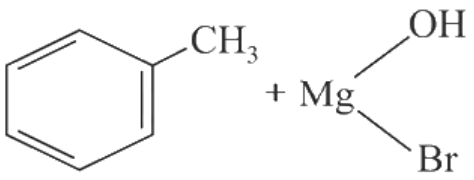
Q81 JEE Main 2021 · 31 Aug · Shift 2 MCQ

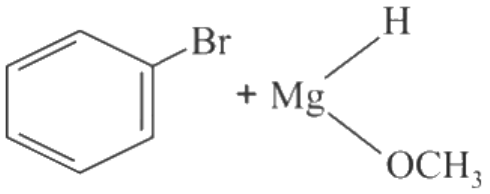
For the following sequence of reactions, the correct products are :

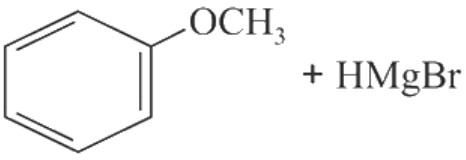
(see the figure above)

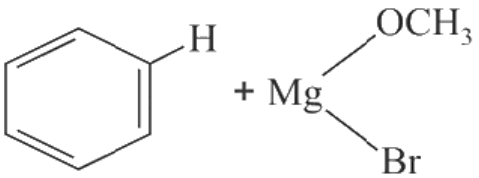
Q38. For the following sequence of reactions, the correct products are :



(1) 

(2) 

(3) 

(4) 

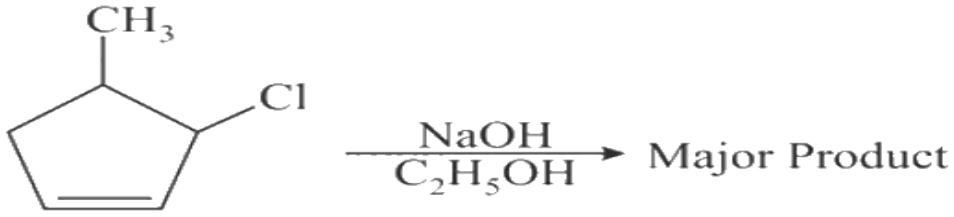
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

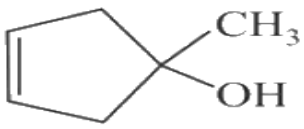
Answer: (D) · Key from source paper

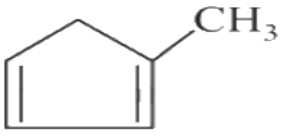
Q82 JEE Main 2021 · 31 Aug · Shift 2 MCQ

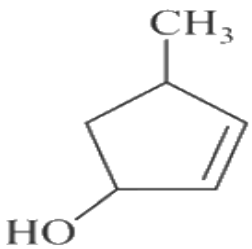
The major product of the following reaction is :
(see the figure above)

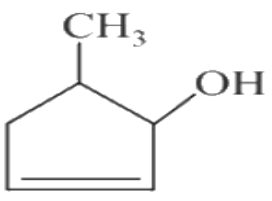
Q45. The major product of the following reaction is :



(1) 

(2) 

(3) 

(4) 

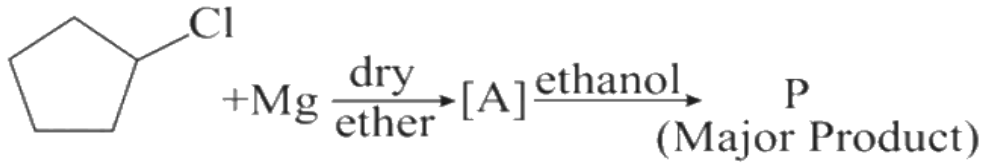
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

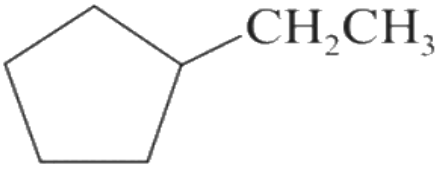
Answer: (B) · Key from source paper

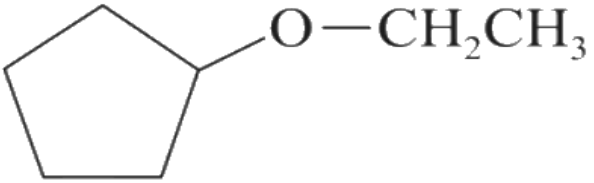
Q83 JEE Main 2021 · 27 Aug · Shift 1 MCQ

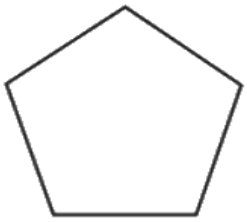
In the following sequence of reactions the P is:
(see the figure above)

Q43. In the following sequence of reactions the P is:



(1) 

(2) 

(3) 

(4) 

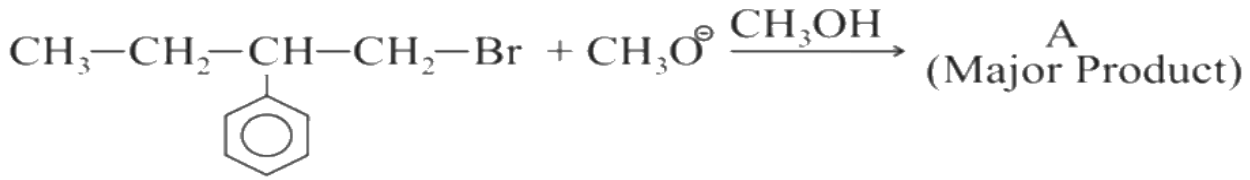
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

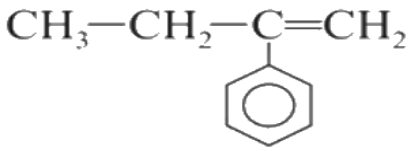
Answer: (C) · Key from source paper

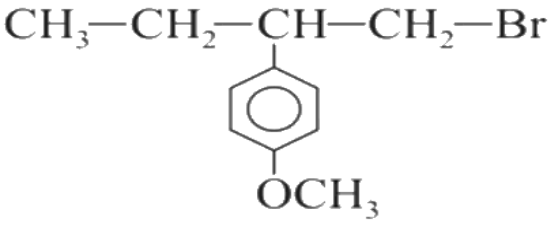
Q84 JEE Main 2021 · 27 Aug · Shift 2 MCQ

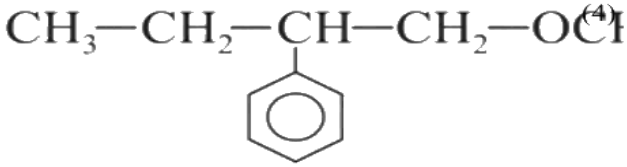
The major product (A) formed in the reaction given below is :
(see the figure above)

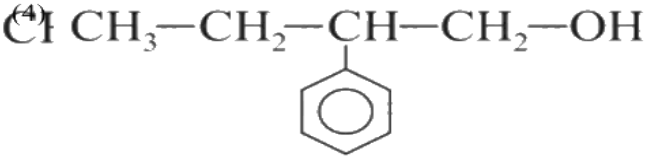
Q35. The major product (A) formed in the reaction given below is :



(1) 

(2) 

(3) 

(4) 

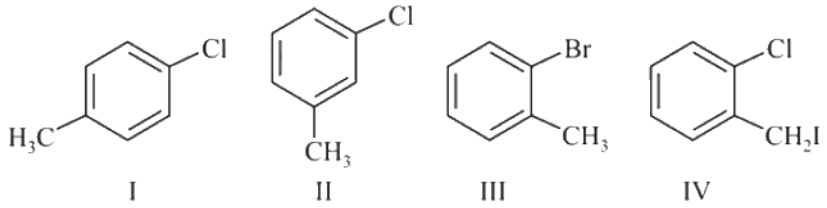
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q85 JEE Main 2021 · 26 Aug · Shift 1 MCQ

Among the following compounds I – IV, which one forms a yellow precipitate on reacting sequentially with (i) NaOH (ii) dil. HNO_3 (iii) $AgNO_3$?
(see the figure above)

Q37. Among the following compounds I – IV, which one forms a yellow precipitate on reacting sequentially with (i) NaOH (ii) dil. HNO_3 (iii) $AgNO_3$?



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

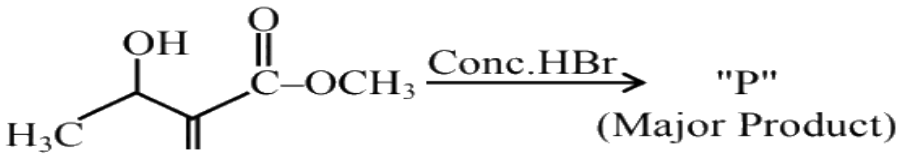
(A) III
(B) II
(C) I
(D) IV

Answer: (D) IV · Key from source paper

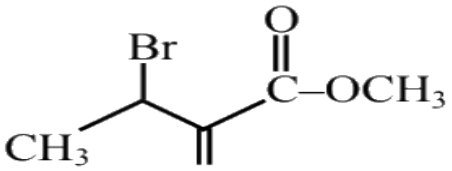
Q86 JEE Main 2021 · 27 Jul · Shift 2 MCQ

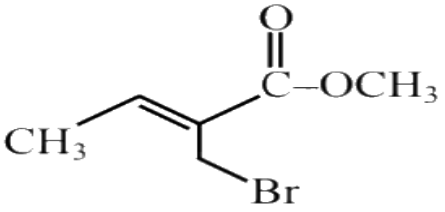
see figure

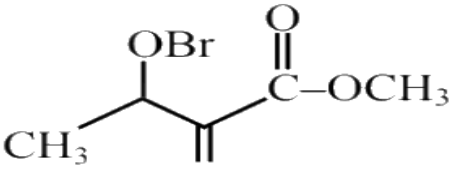
Q46.

