

CHEMISTRY · JEE MAIN

Carboxylic Acids & Their Derivatives

Chapter-wise previous year questions, with answer key

20

PYQS

2021–2026

PAPERS

4

TOPICS

Acid Derivatives

Hell-Volhard-Zelinsky Reaction

Preparation and Acidity

Reactions of Carboxylic Acids

- 1 Attempt each question on paper first. They're grouped by topic, newest papers first.
- 2 Check yourself against the answer key at the end.
- 3 Got one wrong? Tap "Step-by-step solution" at the top right of it for the full working, where available.

Stuck on a question?

Free step-by-step solutions are on PrepWiser, where available: tap "Step-by-step solution" at the top right of a question.

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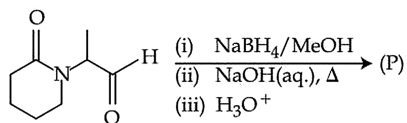
Answers follow NTA's final answer keys. Typing errors are possible, so check doubtful answers against the official key. Spotted a mistake? prepwisar.in/feedback · Terms: prepwisar.in/terms

Acid Derivatives · 7 PYQs

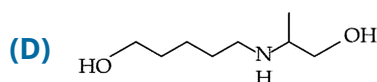
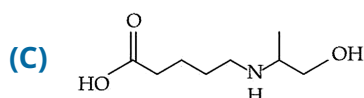
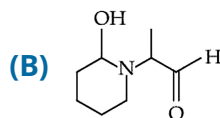
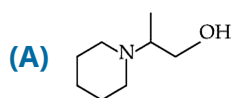
Q1 JEE Main 2026 · 8 Apr · Shift 2

[Step-by-step solution](https://www.prepwiser.in/questions/xAuQTAcg2T) · prepwiser.in/questions/xAuQTAcg2T

Consider the following reaction.

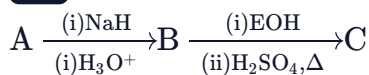


The major product(P) formed is:



Q2 JEE Main 2025 · 8 Apr · Shift 2

[Step-by-step solution](https://www.prepwiser.in/questions/DBY4RxRAfl) · prepwiser.in/questions/DBY4RxRAfl

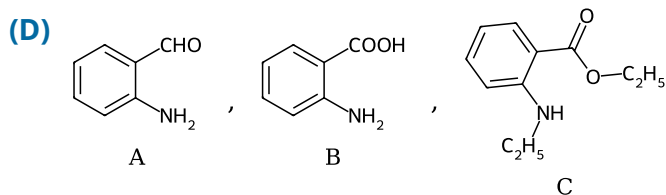
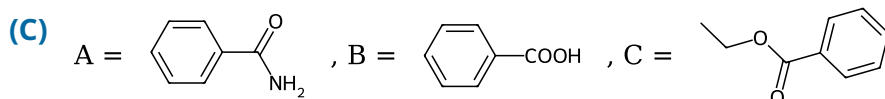
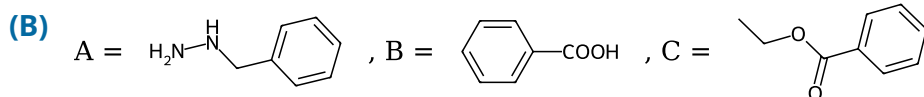
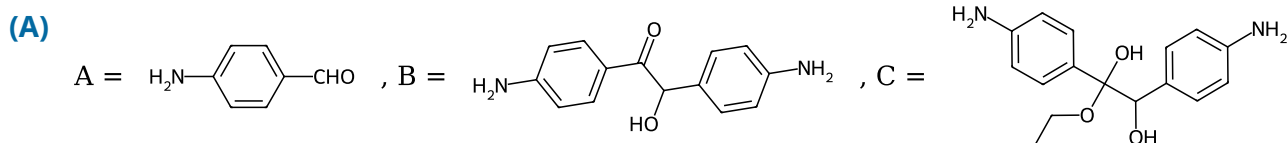


'A' shows positive Lassaing's test for N and its molar mass is 121.

'B' gives effervescence with aq $NaHCO_3$.

'C' gives fruity smell.

Identify A, B and C from the following.



