PrepWiser.

CHEMISTRY · JEE MAIN

General Organic Chemistry (GOC)

Chapter-wise previous year questions, with answer key

26	2020–2025	7
PYQS	PAPERS	TOPICS

Types of Organic Reactions · Electronic Effects · Stereoisomerism · IUPAC Nomenclature · Acidity and Basicity · Reaction Intermediates · Structural Isomerism

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? prepwiser.in/feedback · Terms: prepwiser.in/terms

Types of Organic Reactions · 1 PYQs

Q1 JEE Main 2021 · 17 Mar · Shift 2

The correct pair(s) of the ambident nucleophiles is(are)

(A) AgCN/KCN

(B) RCOOAg/RCOOK

(C) $AgNO_2/KNO_2$

(D) AgI/KI

(A) (B) and (C) only

(B) (B) only

(C) (A) and (C) only

(D) (A) only

Step-by-step solution ▸ prepwiser.in/questions/1Odn0JSFMF

Electronic Effects · 10 PYQs

Q2 JEE Main 2025 · 24 Jan · Shift 2

Identify correct statement/s :

(A) $-OCH_3$ and $-NHCOCH_3$ are activating group.

(B) $-CN$ and -OH are meta directing group.

(C) -CN and $-SO_3H$ are meta directing group.

(D) Activating groups act as ortho - and para directing groups.

(E) Halides are activating groups.

Choose the correct answer from the options given below :

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

(B) $(A), (B)$ and (E) only

(C) (A) and (C) only

(D) (A) only

Step-by-step solution ▸ prepwiser.in/questions/_YdLGr9MKq

Q3 JEE Main 2024 · 4 Apr · Shift 1

Which among the following is incorrect statement?

(A) The electromeric effect is, temporary effect

(B) Hydrogen ion (H^+) shows negative electromeric effect

(C) The organic compound shows electromeric effect in the presence of the reagent only.

(D) Electromeric effect dominates over inductive effect

Step-by-step solution ▸ prepwiser.in/questions/D8ynybdmct

Q4 JEE Main 2024 · 1 Feb · Shift 2

The set of meta directing functional groups from the following sets is :

(A) $-\mathrm{CN}, -\mathrm{NH_2}, -\mathrm{NHR}, -\mathrm{OCH_3}$

(B) $-\mathrm{CN}, -\mathrm{CHO}, -\mathrm{NHCOCH_3}, -\mathrm{COOR}$

(C) $-\mathrm{NO_2}, -\mathrm{NH_2}, -\mathrm{COOH}, -\mathrm{COOR}$

(D) $-\mathrm{NO_2}, -\mathrm{CHO}, -\mathrm{SO_3H}, -\mathrm{COR}$

Step-by-step solution ▸ prepwiser.in/questions/ECbnMchEfX

Q5 JEE Main 2024 · 1 Feb · Shift 2

The functional group that shows negative resonance effect is :

(A) $-\mathrm{OH}$

(B) $-\mathrm{OR}$

(C) $-\mathrm{COOH}$

(D) $-\mathrm{NH_2}$

Step-by-step solution ▸ prepwiser.in/questions/ShzaDRMZAM

Q6 JEE Main 2024 · 1 Feb · Shift 1

Ionic reactions with organic compounds proceed through :

(A) homolytic bond cleavage

(B) heterolytic bond cleavage

(C) free radical formation

(D) primary free radical

(E) secondary free radical

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

(A) (A) only

(B) (B) only

(C) (C) only

(D) (D) and (E) only

Step-by-step solution ▸ prepwiser.in/questions/EcDuEMUJ5n

Q7 JEE Main 2024 · 29 Jan · Shift 1

The difference in energy between the actual structure and the lowest energy resonance structure for the given compound is

(A) electromeric energy

(B) resonance energy

(C) ionization energy

(D) hyperconjugation energy

Step-by-step solution ▸ prepwiser.in/questions/l3ZBNe8zb5

Q8 JEE Main 2024 · 29 Jan · Shift 1

The interaction between π bond and lone pair of electrons present on an adjacent atom is responsible for

(A) Resonance effect
(B) Electromeric effect
(C) Hyperconjugation
(D) Inductive effect

Step-by-step solution ▸ prepwiser.in/questions/p68-c6ghkh

Q9 JEE Main 2024 · 27 Jan · Shift 1

Among the following, total number of meta directing functional groups is (Integer based)

$-\mathrm{OCH_3}, -\mathrm{NO_2}, -\mathrm{CN}, -\mathrm{CH_3} - \mathrm{NHCOCH_3}, -\mathrm{COR}, -\mathrm{OH}, -\mathrm{COOH}, -\mathrm{Cl}$

Numerical answer: enter the value.