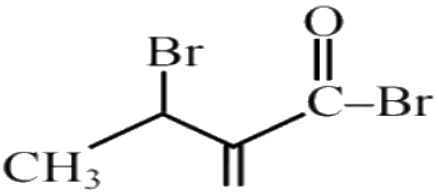


Consider the above reaction, the major product P formed is :-

(1)


(2)


(3)


(4)


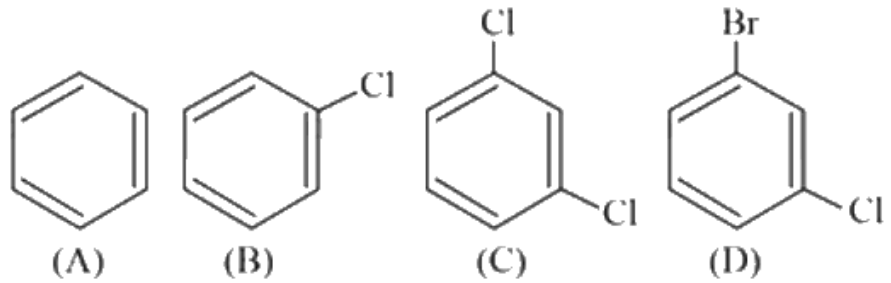
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · Key from source paper

Q87 JEE Main 2021 · 25 Jul · Shift 2 MCQ

The correct decreasing order of densities of the following compounds is :
(see the figure above)

Q38. The correct decreasing order of densities of the following compounds is :



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

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

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

Q88 JEE Main 2021 · 20 Jul · Shift 1 MCQ

In the given reaction 3-Bromo-2, 2-dimethyl butane $\xrightarrow{C_2H_5OH}$ 'A' (Major Product) Product A is:

(A) 2-Ethoxy-3, 3-dimethyl butane
(B) 1-Ethoxy-3, 3 -dimethyl butane
(C) 2-Ethoxy-2, 3-dimethyl butane
(D) 2-Hydroxy-3, 3-dimethyl butane

Answer: (C) 2-Ethoxy-2, 3-dimethyl butane · Key from source paper

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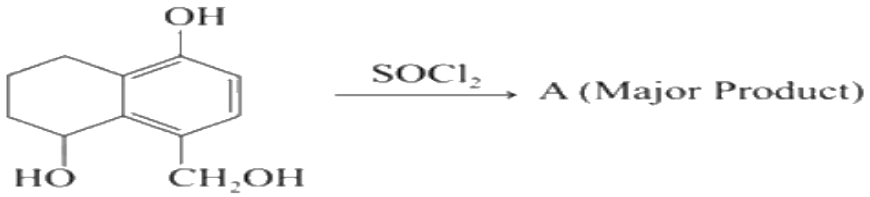
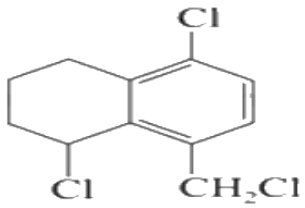
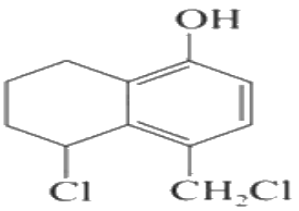
Q89 JEE Main 2021 · 26 Feb · Shift 2 MCQ

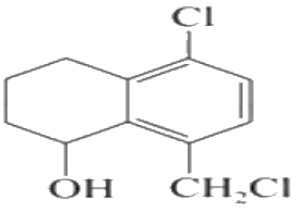
Identify A in the given reaction.
(see the figure above)

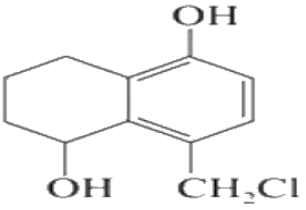
Q42. Identify A in the given reaction.



(1) 

(2) 

(3) 

(4) 

(A) *see figure*

(B) *see figure*

(C) *see figure*

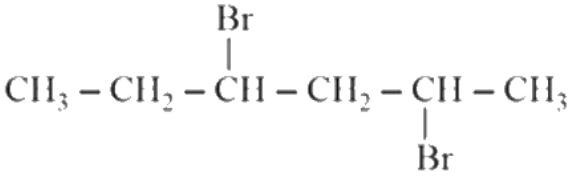
(D) *see figure*

Answer: (B) · Key from source paper

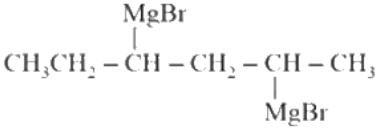
Q90 JEE Main 2021 · 24 Feb · Shift 1 MCQ

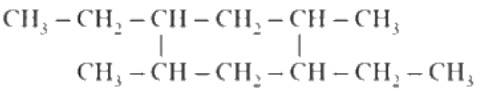
see figure

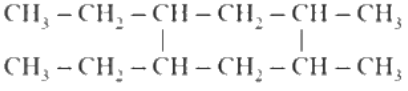
Q43.

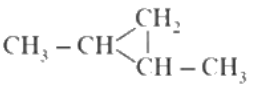


The product formed in the first step of the reaction of with excess Mg / $Et_2OEt = C_2H_5$ is

(1) 

(2) 

(3) 

(4) 

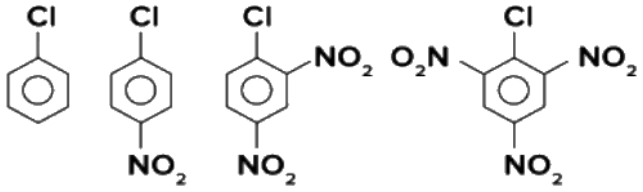
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q91 JEE Main 2021 · 24 Feb · Shift 2 MCQ

The correct order of the following compounds showing increasing tendency towards nucleophilic substitution reaction is:
(see the figure above)

Q38. The correct order of the following compounds showing increasing tendency towards nucleophilic substitution reaction is:



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

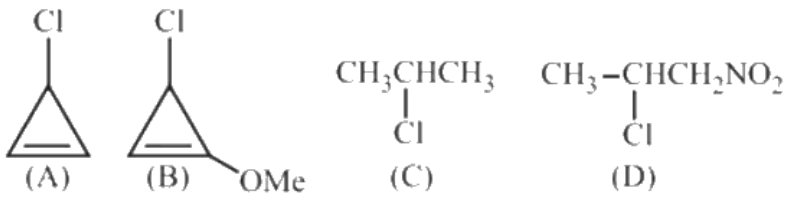
(A) (iv) < (i) < (ii) < (iii)
(B) (i) < (ii) < (iii) < (iv)
(C) (iv) < (i) < (iii) < (ii)
(D) (iv) < (iii) < (ii) < (i)

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

Q92 JEE Main 2020 · 4 Sep · Shift 1 MCQ

The decreasing order of reactivity of the following organic molecules towards $AgNO_3$ solution is:
(see the figure above)

Q34. The decreasing order of reactivity of the following organic molecules towards $AgNO_3$ solution is:



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

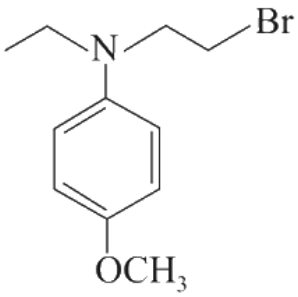
(A) (C) > (D) > (A) > (B)
(B) (A) > (B) > (D) > (C)
(C) (A) > (B) > (C) > (D)
(D) (B) > (A) > (C) > (D)

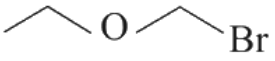
Answer: (D) (B) > (A) > (C) > (D) · Key from source paper

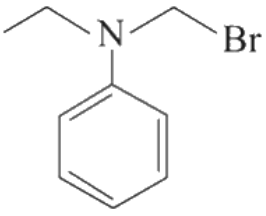
Q93 JEE Main 2020 · 4 Sep · Shift 2 MCQ

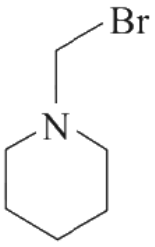
Which of the following compounds will form the precipitate with aq. $AgNO_3$ solution most readily?
(see the figure above)

Q33. Which of the following compounds will form the precipitate with aq. $AgNO_3$ solution most readily?

(1) 

(2) 

(3) 

(4) 

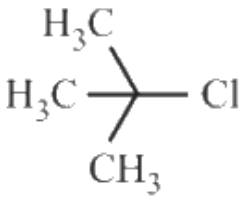
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

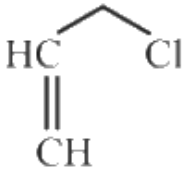
Answer: (D) · Key from source paper

Q94 JEE Main 2020 · 4 Sep · Shift 2 MCQ

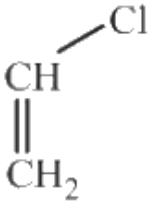
Among the following compounds, which one has the shortest C–Cl bond?
(see the figure above)

Q34. Among the following compounds, which one has the shortest C– Cl bond?