Q3 JEE Main 2025 · 2 Apr · Shift 1

[Step-by-step solution](https://www.prepwiser.in/questions/p_tiGLWFXo) · prepwiser.in/questions/p_tiGLWFXo

Consider the following molecules:

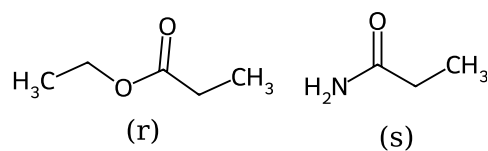
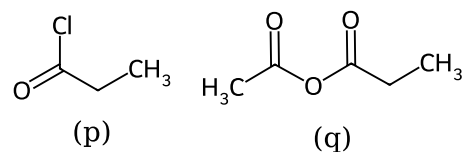
The correct order of rate of hydrolysis is:

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

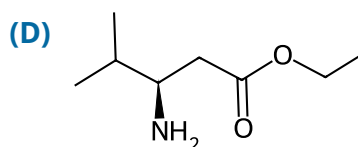
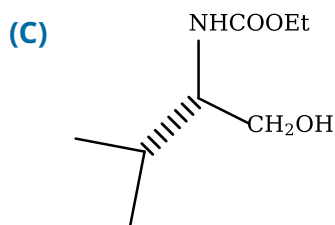
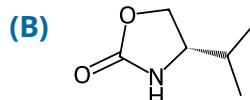
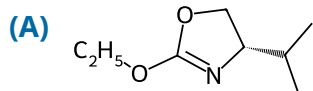
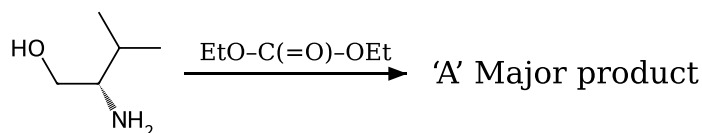
(B) $r > q > p > s$

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

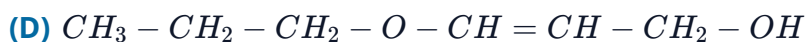
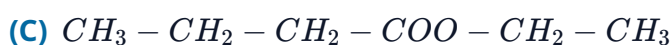
(D) $q > p > r > s$



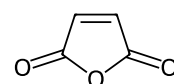
In the following reaction, 'A' is



In the following sequence of reactions a compound A, (molecular formula $C_6H_{12}O_2$) with a straight chain structure gives a C_4 carboxylic acid. A is:

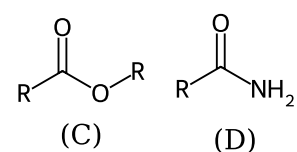
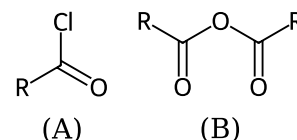
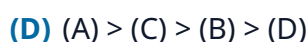
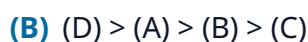
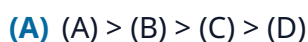


Maleic anhydride can be prepared by:



Maleic anhydride

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

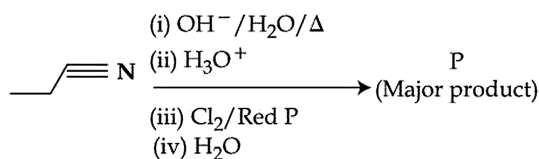


Hell-Volhard-Zelinsky Reaction · 2 PYQs

Q8 JEE Main 2026 · 5 Apr · Shift 2

[Step-by-step solution](#) · [prepwisar.in/questions/Mm8SuhFzT2](https://www.prepwisar.in/questions/Mm8SuhFzT2)

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



(A) 2-Chloropropanoic acid

(B) 3-Chloropropanoic acid

(C) 1-Chloropropane

(D) 2-Chloropropane

Q9 JEE Main 2023 · 11 Apr · Shift 2

[Step-by-step solution](#) · [prepwisar.in/questions/1M2HgaLtP1](https://www.prepwisar.in/questions/1M2HgaLtP1)

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

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

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

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

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

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

(C) A is true but R is false

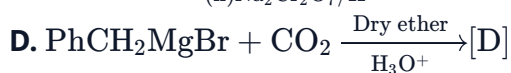
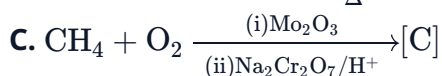
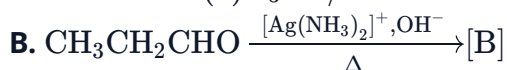
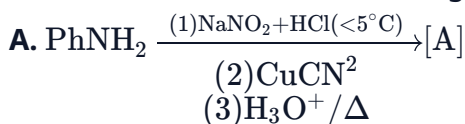
(D) A is false but R is true

