

JEE MAIN ISOMERISM — PYQS

Max. Marks: 132

Questions: 33

Section A (MCQ) — 20 questions

Q.1 Given below are two statements :

Statement-I: 2,6-diethylcyclohexanone and 6-methyl-2-n-propylcyclohexanone are metamers.

Statement-II: 2,2,6,6-tetramethylcyclohexanone exhibits keto-enol tautomerism.

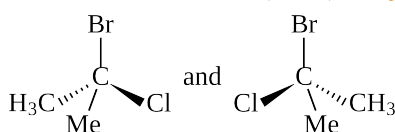
In the light of the above statements, choose the correct answer from the options given below :

[JEE Main 2026 (Online) 6th April Morning Shift]

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

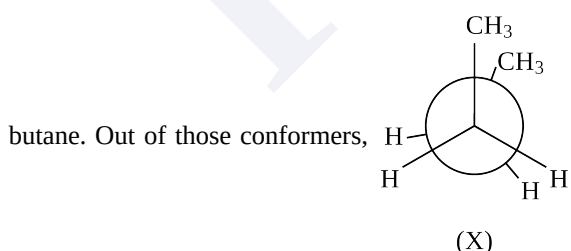
 Scan or tap for the full solution 
Q.2 The following structures are :

[JEE Main 2026 (Online) 4th April Evening Shift]

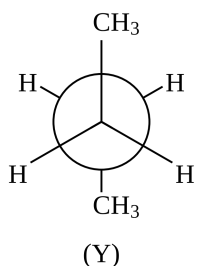


- (1) enantiomers.
- (2) identical molecules.
- (3) diastereomers.
- (4) meso compounds.

 Scan or tap for the full solution 
Q.3 Given below are two statements :

Statement-I: There are several conformers for n-


is the least stable and most stable conformer is


Statement-II: As the dihedral angle increases, torsional strain decreases from (X) to (Y).

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

[JEE Main 2026 (Online) 24th January Evening Shift]

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

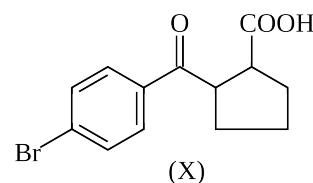
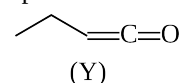
 Scan or tap for the full solution 
Q.4 Identify **correct** statements from the following :

- A. Propanal and propanone are functional isomers.
- B. Ethoxyethane and methoxypropane are metamers.
- C. But-2-ene shows optical isomerism.
- D. But-1-ene and but-2-ene are functional isomers.
- E. Pentane and 2,2-dimethylpropane are chain isomers.

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

[JEE Main 2026 (Online) 21st January Morning Shift]

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

 Scan or tap for the full solution 
Q.5 **Statement-I:** Compound (X), shown below, dissolves in NaHCO_3 solution and has two chiral carbon atoms

Statement-II: Compound (Y), shown below, has two carbons with sp^3 hybridization, one carbon with sp^2 and one carbon with sp hybridization

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

[JEE Main 2026 (Online) 21st January Evening Shift]

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

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

Scan or tap for the full solution



Q.6 Match List - I with List - II.

List - I Pair of Compounds		List - II Type of Isomers	
A.	2-Methylpropene and but-1-ene	I.	Stereoisomers
B.	Cis-but-2-ene and trans-but-2-ene	II.	Position isomers
C.	2-Butanol and diethyl ether	III.	Chain isomers
D.	But-1-ene and but-2-ene	IV.	Functional group isomers

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

[JEE Main 2026 (Online) 21st January Evening Shift]

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



Solution

Q.7 Given below are four compounds :

- (a) n-propyl chloride (b) isopropyl chloride
 (c) sec-butyl chloride (d) neopentyl chloride
 Percentage of carbon in the one which exhibits optical isomerism is :

[JEE Main 2026 (Online) 21st January Evening Shift]

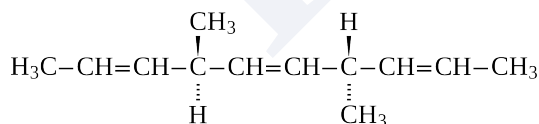
- (1) 46 (2) 40 (3) 52 (4) 56

Scan or tap for the full solution



Q.8 The number of optically active products obtained from the complete ozonolysis of the given compound is :

[JEE Main 2025 (Online) 7th April Evening Shift]



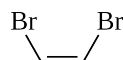
- (1) 4 (2) 0 (3) 2 (4) 1

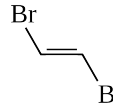
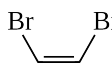
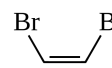
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Q.9 Given below are two statements :

Statement-I:  is more polar than



Statement-II: Boiling point of  is lower than  but it is more polar than .