(1) 

(2) 

(3) $H_3C - Cl$

(4) 

(A) *see figure*
(B) *see figure*
(C) $H_3C - Cl$
(D) *see figure*

Answer: (D) · Key from source paper

Q95 JEE Main 2020 · 3 Sep · Shift 1 MCQ

The mechanism of Sn1 reaction is given as:

$R - X \longrightarrow R^{\oplus}X^{\ominus} \longrightarrow R^{\oplus} \parallel X^{\ominus} \xrightarrow{Y^{\ominus}} R - Y + X^{\ominus}$

Ion pair Solvent Speparated ion pair

A student writes general characteristics based on the given mechanism as :

(a) The reaction is favoured by weak nucleophiles.

(b) $R^{\oplus}$ would be easily formed if the substituents are bulky y

(c) The reaction is accompanied by recemization

(d) The reaction is favoured by non-polar solvents.

Which observations are correct?

(A) (a) and (b)
(B) (a) and (c)
(C) (a), (b) and (c)
(D) (b) and (d)

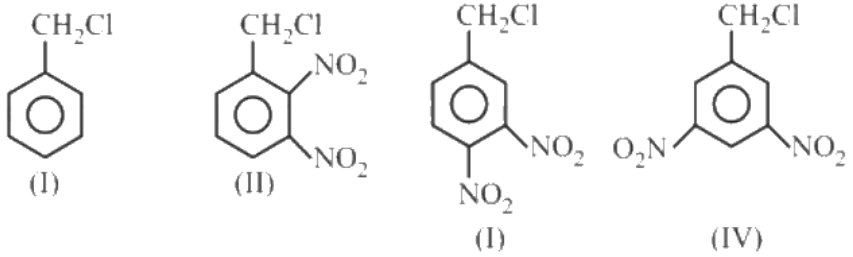
Answer: (C) (a), (b) and (c) · Key from source paper

Q96 JEE Main 2020 · 3 Sep · Shift 2 MCQ

The decreasing order of reactivity of the following compounds towards nucleophilic substitution (S_N2) is:

(see the figure above)

Q38. The decreasing order of reactivity of the following compounds towards nucleophilic substitution (S_N2) is:



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

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

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

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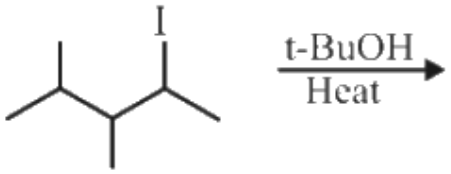
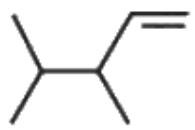
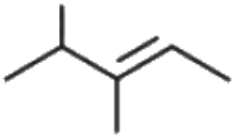
Q97 JEE Main 2020 · 3 Sep · Shift 2 MCQ

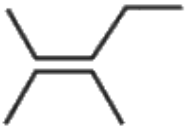
The major product in the following reaction is:
(see the figure above)

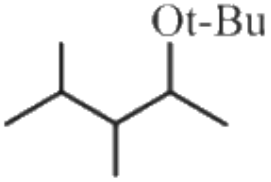
Q39. The major product in the following reaction is:



(1) 

(2) 

(3) 

(4) 

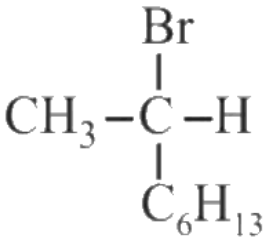
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

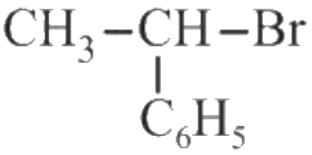
Answer: (C) · Key from source paper

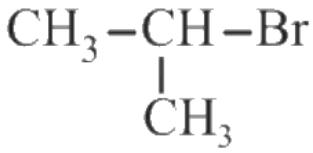
Q98 JEE Main 2020 · 2 Sep · Shift 1 MCQ

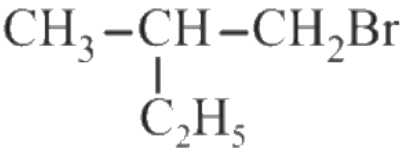
Which of the following compounds will show retention in configuration on nucleophile substitution by OH^- ion ?

Q43. Which of the following compounds will show retention in configuration on nucleophile substitution by OH^- ion ?

(1) 

(2) 

(3) 

(4) 

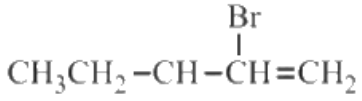
A *see figure*
B *see figure*
C *see figure*
D *see figure*

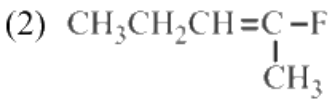
Answer: (D) · Key from source paper

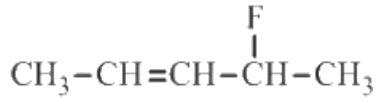
Q99 JEE Main 2020 · 2 Sep · Shift 2 MCQ

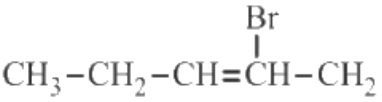
The major product obtained from E_2-elimination of $3-$ bromo $-2-$ fluoropentane is

Q41. The major product obtained from E_2-elimination of $3-$ bromo $-2-$ fluoropentane is

(1) 

(2) 

(3) 

(4) 

A *see figure*
B *see figure*
C *see figure*
D *see figure*

Answer: (B) · Key from source paper

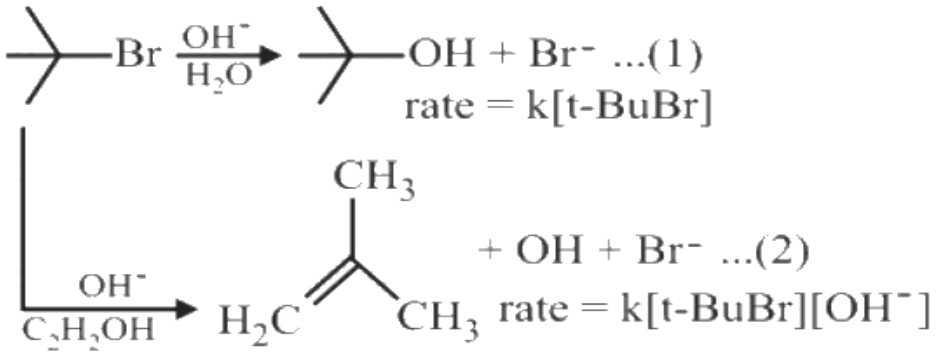
Q100 JEE Main 2020 · 2 Sep · Shift 2 MCQ

Consider the reaction sequence given below :

(see the figure above)

Which of the following statements is true:

Q42. Consider the reaction sequence given below :



Which of the following statements is true:

(1) Changing the base from $OH^{\ominus}$ to $^{\ominus}OR$ will have no effect on reaction (2)

(2) Changing the concentration of base will have no effect on reaction (1)

(3) Doubling the concentration of base will double the rate of both the reactions

(4) Changing the concentration of base will have no effect on reaction (2)

(A) Changing the base from $OH^{\ominus}$ to $^{\ominus}OR$ will have no effect on reaction (2)

(B) Changing the concentration of base will have no effect on reaction (1)

(C) Doubling the concentration of base will double the rate of both the reactions

(D) Changing the concentration of base will have no effect on reaction (2)

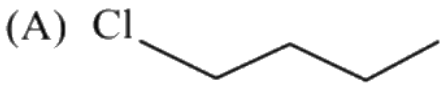
Answer: (B) Changing the concentration of base will have no effect on reaction (1) · Key from source paper

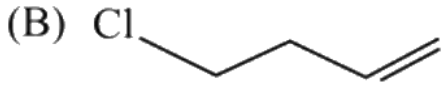
Q101 JEE Main 2020 · 8 Jan · Shift 1 MCQ

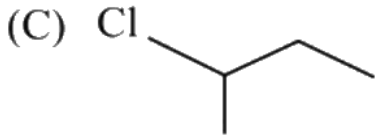
The decreasing order of reactivity towards dehydrohalogenation (E_1) reaction of the following compounds is:

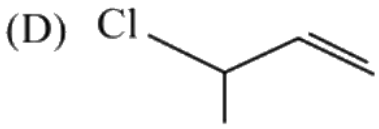
(see the figure above)

Q41. The decreasing order of reactivity towards dehydrohalogenation (E_1) reaction of the following compounds is:

(A) 

(B) 

(C) 

(D) 

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

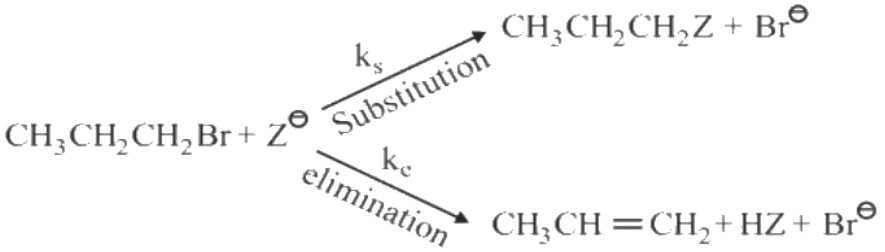
(A) $D > B > C > A$
(B) $B > D > A > C$
(C) $B > D > C > A$
(D) $B > A > D > C$

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

Q102 JEE Main 2020 · 7 Jan · Shift 2 MCQ

For the following reactions
(see the figure above)
where,
k_s and k_e , are respectively, the rate constants for substitution and elimination, and $\mu = \frac{k_s}{k_e}$, the correct option is _____

Q41. For the following reactions



where,

$Z^{\ominus} = CH_3CH_2O^{\ominus}$ (A) or $H_3C-\overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}}-O^{\ominus}$ (B)

k_s and k_e, are respectively, the rate constants for substitution and elimination, and $\mu = \frac{k_s}{k_e}$, the correct option is _____

(1) $\mu_B > \mu_A$ *and* $k_e(A) > k_e(B)$
(2) $\mu_A > \mu_B$ *and* $k_e(B) > k_e(A)$
(3) $\mu_B > \mu_A$ *and* $k_e(B) > k_e(A)$
(4) $\mu_A > \mu_B$ *and* $k_e(A) > k_e(B)$

(A) $\mu_B > \mu_A$ and $k_e(A) > k_e(B)$
(B) $\mu_A > \mu_B$ and $k_e(B) > k_e(A)$
(C) $\mu_B > \mu_A$ and $k_e(B) > k_e(A)$
(D) $\mu_A > \mu_B$ and $k_e(A) > k_e(B)$

Answer: (B) $\mu_A > \mu_B$ and $k_e(B) > k_e(A)$ · Key from source paper

Q103 JEE Main 2019 · 12 Apr · Shift 2 MCQ

Which one of the following is likely to give a precipitate with $AgNO_3$ solution?

