

CHEMISTRY · JEE MAIN

Amines & Diazonium Salts

Chapter-wise previous year questions, with answer key

24

PYQS

2020–2025

PAPERS

3

TOPICS

Preparation of Amines

Diazonium Salts and Coupling

Reactions of Amines

- 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" under it for the full working.

Stuck on 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? prepwisser.in/feedback · Terms: prepwisser.in/terms

Preparation of Amines · 1 PYQs

Q1 JEE Main 2021 · 17 Mar · Shift 1

Which of the following reaction is an example of ammonolysis?



Step-by-step solution ► [prepwisar.in/questions/WG6WMvES0o](https://www.prepwisar.in/questions/WG6WMvES0o)

Diazonium Salts and Coupling · 9 PYQs

Q2 JEE Main 2025 · 24 Jan · Shift 1

Given below are two statements I and II.

Statement I : Dumas method is used for estimation of "Nitrogen" in an organic compound.

Statement II : Dumas method involves the formation of ammonium sulphate by heating the organic compound with conc H_2SO_4 .

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

(D) Both Statement I and Statement II are false

Step-by-step solution ► [prepwisar.in/questions/0rXP48zevY](https://www.prepwisar.in/questions/0rXP48zevY)

Q3 JEE Main 2024 · 8 Apr · Shift 1

Match List I with List II

	LIST I (Molecule)		LIST II (Shape)
A.	NH_3	I.	Square pyramid
B.	BrF_5	II.	Tetrahedral
C.	PCl_5	III.	Trigonal pyramidal
D.	CH_4	IV.	Trigonal bipyramidal

Choose the correct answer from the options given below:

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

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

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

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

Step-by-step solution ► [prepwisar.in/questions/2DWA8HfyXC](https://www.prepwisar.in/questions/2DWA8HfyXC)

Q4 JEE Main 2024 · 8 Apr · Shift 2

Given below are two statements :

Statement (I) : Kjeldahl method is applicable to estimate nitrogen in pyridine.

Statement (II) : The nitrogen present in pyridine can easily be converted into ammonium sulphate in Kjeldahl method.

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

[Step-by-step solution ► prepwiser.in/questions/_7j6dfpdcc](https://www.prepwiser.in/questions/_7j6dfpdcc)

Q5 JEE Main 2024 · 6 Apr · Shift 1

Given below are two statements :

Statement I : Picric acid is 2,4,6 - trinitrotoluene.

Statement II : Phenol - 2,4 - disulphonic acid is treated with Conc. HNO_3 to get picric acid.

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

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

[Step-by-step solution ► prepwiser.in/questions/Tju8nHJ8Uf](https://www.prepwiser.in/questions/Tju8nHJ8Uf)

Q6 JEE Main 2024 · 6 Apr · Shift 1

9.3g of pure aniline upon diazotisation followed by coupling with phenol gives an orange dye. The mass of orange dye produced (assume 100% yield/conversion) is _____ g. (nearest integer)

Numerical answer: enter the value.

[Step-by-step solution ► prepwiser.in/questions/Iz1g6GXMh1](https://www.prepwiser.in/questions/Iz1g6GXMh1)

Q7 JEE Main 2024 · 5 Apr · Shift 2

Xg of ethanamine was subjected to reaction with NaNO_2/HCl followed by hydrolysis to liberate N_2 and HCl . The HCl generated was completely neutralised by 0.2 moles of NaOH . X is _____ g.

Numerical answer: enter the value.

[Step-by-step solution ► prepwiser.in/questions/dyUGQR-dRj](https://www.prepwiser.in/questions/dyUGQR-dRj)

Q8 JEE Main 2024 · 4 Apr · Shift 1

Which of the following nitrogen containing compound does not give Lassaigne's test ?