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

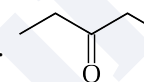
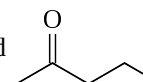
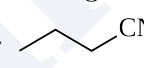
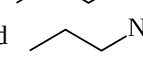
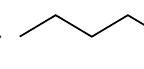
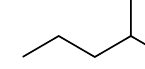
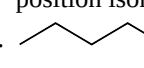
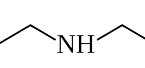
[JEE Main 2025 (Online) 7th April Evening Shift]

- (1) Both Statement-I and Statement-II are correct
 (2) Statement-I is incorrect but Statement-II is correct
 (3) Both Statement-I and Statement-II are incorrect
 (4) Statement-I is correct but Statement-II is incorrect

Scan or tap for the full solution



Q.10 Identify the correct statements from the following. Choose the correct answer from the options given below:

- A.  and  are metamers
 B.  and  are functional isomers
 C.  and  are position isomers
 D.  and  are homologous

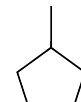
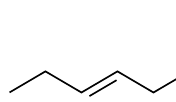
[JEE Main 2025 (Online) 3rd April Morning Shift]

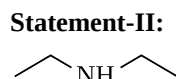
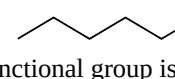
- (1) B & C Only (2) C & D Only
 (3) A, B & C Only (4) A & B Only

Scan or tap for the full solution



Q.11 Given below are two statements:

Statement-I:  and  are isomeric compounds.

Statement-II:  and  are functional group isomers.

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

[JEE Main 2025 (Online) 28th January Evening Shift]

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

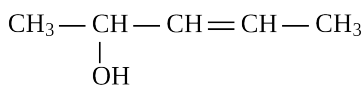
(4) Both Statement-I and Statement-II are false

Scan or tap for the full solution



Q.12 How many different stereoisomers are possible for the given molecule?

[JEE Main 2025 (Online) 22nd January Morning Shift]



- (1) 2 (2) 1 (3) 3 (4) 4

Scan or tap for the full solution



Q.13 The incorrect statements regarding geometrical isomerism are :

- Propene shows geometrical isomerism.
- Trans isomer has identical atoms/groups on the opposite sides of the double bond.
- Cis-but-2-ene has higher dipole moment than trans-but-2-ene.
- 2-methylbut-2-ene shows two geometrical isomers.
- Trans-isomer has lower melting point than cis isomer.

Choose the correct answer from the options given below :

[JEE Main 2025 (Online) 22nd January Morning Shift]

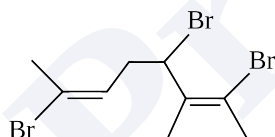
- (1) A and E Only (2) A, D and E Only
(3) C, D and E Only (4) B and C Only

Scan or tap for the full solution



Q.14 Total number of stereo isomers possible for the given structure :

[JEE Main 2024 (Online) 9th April Evening Shift]



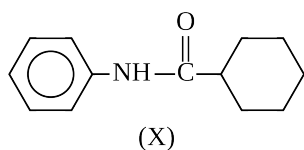
- (1) 4 (2) 2 (3) 8 (4) 3

Scan or tap for the full solution

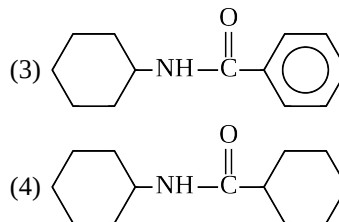


Q.15 Which of the following is metamer of the given compound (X) ?

[JEE Main 2024 (Online) 6th April Morning Shift]



- (1)
- (2)



Scan or tap for the full solution



Q.16 The incorrect statement regarding the geometrical isomers of 2-butene is :

[JEE Main 2024 (Online) 6th April Evening Shift]

- cis-2-butene and trans-2-butene are not interconvertible at room temperature.
- trans-2-butene is more stable than cis-2-butene.
- cis-2-butene has less dipole moment than trans-2-butene.
- cis-2-butene and trans-2-butene are stereoisomers.

Scan or tap for the full solution



Q.17 Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A): Cis form of alkene is found to be more polar than the trans form.

Reason (R): Dipole moment of trans isomer of 2-butene is zero.

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

[JEE Main 2024 (Online) 5th April Morning Shift]

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

Scan or tap for the full solution



Q.18 Match List - I with List - II.