(A) $CH_2 = CH - Cl$
(B) $(CH_3)_3CCl$
(C) CCl_4
(D) $CHCl_3$

Answer: (B) $(CH_3)_3CCl$ · Key from source paper

Q104 JEE Main 2019 · 12 Apr · Shift 2 MCQ

An 'Assertion' and a 'Reason' is given below. Choose the correct answer from the following options:
Assertion (A): Vinyl halides do not undergo nucleophilic substitution easily.
Reason (R): Even though the intermediate carbocation is stabilized by loosely held $\pi-$ electrons, the cleavage is difficult because of the strong bonding.

(A) Both (A) and (R) are correct statements but (R) is not the correct explanation of (A).

(B) Both (A) and (R) are wrong statements.

(C) Both (A) and (R) are wrong statements and (R) is the correct explanation of (A).

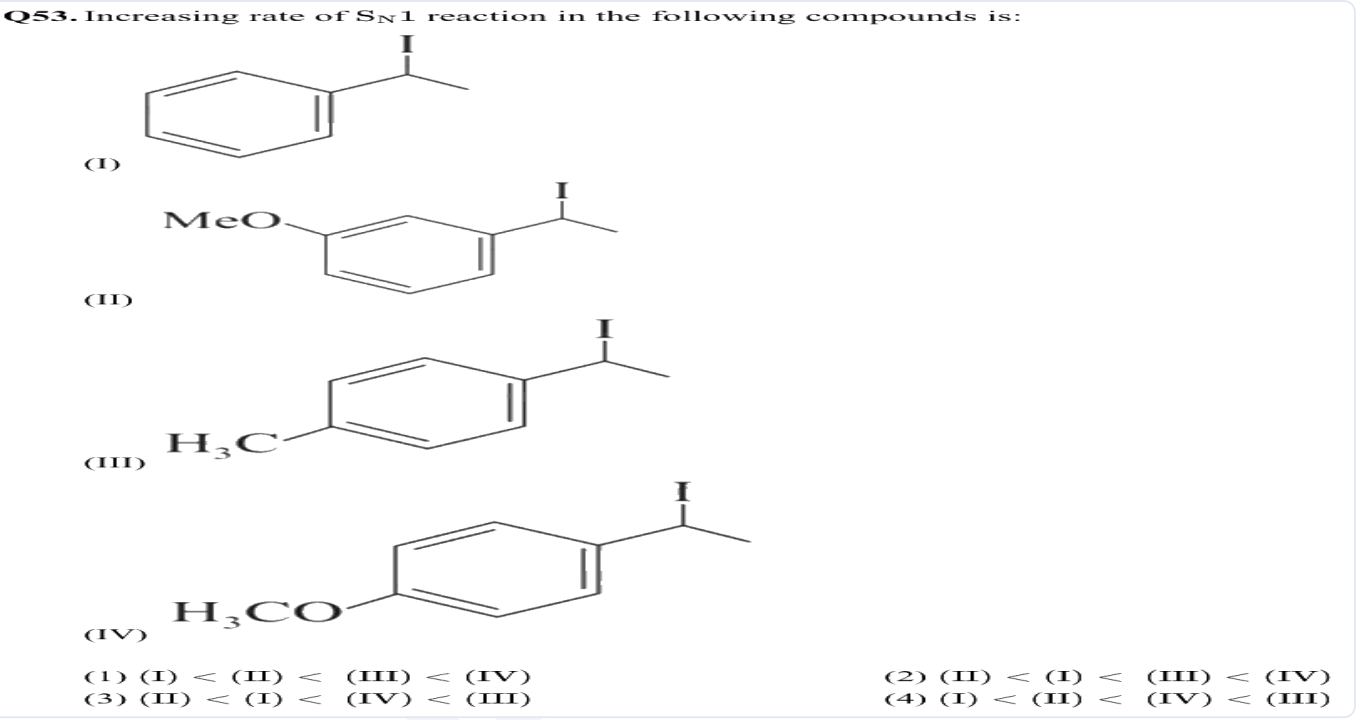
(D) (A) is a correct statement but (R) is a wrong statement.

Answer: (D) (A) is a correct statement but (R) is a wrong statement. · Key from source paper

Q105 JEE Main 2019 · 10 Apr · Shift 1 MCQ

Increasing rate of S_N1 reaction in the following compounds is:

(see the figure above)



(A) (I) < (II) < (III) < (IV)

(B) (II) < (I) < (III) < (IV)

(C) (II) < (I) < (IV) < (III)

(D) (I) < (II) < (IV) < (III)

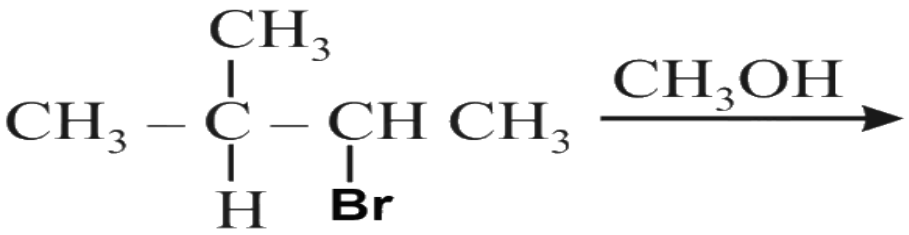
Answer: (B) (II) < (I) < (III) < (IV) · Key from source paper

Q106 JEE Main 2019 · 10 Apr · Shift 1 MCQ

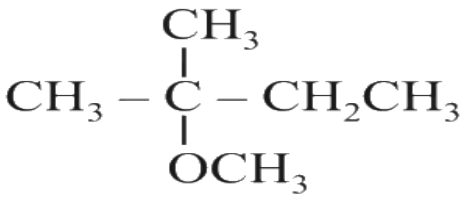
The major product of the following reaction is:

(see the figure above)

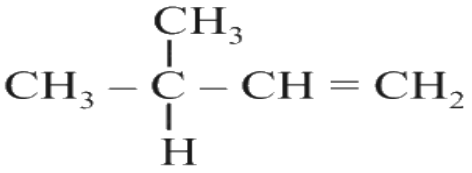
Q54. The major product of the following reaction is:



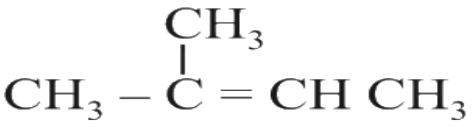
(1)



(2)



(3)



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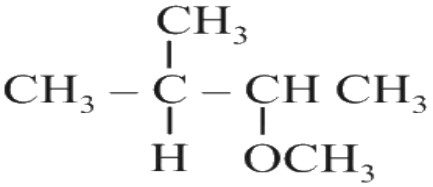


(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (A) · Key from source paper

Q107 JEE Main 2019 · 10 Apr · Shift 2 MCQ

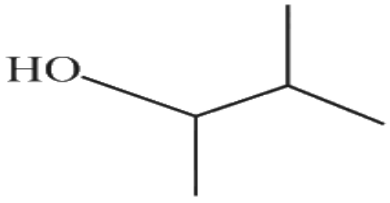
The major product 'Y' in the following reaction is:

(see the figure above)

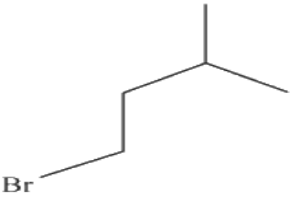
Q55. The major product 'Y' in the following reaction is:



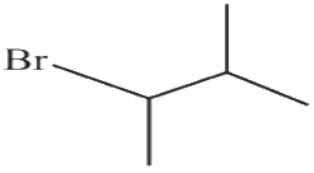
(1)



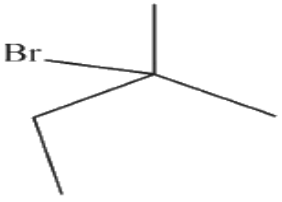
(2)



(3)



(4)