- (A) Glycine
- (B) Phenyl hydrazine
- (C) Urea
- (D) Hydrazine

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

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 ₃ CCOOAg	IV.	Nitroalkane

Choose the correct answer from the options given below:

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

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

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

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

[Step-by-step solution ► prepwisar.in/questions/gMsm-FvYd5](https://www.prepwisar.in/questions/gMsm-FvYd5)

A primary aliphatic amine on reaction with nitrous acid in cold (273 K) and there after raising temperature of reaction mixture to room temperature (298 K), gives a/an

(A) nitrile

(B) alcohol

(C) diazonium salt

(D) secondary amine

[Step-by-step solution ► prepwisar.in/questions/zdNSoP0UT5](https://www.prepwisar.in/questions/zdNSoP0UT5)

Reactions of Amines · 14 PYQs

The correct order of basic nature in aqueous solution for the bases

NH₃, H₂N – NH₂, CH₃CH₂NH₂, (CH₃CH₂)₂NH and (CH₃CH₂)₃N is :

(A) NH₃ < H₂N – NH₂ < (CH₃CH₂)₃N < CH₃CH₂NH₂ < (CH₃CH₂)₂NH

(B) H₂N – NH₂ < NH₃ < (CH₃CH₂)₃N < CH₃CH₂NH₂ < (CH₃CH₂)₂NH

(C) NH₂ – NH₂ < NH₃ < CH₃CH₂NH₂ < (CH₃CH₂)₃N < (CH₃CH₂)₂NH

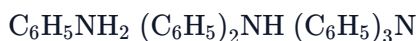
(D) NH₃ < H₂N – NH₂ < CH₃CH₂NH₂ < (CH₃CH₂)₂NH < (CH₃CH₂)₃N

[Step-by-step solution ► prepwisar.in/questions/su6bHXrbUV](https://www.prepwisar.in/questions/su6bHXrbUV)

Q12 JEE Main 2024 · 8 Apr · Shift 2

Given below are two statements :

Statement (I) : All the following compounds react with p-toluenesulfonyl chloride.



Statement (II) : Their products in the above reaction are soluble in aqueous NaOH.

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

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

[Step-by-step solution ► prepwisser.in/questions/VpVFkINt0H](https://www.prepwisser.in/questions/VpVFkINt0H)

Q13 JEE Main 2024 · 1 Feb · Shift 1

Given below are two statements :

Statement (I) : The NH_2 group in Aniline is ortho and para directing and a powerful activating group.

Statement (II) : Aniline does not undergo Friedel-Craft's reaction (alkylation and acylation).

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 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

[Step-by-step solution ► prepwisser.in/questions/BZM7TORROc](https://www.prepwisser.in/questions/BZM7TORROc)

Q14 JEE Main 2024 · 1 Feb · Shift 1

Given below are two statements :

Statement (I) : Aminobenzene and aniline are same organic compounds.

Statement (II) : Aminobenzene and aniline are different organic compounds.

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

[Step-by-step solution ► prepwisser.in/questions/wisQUDftyT](https://www.prepwisser.in/questions/wisQUDftyT)

Q15 JEE Main 2023 · 29 Jan · Shift 2

Reaction of propanamide with $\text{Br}_2/\text{KOH}(\text{aq})$ produces :

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

[Step-by-step solution ► prepwiser.in/questions/bsU-XhA0PL](https://www.prepwiser.in/questions/bsU-XhA0PL)

Q16 JEE Main 2023 · 29 Jan · Shift 1

Match List I with List II

	List I		List II
	Reaction		Reagents
(A)	Hoffmann Degradation	(I)	Conc.KOH, Δ
(B)	Clemenson reduction	(II)	$\text{CHCl}_3, \text{NaOH}/\text{H}_3\text{O}^+$
(C)	Cannizaro reaction	(III)	Br_2, NaOH
(D)	Reimer-Tiemann Reaction	(IV)	$\text{Zn} - \text{Hg}/\text{HCl}$

Choose the correct answer from the options given below :

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

[Step-by-step solution ► prepwiser.in/questions/DJxjbSr7-](https://www.prepwiser.in/questions/DJxjbSr7-)

Q17 JEE Main 2023 · 25 Jan · Shift 2

Match List I with List II

	List I (Amines)		List II (pK_b)
A.	Aniline	I.	3.25
B.	Ethanamine	II.	3.00
C.	N-Ethylethanamine	III.	9.38
D.	N, N-Diethylethanamine	IV.	3.29

Choose the correct answer from the options given below :

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

[Step-by-step solution ► prepwiser.in/questions/Qcl8gNfqsr](https://www.prepwiser.in/questions/Qcl8gNfqsr)

Q18 JEE Main 2023 · 24 Jan · Shift 2

Given below are two statements:

Statement I : Pure Aniline and other arylamines are usually colourless.