Step-by-step solution ▸ prepwiser.in/questions/BgCBJnx1sw

Q10 JEE Main 2023 · 24 Jan · Shift 2

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

Assertion A : Benzene is more stable than hypothetical cyclohexatriene

Reason R : The delocalised π electron cloud is attracted more strongly by nuclei of carbon atoms.

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

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

Step-by-step solution ▸ prepwiser.in/questions/yNdIkboBVJ

Q11 JEE Main 2021 · 27 Jul · Shift 2

Given below are two statements :

Statement I : Hyperconjugation is a permanent effect.

Statement II : Hyperconjugation in ethyl cation $\left(CH_3 - \overset{+}{C}H_2\right)$ involves the overlapping of $C_{sp^2} - H_{1s}$ bond with empty 2p orbital of other carbon.

Choose the correct option :

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

Step-by-step solution ▸ prepwiser.in/questions/Q0AlQRgBFi

Stereoisomerism · 1 PYQs

Q12 JEE Main 2020 · 2 Sep · Shift 2

The one that is not expected to show isomerism is :

(A) $[Pt(NH_3)_2Cl_2]$

(B) $[Ni(NH_3)_4(H_2O)_2]^{2+}$

(C) $[Ni(en)_3]^{2+}$

(D) $[Ni(NH_3)_2Cl_2]$

Step-by-step solution ▸ prepwiser.in/questions/vd-gSC5RHO

IUPAC Nomenclature · 3 PYQs

Q13 JEE Main 2025 · 24 Jan · Shift 2

The hydrocarbon (X) with molar mass $80 g mol^{-1}$ and 90% carbon has _____ degree of unsaturation.

Numerical answer: enter the value.

Step-by-step solution ▸ prepwiser.in/questions/-OjMiieF5X

Q14 JEE Main 2024 · 31 Jan · Shift 1

Given below are two statements:

Statement I: IUPAC name of $HO-CH_2-(CH_2)_3-CH_2-COCH_3$ is 7-hydroxyheptan-2-one.

Statement II: 2-oxoheptan-7-ol is the correct IUPAC name for above compound. 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) 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.

Step-by-step solution ▸ prepwiser.in/questions/HyZHXspI4c

Q15 JEE Main 2022 · 25 Jun · Shift 1

The IUPAC name of ethylidene chloride is :

(A) 1-Chloroethene

(B) 1-Chloroethyne

(C) 1,2-Dichloroethane

(D) 1,1-Dichloroethane

Step-by-step solution ▸ prepwiser.in/questions/Y_lnq-ef9j

Acidity and Basicity · 5 PYQs

Q16 JEE Main 2024 · 8 Apr · Shift 2

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

$CH_3CH_2COOH, CH_3COOH, CH_3CH_2CH_2COOH, HCOOH$

(A) $HCOOH > CH_3CH_2CH_2COOH > CH_3CH_2COOH > CH_3COOH$

(B) $HCOOH > CH_3COOH > CH_3CH_2COOH > CH_3CH_2CH_2COOH$

(C) $CH_3CH_2CH_2COOH > CH_3CH_2COOH > CH_3COOH > HCOOH$

(D) $CH_3COOH > CH_3CH_2COOH > CH_3CH_2CH_2COOH > HCOOH$

Step-by-step solution ▸ prepwiser.in/questions/W5LMme57RP

Q17 JEE Main 2024 · 4 Apr · Shift 1

What will be the decreasing order of basic strength of the following conjugate bases?

$^-OH, R\overline{O}, CH_3CO\overline{O}, Cl$

(A) $C\bar{l} > R\overline{O} > {}^-OH > CH_3CO\overline{O}$

(B) $^-OH > R\overline{O} > CH_3CO\overline{O} > C\bar{l}$

(C) $C\bar{l} > {}^-OH > R\overline{O} > CH_3CO\bar{O}$

(D) $R\overline{O} > {}^-OH > CH_3CO\overline{O} > C\bar{l}$

Step-by-step solution ▸ prepwiser.in/questions/Xc4oIim9rP

Q18 JEE Main 2024 · 31 Jan · Shift 1

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

Assertion A: pK_a value of phenol is 10.0 while that of ethanol is 15.9 .