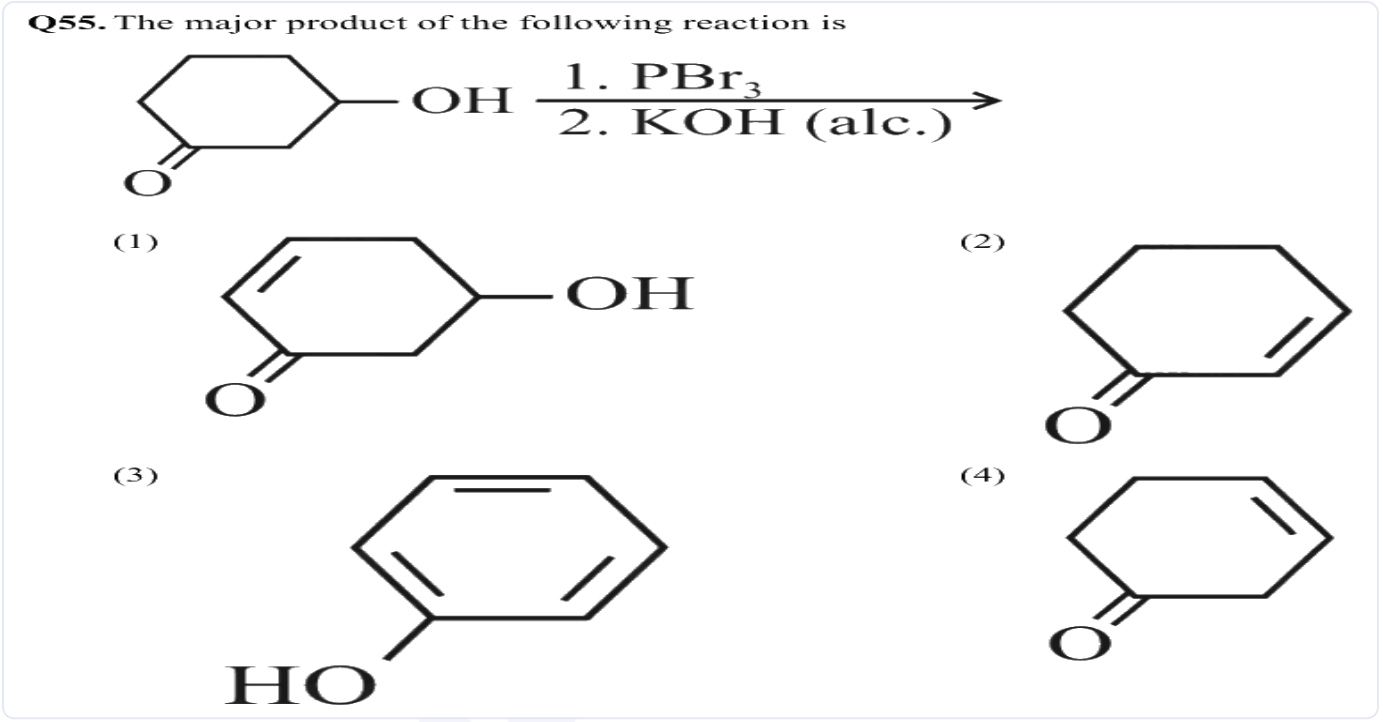


(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Key from source paper

Q108 JEE Main 2019 · 9 Apr · Shift 1 MCQ

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



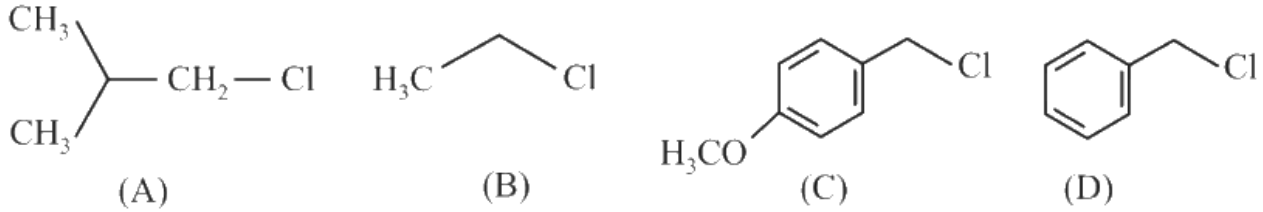
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · Key from source paper

Q109 JEE Main 2019 · 9 Apr · Shift 2 MCQ

Increasing order of reactivity of the following compounds for S_N1 substitution is:
(see the figure above)

Q51. Increasing order of reactivity of the following compounds for S_N1 substitution is:



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

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

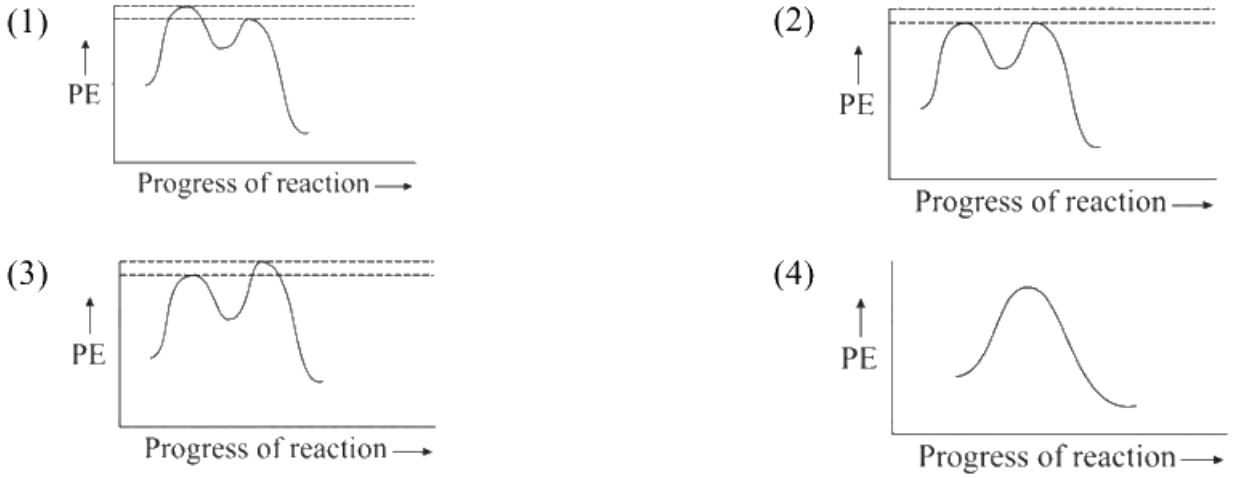
(A) B < C < D < A
(B) B < A < D < C
(C) A < B < D < C
(D) B < C < A < D

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

Q110 JEE Main 2019 · 9 Apr · Shift 2 MCQ

Which of the following potential energy (P. E.) diagrams represents the SN_1 reaction?
(see the figure above)

Q52. Which of the following potential energy (P. E.) diagrams represents the SN_1 reaction?



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

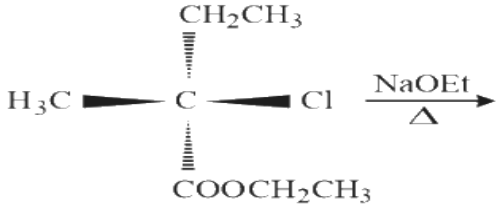
Answer: (A) · Key from source paper

Q111 JEE Main 2019 · 12 Jan · Shift 2 MCQ

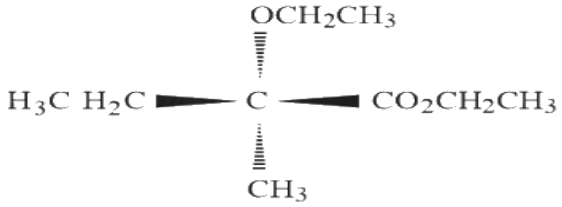
The major product of the following reaction is:

(see the figure above)

Q42. The major product of the following reaction is:

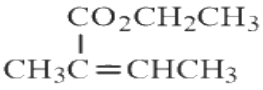


(1)

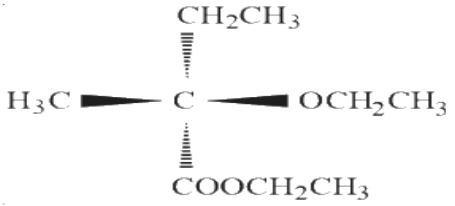


(2) $CH_3CH_2C{=}CH_2$ with $CO_2CH_2CH_3$

(3)



(4)



(A) *see figure*

(B) $CH_3CH_2C{=}CH_2$ with $CO_2CH_2CH_3$ on the doubly bonded carbon bearing the CH_3CH_2

(C) $CH_3C{=}CHCH_3$ with $CO_2CH_2CH_3$ on the carbon bearing the first CH_3

(D) *see figure*

Answer: (C) $CH_3C{=}CHCH_3$ **with** $CO_2CH_2CH_3$ **on the carbon bearing the first** CH_3 · Key from source paper

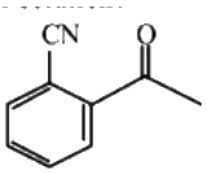
Q112 JEE Main 2019 · 11 Jan · Shift 2 MCQ

Which of the following compounds reacts with ethylmagnesium bromide and also decolourizes bromine water solution?

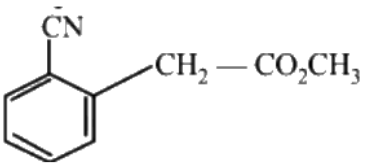
(see the figure above)

Q40. Which of the following compounds reacts with ethylmagnesium bromide and also decolourizes bromine water solution?

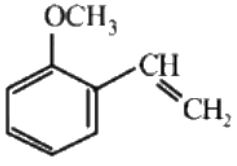
(1)



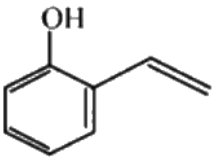
(2)



(3)



(4)



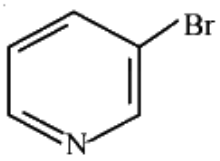
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

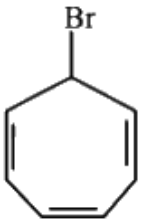
Answer: (D) · Key from source paper

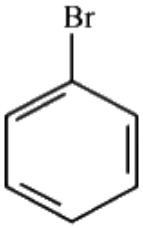
Q113 JEE Main 2019 · 11 Jan · Shift 2 MCQ

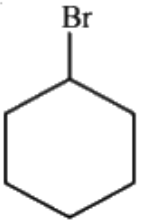
Which of the following compounds will produce a precipitate with $AgNO_3$?
(see the figure above)

Q41. Which of the following compounds will produce a precipitate with $AgNO_3$?