Statement II : Arylamines get coloured on storage due to atmospheric reduction.

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

[Step-by-step solution ► prepwisser.in/questions/RHkFE965Kw](https://www.prepwisser.in/questions/RHkFE965Kw)

Q19 JEE Main 2022 · 27 Jul · Shift 1

Match List I with List II.

	List I		List II
(A)	Benzenesulphonyl chloride	(I)	Test for primary amines
(B)	Hoffmann bromamide reaction	(II)	Anti Saytzeff
(C)	Carbylamine reaction	(III)	Hinsberg reagent
(D)	Hoffmann orientation	(IV)	Known reaction of Isocyanates.

Choose the correct answer from the options given below:

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

[Step-by-step solution ► prepwisser.in/questions/IC1Bk291Ce](https://www.prepwisser.in/questions/IC1Bk291Ce)

Q20 JEE Main 2022 · 27 Jun · Shift 1

Given below are two statements :

Statement I : In Hofmann degradation reaction, the migration of only an alkyl group takes place from carbonyl carbon of the amide to the nitrogen atom.

Statement II : The group is migrated in Hofmann degradation reaction to electron deficient atom.

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 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.

[Step-by-step solution ► prepwisser.in/questions/RhUtIZSANT](https://www.prepwisser.in/questions/RhUtIZSANT)

Q21 JEE Main 2021 · 27 Aug · Shift 1

Which of the following is not a correct statement for primary aliphatic amines?

- (A) The intermolecular association in primary amines is less than the intermolecular association in secondary amines.
- (B) Primary amines on treating with nitrous acid solution form corresponding alcohols except methyl amine.
- (C) Primary amines are less basic than the secondary amines.
- (D) Primary amines can be prepared by the Gabriel phthalimide synthesis.

[Step-by-step solution ► prepwiser.in/questions/s0n1rTmFrm](https://www.prepwiser.in/questions/s0n1rTmFrm)

Q22 JEE Main 2021 · 27 Jul · Shift 1

Given below are two statements :

Statement I : Aniline is less basic than acetamide.

Statement II : In aniline, the lone pair of electrons on nitrogen atom is delocalized over benzene ring due to resonance and hence less available to a proton.

Choose the most appropriate option;

- (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 true.
- (D) Both statement I and statement II are false.

[Step-by-step solution ► prepwiser.in/questions/7n3xDsmU2s](https://www.prepwiser.in/questions/7n3xDsmU2s)

Q23 JEE Main 2021 · 27 Jul · Shift 1

In gaseous triethyl amine the " —C—N—C— " bond angle is _____ degree.

Numerical answer: enter the value.

[Step-by-step solution ► prepwiser.in/questions/tlWm07rVux](https://www.prepwiser.in/questions/tlWm07rVux)

Q24 JEE Main 2020 · 5 Sep · Shift 1

The most appropriate reagent for conversion of $\text{C}_2\text{H}_5\text{CN}$ into $\text{CH}_3\text{CH}_2\text{CH}_2\text{NH}_2$ is

- (A) NaBH_4
- (B) CaH_2
- (C) $\text{Na}(\text{CN})\text{BH}_3$
- (D) LiAlH_4

[Step-by-step solution ► prepwiser.in/questions/MiR0A_OYWA](https://www.prepwiser.in/questions/MiR0A_OYWA)

Answer key: Amines & Diazonium Salts

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Numbers match the question numbers above. For full working, open the solution link under each question.

1	D	2	A	3	B	4	B	5	A	6	20	7	9	8	D
9	C	10	B	11	C	12	C	13	A	14	C	15	D	16	A
17	C	18	B	19	C	20	D	21	A	22	B	23	108	24	D

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