Preparation and Acidity · 8 PYQs

Q10 JEE Main 2026 · 28 Jan · Shift 2

[Step-by-step solution](#) · [prepwisar.in/questions/Mrx3j6qzLj](https://www.prepwisar.in/questions/Mrx3j6qzLj)

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



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

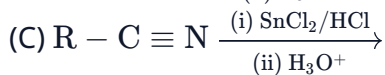
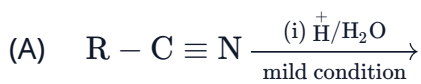
(A) $\text{C} > \text{A} > \text{D} > \text{B}$

(B) $\text{A} > \text{D} > \text{C} > \text{B}$

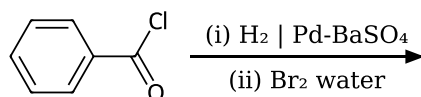
(C) $\text{A} > \text{D} > \text{B} > \text{C}$

(D) $\text{C} > \text{B} > \text{A} > \text{D}$

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



(E)



Choose the correct answer from the options given below:

(A) A, B and E only

(B) A and D only

(C) B, C and E only

(D) B and E only

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

$\text{CH}_3\text{CH}_2\text{COOH}$, CH_3COOH , $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$, HCOOH

(A) $\text{HCOOH} > \text{CH}_3\text{CH}_2\text{CH}_2\text{COOH} > \text{CH}_3\text{CH}_2\text{COOH} > \text{CH}_3\text{COOH}$

(B) $\text{HCOOH} > \text{CH}_3\text{COOH} > \text{CH}_3\text{CH}_2\text{COOH} > \text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$

(C) $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH} > \text{CH}_3\text{CH}_2\text{COOH} > \text{CH}_3\text{COOH} > \text{HCOOH}$

(D) $\text{CH}_3\text{COOH} > \text{CH}_3\text{CH}_2\text{COOH} > \text{CH}_3\text{CH}_2\text{CH}_2\text{COOH} > \text{HCOOH}$

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

A. CH_3COOH

B. $\text{F}_3\text{C} - \text{COOH}$

C. $\text{ClCH}_2 - \text{COOH}$

D. $\text{FCH}_2 - \text{COOH}$

E. $\text{BrCH}_2 - \text{COOH}$

Choose the correct answer from the options given below:

(A) $\text{B} > \text{C} > \text{D} > \text{E} > \text{A}$

(B) $\text{D} > \text{B} > \text{A} > \text{E} > \text{C}$

(C) $\text{B} > \text{D} > \text{C} > \text{E} > \text{A}$

(D) $\text{E} > \text{D} > \text{B} > \text{A} > \text{C}$

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Two statements are given below:

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

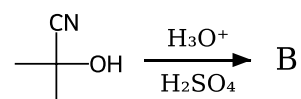
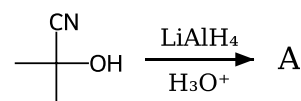
Statement II : The solubility of monocarboxylic acids in water decreases with increase in molar mass.

Choose the most appropriate option:

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

The major products A and B in the following set of reactions are:

- (A) $A = \begin{array}{c} \text{OH} \\ | \\ \text{---} \text{C} \text{---} \\ | \\ \text{CHO} \end{array}$, $B = \begin{array}{c} \text{OH} \\ | \\ \text{---} \text{C} \text{---} \\ | \\ \text{COOH} \end{array}$
- (B) $A = \begin{array}{c} \text{H}_2\text{N} \text{---} \text{CH}_2 \text{---} \text{C}(\text{OH})(\text{CH}_3)_2 \end{array}$, $B = \begin{array}{c} \text{COOH} \\ | \\ \text{---} \text{C} \text{---} \\ | \\ \text{CH}_2 \end{array}$
- (C) $A = \begin{array}{c} \text{HO} \text{---} \text{CH}_2 \text{---} \text{C}(\text{OH})(\text{CH}_3)_2 \end{array}$, $B = \begin{array}{c} \text{CHO} \\ | \\ \text{---} \text{C} \text{---} \\ | \\ \text{OH} \end{array}$
- (D) $A = \begin{array}{c} \text{H}_2\text{N} \text{---} \text{CH}_2 \text{---} \text{C}(\text{OH})(\text{CH}_3)_2 \end{array}$, $B = \begin{array}{c} \text{OH} \\ | \\ \text{---} \text{C} \text{---} \\ | \\ \text{CHO} \end{array}$