(1) 

(2) 

(3) 

(4) 

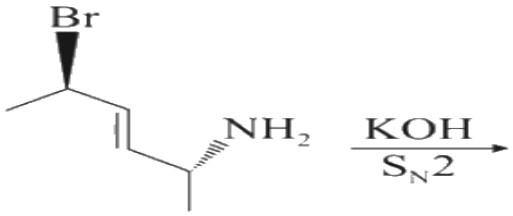
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

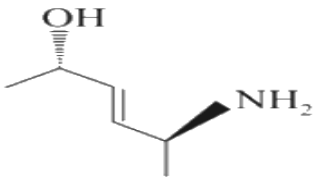
Answer: (B) · Key from source paper

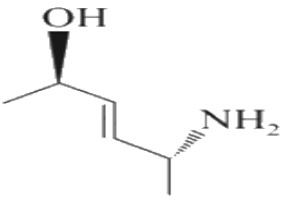
Q114 JEE Main 2018 · 16 Apr · Online MCQ

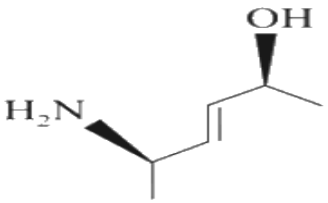
The major product of the following reaction is:
(see the figure above)

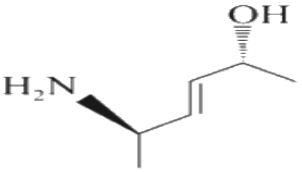
Q55. The major product of the following reaction is:



(1) 

(2) 

(3) 

(4) 

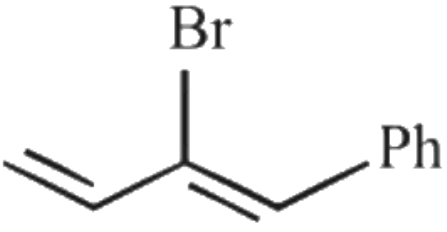
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

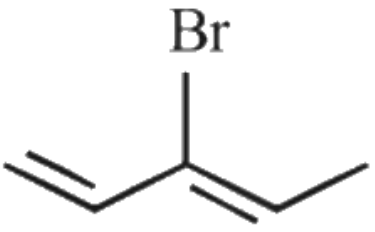
Answer: (C) · Key from source paper

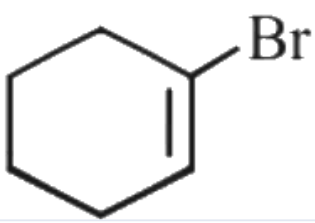
Q115 JEE Main 2018 · 15 Apr · Shift 1 MCQ

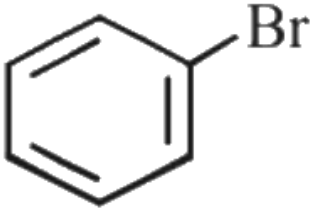
Which of the following will most readily give the dehydrohalogenation product?

Q47. Which of the following will most readily give the dehydrohalogenation product?

(1) 

(2) 

(3) 

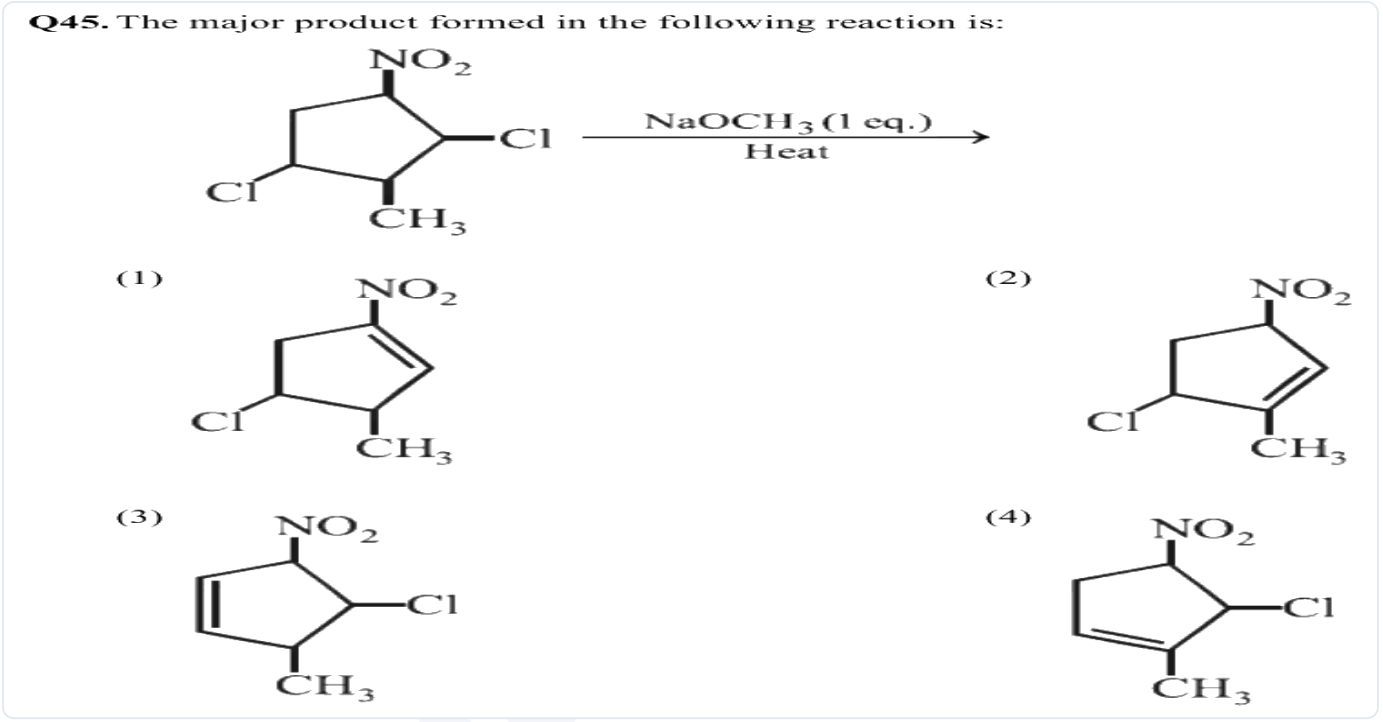
(4) 

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

Answer: (A) · Key from source paper

Q116 JEE Main 2018 · 15 Apr · Shift 2 MCQ

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



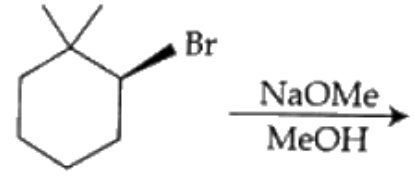
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

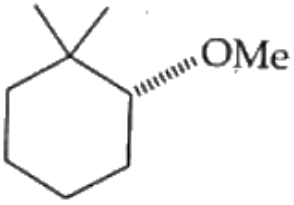
Answer: (A) · Key from source paper

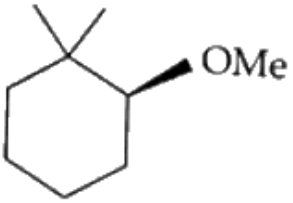
Q117 JEE Main 2018 · 8 Apr · Offline MCQ

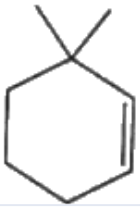
The major product of the following reaction is:
(see the figure above)

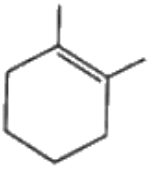
Q54. The major product of the following reaction is:



(1) 

(2) 

(3) 

(4) 

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

Answer: (C) · Key from source paper

Q118 JEE Main 2017 · 8 Apr · Online MCQ

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

Q54. The major product of the following reaction is:

$$\underset{\substack{|\\ Br}}{CH_3CH}CH_2\underset{\substack{|\\ Br}}{CH}CH_2CH_3 \xrightarrow[\text{Heat}]{KOH, CH_3OH}$$

(1) $CH_3CH = CH - CH = CHCH_3$
(2) $CH_2 = CHCH = CHCH_2CH_3$
(3) $CH_3CH = C = CHCH_2CH_3$
(4) $CH_2 = CHCH_2CH = CHCH_3$

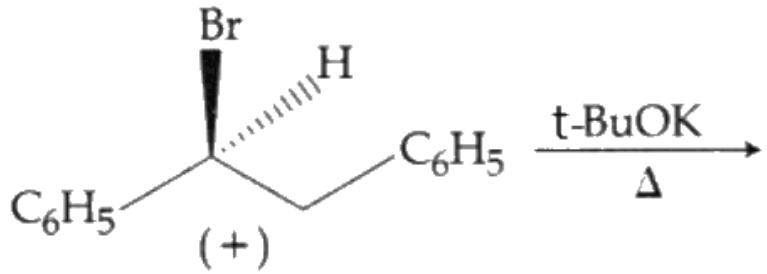
(A) $CH_3CH = CH - CH = CHCH_3$
(B) $CH_2 = CHCH = CHCH_2CH_3$
(C) $CH_3CH = C = CHCH_2CH_3$
(D) $CH_2 = CHCH_2CH = CHCH_3$