Reason R: Ethanol is stronger acid than phenol.

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

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

(D) A is true but R is false.

Step-by-step solution ▸ prepwiser.in/questions/a-_LC8Bwrg

Q19 JEE Main 2023 · 8 Apr · Shift 2

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

A. CH_3COOH

B. $F_3C - COOH$

C. $ClCH_2 - COOH$

D. $FCH_2 - COOH$

E. $BrCH_2 - COOH$

Choose the correct answer from the options given below:

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

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

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

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

Step-by-step solution ▸ prepwiser.in/questions/hgU8sRwCoV

Q20 JEE Main 2023 · 25 Jan · Shift 1

The correct order in aqueous medium of basic strength in case of methyl substituted amines is :

(A) $NH_3 > Me_3N > MeNH_2 > Me_2NH$

(B) $Me_3N > Me_2NH > MeNH_2 > NH_3$

(C) $Me_2NH > MeNH_2 > Me_3N > NH_3$

(D) $Me_2NH > Me_3N > MeNH_2 > NH_3$

Step-by-step solution ▸ prepwiser.in/questions/5u5KdgLyof

Reaction Intermediates · 1 PYQs

Q21 JEE Main 2025 · 3 Apr · Shift 2

Given below are two statements :

Statement I : Hyperconjugation is not a permanent effect.

Statement II : In general, greater the number of alkyl groups attached to a positively charged Cation, greater is the hyperconjugation interaction and stabilization of the cation.

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) Statement I is true but Statement II is false

(C) Both Statement I and Statement II are false

(D) Both Statement I and Statement II are true

Step-by-step solution ▸ prepwiser.in/questions/Aj1GEiOMTz

Structural Isomerism · 5 PYQs

Q22 JEE Main 2024 · 6 Apr · Shift 2

The incorrect statement regarding the geometrical isomers of 2-butene is :

(A) cis-2-butene and trans-2-butene are not interconvertible at room temperature.

(B) trans-2-butene is more stable than cis-2-butene.

(C) cis-2-butene has less dipole moment than trans-2-butene.

(D) cis-2-butene and trans-2-butene are stereoisomers.

Step-by-step solution ▸ prepwiser.in/questions/TaC4qqDuJQ

Q23 JEE Main 2024 · 4 Apr · Shift 1

The number of different chain isomers for C_7H_{16} is _____.

Numerical answer: enter the value.

Step-by-step solution ▸ prepwiser.in/questions/r6j8I7YDO9

Q24 JEE Main 2024 · 27 Jan · Shift 2

The incorrect statement regarding conformations of ethane is :

(A) The dihedral angle in staggered conformation is 60°.

(B) Ethane has infinite number of conformations.

(C) Eclipsed conformation is the most stable conformation.

(D) The conformations of ethane are inter-convertible to one-another.

Step-by-step solution ▸ prepwiser.in/questions/wenYw7SGFQ

Q25 JEE Main 2022 · 27 Jul · Shift 1

Optical activity of an enantiomeric mixture is $+12.6^{\circ}$ and the specific rotation of $(+)$ isomer is $+30^{\circ}$. The optical purity is _____$\%$.

Numerical answer: enter the value.

Step-by-step solution ▸ prepwiser.in/questions/kIBJIrF98E

Q26 JEE Main 2021 · 27 Jul · Shift 1

Staggered and eclipsed conformers of ethane are :

(A) Polymers

(B) Rotamers

(C) Enantiomers

(D) Mirror images

Step-by-step solution ▸ prepwiser.in/questions/zace0wI-hF

Answer key: General Organic Chemistry (GOC)

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

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

1 **C**	2 **A**	3 **B**	4 **D**	5 **C**	6 **B**	7 **B**	8 **A**
9 **4**	10 **B**	11 **C**	12 **D**	13 **3**	14 **B**	15 **D**	16 **B**
17 **D**	18 **D**	19 **C**	20 **C**	21 **A**	22 **C**	23 **9**	24 **C**
25 **42**	26 **B**						

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