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

- (A) $\text{CH}_3\text{CH}_2\text{COCH}_3 + \text{OI}^-/\text{H}_3\text{O}^+$ (B) $\text{CH}_3\text{CH}_2\text{CH}_3 + \text{KMnO}_4(\text{Heat}), \text{OH}^-/\text{H}_3\text{O}^+$
 (C) $\text{CH}_3\text{CH}_2\text{CCl}_3 + \text{OH}^-/\text{H}_3\text{O}^+$ (D) $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br} + \text{Mg}, \text{CO}_2 \text{ dry ether}/\text{H}_3\text{O}^+$

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

- (A) Sulphanilic acid
 (B) Picric acid
 (C) Aspirin
 (D) Ascorbic acid

Reactions of Carboxylic Acids · 3 PYQs

Q18 JEE Main 2022 · 29 Jun · Shift 1

[Step-by-step solution](#) · [prepwisar.in/questions/qp4r-E3Gk6](https://www.prepwisar.in/questions/qp4r-E3Gk6)

Given below are two statements:

Statement I : The esterification of carboxylic acid with an alcohol is a nucleophilic acyl substitution.

Statement II : Electron withdrawing groups in the carboxylic acid will increase the rate of esterification reaction.

Choose the most appropriate option:

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

Q19 JEE Main 2022 · 27 Jun · Shift 2

[Step-by-step solution](#) · [prepwisar.in/questions/kow8V1ZUzW](https://www.prepwisar.in/questions/kow8V1ZUzW)

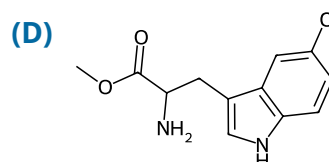
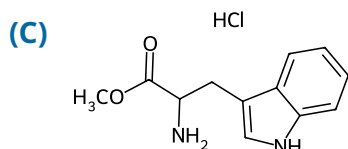
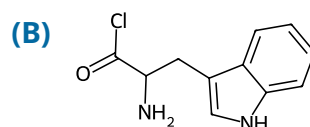
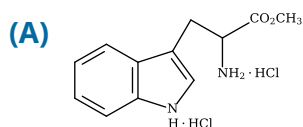
Decarboxylation of all six possible forms of diaminobenzoic acids $C_6H_3(NH_2)_2COOH$ yields three products A, B and C. Three acids give a product 'A', two acids give a product 'B' and one acid give a product 'C'. The melting point of product 'C' is

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

Q20 JEE Main 2021 · 26 Aug · Shift 1

[Step-by-step solution](#) · [prepwisar.in/questions/XKHTkhfy1T](https://www.prepwisar.in/questions/XKHTkhfy1T)

The major product formed in the following reaction is:



Answer key: Carboxylic Acids & Their Derivatives

Answers follow NTA's final answer keys. Typing errors are possible, so check doubtful answers against the official key. Spotted a mistake? [prepwisar.in/feedback](https://www.prepwisar.in/feedback) · Terms: [prepwisar.in/terms](https://www.prepwisar.in/terms)

Numbers match the question numbers above. For full working, open the solution link at the top right of each question.

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1.	C	2.	C	3.	A	4.	B	5.	C	6.	B	7.	A	8.	A	9.	C	10.	A
11.	D	12.	B	13.	C	14.	A	15.	B	16.	D	17.	1	18.	A	19.	D	20.	C

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- 1 Scan the code to practise these questions online, with instant answer checking and step-by-step solutions where available. Or open prepwisser.in/learn and pick Carboxylic Acids & Their Derivatives.
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- 3 Note the ones you got wrong, and solve them again online a week later.

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Carboxylic Acids & Their Derivatives formula sheet

2 pages, all 12 formulas with when each applies: prepwisser.in/jee-main/formula-sheets/carboxylic-acids-and-their-derivatives/

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