Answer: (A) $CH_3CH = CH - CH = CHCH_3$ · Key from source paper

Q119 JEE Main 2017 · 2 Apr · Offline MCQ

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

Q53. The major product obtained in the following reaction is,



(1) $C_6H_5CH = CHC_6H_5$
(2) $+ C_6H_5CHOtBuCH_2C_6H_5$
(3) $- C_6H_5CHOtBuCH_2C_6H_5$
(4) $\pm C_6H_5CHOtBuCH_2C_6H_5$

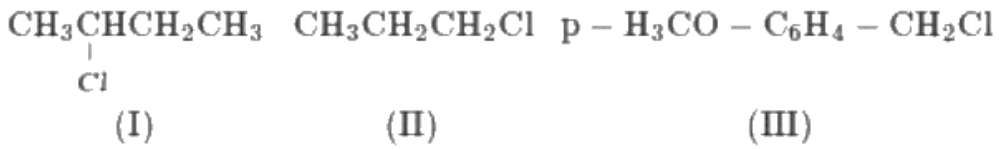
(A) $C_6H_5CH = CHC_6H_5$
(B) $+ C_6H_5CHOtBuCH_2C_6H_5$
(C) $- C_6H_5CHOtBuCH_2C_6H_5$
(D) $\pm C_6H_5CHOtBuCH_2C_6H_5$

Answer: (A) $C_6H_5CH = CHC_6H_5$ · Key from source paper

Q120 JEE Main 2017 · 2 Apr · Offline MCQ

The increasing order of the reactivity of the following halides for the S_N1 reaction is
(see the figure above)

Q54. The increasing order of the reactivity of the following halides for the S_N1 reaction is



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

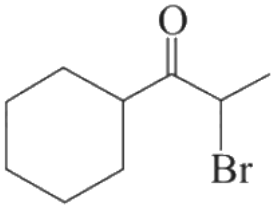
(A) (II) < (I) < (III)
(B) (I) < (III) < (II)
(C) (II) < (III) < (I)
(D) (III) < (II) < (I)

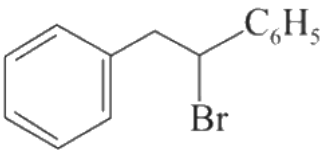
Answer: (A) (II) < (I) < (III) · Key from source paper

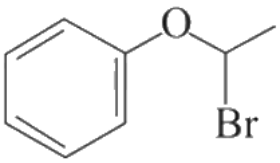
Q121 JEE Main 2017 · 2 Apr · Offline MCQ

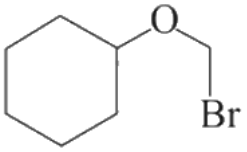
Which of the following, upon treatment with tert-BuONa followed by addition of bromine water, fails to decolourize the colour of bromine?

Q56. Which of the following, upon treatment with tert-BuONa followed by addition of bromine water, fails to decolourize the colour of bromine?

(1) 

(2) 

(3) 

(4) 

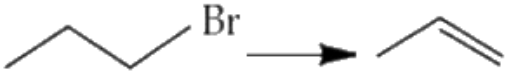
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Key from source paper

Q122 JEE Main 2016 · 10 Apr · Online MCQ

Which one of the following reagents is not suitable for the elimination reaction?
(see the figure above)

Q54. Which one of the following reagents is not suitable for the elimination reaction?



(1) NaI
(2) $NaOEt/EtOH$
(3) $NaOH/H_2O,\ \Delta$
(4) $NaOH/H_2O - EtOH$

(A) NaI
(B) $NaOEt/EtOH$
(C) $NaOH/H_2O,\ \Delta$
(D) $NaOH/H_2O - EtOH$

Answer: (A) NaI · Key from source paper

Q123 JEE Main 2016 · 9 Apr · Online MCQ

The gas evolved on heating CH_3MgBr in methanol is:

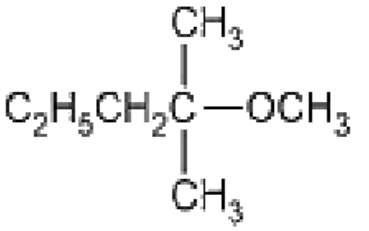
(A) Methane
(B) Ethane
(C) Propane
(D) HBr

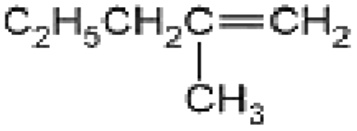
Answer: (A) Methane · Key from source paper

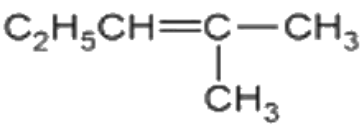
Q124 JEE Main 2016 · 3 Apr · Offline MCQ

2- chloro - 2 - methylpentane on reaction with sodium methoxide in methanol yields:
(i) *(see the figure above)*
(ii) *(see the figure above)*
(iii) *(see the figure above)*

Q56. 2- chloro - 2 - methylpentane on reaction with sodium methoxide in methanol yields:

(i) 

(ii) 

(iii) 

(1) iii only
(2) i and ii
(3) i and iii
(4) All of these

(A) iii only
(B) i and ii
(C) i and iii
(D) All of these

Answer: (D) All of these · Key from source paper

Q125 JEE Main 2015 · 4 Apr · Offline MCQ

The synthesis of alkyl fluorides is best accomplished by:

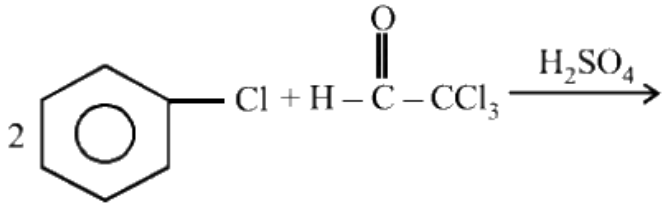
(A) Swarts reaction
(B) Free radical fluorination
(C) Sandmeyer's reaction
(D) Finkelstein reaction

Answer: (A) Swarts reaction · Key from source paper

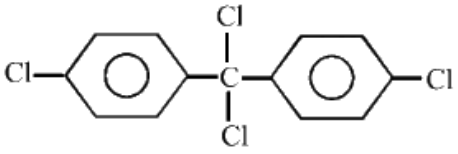
Q126 JEE Main 2014 · 11 Apr · Online MCQ

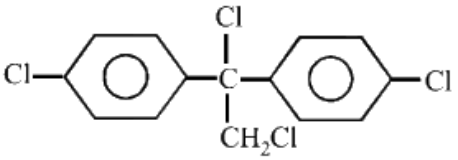
Chlorobenzne (sic) reacts with trichloro acetaldehyde in the presence of H_2SO_4.
(see the figure above)
The major product formed is:

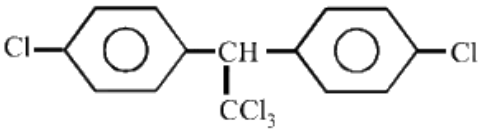
Q54. Chlorobenzne reacts with trichloro acetaldehyde in the presence of H_2SO_4.

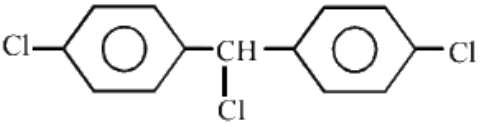


The major product formed is:

(1) 

(2) 

(3) 

(4) 

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

Answer: (C) · Key from source paper

Q127 JEE Main 2014 · 9 Apr · Online MCQ

In a nucleophilic substitution reaction : $R-Br + Cl^- \xrightarrow{DMF} R-Cl + Br^-$, which one of the following undergoes complete inversion of configuration ?

(A) $C_6H_5CHC_6H_5Br$
(B) $C_6H_5CCH_3C_6H_5Br$
(C) $C_6H_5CH_2Br$
(D) $C_6H_5CH_2CH_2Br$

Answer: (D) $C_6H_5CH_2CH_2Br$ · Key from source paper

Q128 JEE Main 2014 · 6 Apr · Offline MCQ

The major organic compound formed by the reaction of 1, 1, 1 - trichloroethane with silver powder is :

(A) Acetylene
(B) Ethene
(C) 2 - Butyne
(D) 2 - Butene

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

Q129 JEE Main 2014 · 6 Apr · Offline MCQ

In S_N2 reactions, the correct order of reactivity for the following compounds :
CH_3Cl, CH_3CH_2Cl, $(CH_3)_2CHCl$ and $(CH_3)_3CCl$ is :

(A) $CH_3Cl > (CH_3)_2CHCl > CH_3CH_2Cl > (CH_3)_3CCl$
(B) $CH_3Cl > CH_3CH_2Cl > (CH_3)_2CHCl > (CH_3)_3CCl$
(C) $CH_3CH_2Cl > CH_3Cl > (CH_3)_2CHCl > (CH_3)_3CCl$
(D) $(CH_3)_2CHCl > CH_3CH_2Cl > CH_3Cl > (CH_3)_3CCl$

Answer: (B) $CH_3Cl > CH_3CH_2Cl > (CH_3)_2CHCl > (CH_3)_3CCl$ · Key from source paper

Q130 JEE Main 2014 · 6 Apr · Offline MCQ

In the reaction,
$CH_3COOH \xrightarrow{LiAlH_4} A \xrightarrow{PCl_5} B \xrightarrow{\text{Alc. KOH}} C$,
the product C is :

(A) Acetaldehyde
(B) Acetylene
(C) Ethylene
(D) Acetyl chloride

Answer: (C) Ethylene · Key from source paper

Q131 JEE Main 2013 · 25 Apr · Online MCQ

In nucleophilic substitution reaction, order of halogens as incoming (attacking) nucleophile is: I^- > Br^- > Cl^- The order of halogens as departing nucleophile should be :

(A) $Br^- > I^- > Cl^-$

(B) $I^- > Br^- > Cl^-$

(C) $Cl^- > Br^- > I^-$

(D) $Cl^- > I^- > Br^-$

Answer: (B) $I^- > Br^- > Cl^-$ · Key from source paper

Q132 JEE Main 2013 · 25 Apr · Online MCQ

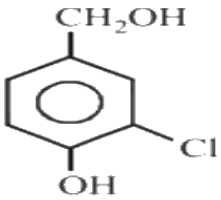
The major product in the following reaction *(see the figure above)* is :

Q53.



The major product in the following reaction

(1)



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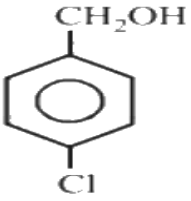

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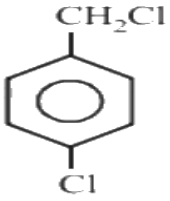

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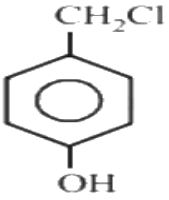


(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (D) · Checked by our team

Q133 JEE Main 2013 · 23 Apr · Online MCQ

The order of reactivity of the given haloalkanes towards nucleophile is :

(A) RI > RBr > RCl

(B) RCl > RBr > RI

(C) RBr > RCl > RI

(D) RBr > RI > RCl

Answer: (A) RI > RBr > RCl · Key from source paper

Q134 JEE Main 2013 · 22 Apr · Online MCQ

The Wurtz-Fittig reaction involves condensation of:

(A) two molecules of aryl halides
(B) one molecule of each of aryl-halide and alkyl-halide.
(C) one molecule of each of aryl-halide and phenol.
(D) two molecules of aralkyl-halides.

Answer: (B) one molecule of each of aryl-halide and alkyl-halide. · Key from source paper

Q135 JEE Main 2013 · 7 Apr · Offline MCQ

A solution of $(-)1-$ chloro $-1-$ phenylethane in toluene racemises slowly in the presence of a small amount of $SbCl_5$, due to the formation of :

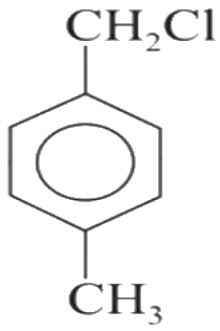
(A) Carbocation
(B) Free radical
(C) Carbanion
(D) Carbene

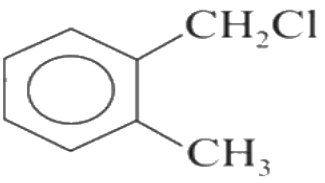
Answer: (A) Carbocation · Key from source paper

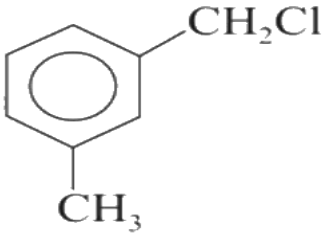
Q136 JEE Main 2013 · 7 Apr · Offline MCQ

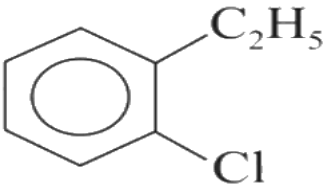
Compound (A), C_8H_9Cl, gives a white precipitate when warmed with alcoholic $AgNO_3$. Oxidation of (A) gives an acid (B), $C_8H_6O_4$. (B) easily forms anhydride on heating. Identify the compound (A).

Q57. Compound (A), C_8H_9Cl, gives a white precipitate when warmed with alcoholic $AgNO_3$. Oxidation of (A) gives an acid (B), $C_8H_6O_4$. (B) easily forms anhydride on heating. Identify the compound (A).

(1) 

(2) 

(3) 

(4) 

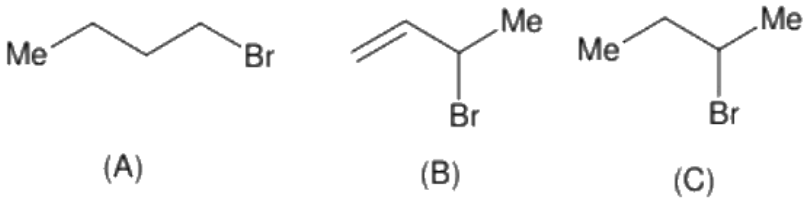
(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · Key from source paper

Q137 AIEEE 2010 MCQ

see figure

Q55.



Consider the following bromides :
The correct order of S_N1 reactivity is

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

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

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

Q138 AIEEE 2008 MCQ

The organic chloro compound, which shows complete stereochemical inversion during a S_N2 reaction, is

(A) $(C_2H_5)_2CHCl$
(B) $(CH_3)_3CCl$
(C) $(CH_3)_2CHCl$
(D) CH_3Cl

Answer: (D) CH_3Cl · Key from source paper

Q139 AIEEE 2007 MCQ

Which of the following is the correct order of decreasing S_N^2 reactivity?

(A) $RCH_2X > R_3CX > R_2CHX$

(B) $RCH_2X > R_2CHX > R_3CX$

(C) $R_3CX > R_2CHX > RCH_2X$

(D) $R_2CHX > R_3CX > RCH_2X$ (X = a halogen)

Answer: (B) $RCH_2X > R_2CHX > R_3CX$ · Key from source paper

Q140 AIEEE 2006 MCQ

$CH_3Br + Nu^- \longrightarrow CH_3 - Nu + Br^-$

The decreasing order of the rate of the above reaction with nucleophiles (Nu^-) A to D is [Nu^- = (A) PhO^-, (B) AcO^-, (C) HO^-, (D) CH_3O^-]

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

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

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

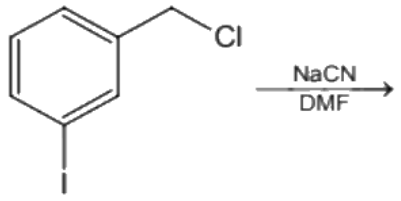
(D) $B > D > C > A$

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

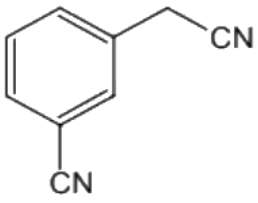
Q141 AIEEE 2006 MCQ

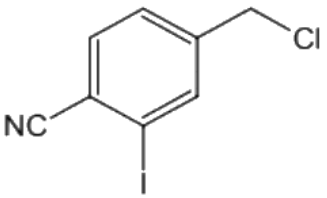
see figure

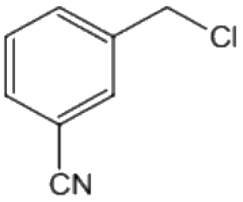
Q103.

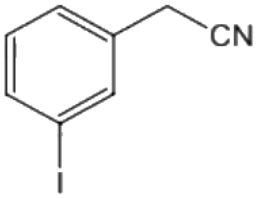


The structure of the major product formed in the following reaction is

(1) 

(2) 

(3) 

(4) 

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

Answer: (D) · Key from source paper

Q142 AIEEE 2006 MCQ

Reaction of trans-2-phenyl-1-bromocyclopentane on reaction with alcoholic KOH produces

(A) 4-phenylcyclopentene
(B) 2-phenylcyclopentene
(C) 1-phenylcyclopentene
(D) 3-phenylcyclopentene

Answer: (D) 3-phenylcyclopentene · Key from source paper

Q143 AIEEE 2006 MCQ

Phenyl magnesium bromide reacts with methanol to give

(A) a mixture of anisole and Mg(OH)Br
(B) a mixture of benzene and Mg(OMe)Br
(C) a mixture of toluene and Mg(OH)Br
(D) a mixture of phenol and Mg(Me)Br

Answer: (B) a mixture of benzene and Mg(OMe)Br · Key from source paper

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Q144 AIEEE 2005 MCQ

Tertiary alkyl halides are practically inert to substitution by S_N2 mechanism because of

(A) insolubility
(B) instability
(C) inductive effect
(D) steric hindrance

Answer: (D) steric hindrance · Key from source paper

Q145 AIEEE 2005 MCQ

Alkyl halides react with dialkyl copper reagents to give

(A) alkenes
(B) alkyl copper halides
(C) alkanes
(D) alkenyl halides

Answer: (C) alkanes · Key from source paper

Q146 AIEEE 2004 MCQ

The compound formed on heating chlorobenzene with chloral in the presence concentrated sulphuric acid is

(A) gammexene
(B) hexachloroethane
(C) Freon
(D) DDT

Answer: (D) DDT · Key from source paper

Q147 AIEEE 2003 MCQ

Bottles containing C_6H_5I and $C_6H_5CH_2I$ lost their original labels. They were labelled A and B for testing A and B were separately taken in test tubes and boiled with NaOH solution. The end solution in each tube was made acidic with dilute HNO_3 and then some $AgNO_3$ solution was added. Substance B gave a yellow precipitate. Which one of the following statements is true for this experiment?

(A) A and $C_6H_5CH_2I$
(B) B and C_6H_5I
(C) Addition of HNO_3 was unnecessary
(D) A was C_6H_5I

Answer: (D) A was C_6H_5I · Key from source paper

Q148 AIEEE 2002 MCQ

$CH_3 - Mg - Br$ is an organo metallic compound due to

(A) $Mg - Br$ bond
(B) C - Mg bond
(C) C - Br bond
(D) $C - H$ bond

Answer: (B) C - Mg bond · Key from source paper

Q149 AIEEE 2002 MCQ

The reaction: $(CH_3)_3C - Br \xrightarrow{H_2O} (CH_3)_3 - C - OH$

(A) elimination reaction
(B) substitution reaction
(C) free radical reaction
(D) displacement reaction

Answer: (B) substitution reaction · Key from source paper

EdLoop JEE