LIST I (Pair of Compounds)		LIST II (Isomerism)	
A.	n-propanol and Isopropanol	I.	Metamerism
B.	Methoxypropane and ethoxyethane	II.	Chain Isomerism
C.	Propanone and propanal	III.	Position Isomerism
D.	Neopentane and Isopentane	IV.	Functional Isomerism

Choose the correct answer from the options given below : [JEE Main 2024 (Online) 5th April Evening Shift]

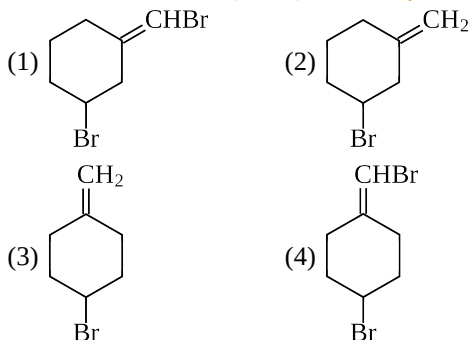
- (1) (A)-(II), (B)-(I), (C)-(IV), (D)-(III)
 (2) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)
 (3) (A)-(III), (B)-(I), (C)-(IV), (D)-(II)
 (4) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)

Scan or tap for the
full solution



Q.19 Which one of the following will show geometrical isomerism?

[JEE Main 2024 (Online) 29th January Evening Shift]

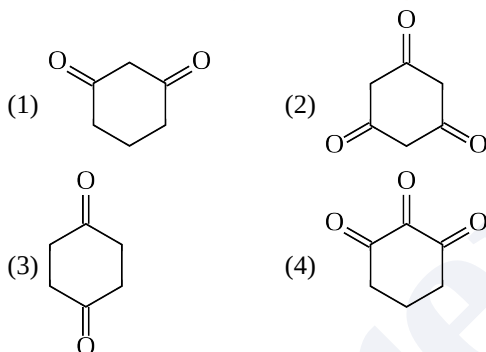


Scan or tap for the
full solution



Q.20 Highest enol content will be shown by:

[JEE Main 2024 (Online) 27th January Morning Shift]



Scan or tap for the
full solution



Section B (Numerical) — 13 questions

Q.21 Consider the isomers of hydrocarbon with molecular formula C_5H_{10} . These isomers do not decolourise $KMnO_4$ solution. These isomers are subjected to chlorination with chlorine in presence of light to give monochloro compounds. The total number of monochloro compounds (structural isomers only) formed is _____.

[JEE Main 2026 (Online) 2nd April Morning Shift]

Scan or tap for the
full solution



Q.22 Consider all the structural isomers with molecular formula $C_5H_{11}Br$ are separately treated with $KOH(aq)$ to give respective substitution products, without any rearrangement. The number of products which can exhibit optical isomerism from these is _____.

[JEE Main 2026 (Online) 23rd January Morning Shift]

Scan or tap for the
full solution



Q.23 The total number of structural isomers possible for the substituted benzene derivatives with the molecular formula C_9H_{12} is _____.

[JEE Main 2025 (Online) 3rd April Evening Shift]

Scan or tap for the
full solution



Q.24 The possible number of stereoisomers for 5-phenylpent-4-en-2-ol is _____.

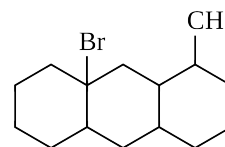
[JEE Main 2025 (Online) 24th January Evening Shift]

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full solution



Q.25 The number of optical isomers in following compound is : _____.

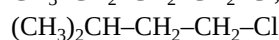
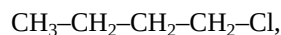
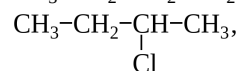
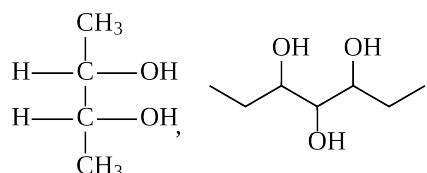
[JEE Main 2024 (Online) 8th April Morning Shift]



Scan or tap for the
full solution



Q.26 The number of optically active compounds from the following is _____.



[JEE Main 2024 (Online) 8th April Evening Shift]

Scan or tap for the
full solution



Q.27 The number of different chain isomers for C_7H_{16} is _____.

[JEE Main 2024 (Online) 4th April Morning Shift]

Scan or tap for the
full solution



- Q.28** Number of optical isomers possible for 2-chlorobutane _____.

[JEE Main 2024 (Online) 1st February Morning Shift]

Scan or tap for the full solution



- Q.29** Total number of isomeric compounds (including stereoisomers) formed by monochlorination of 2-methylbutane is _____.

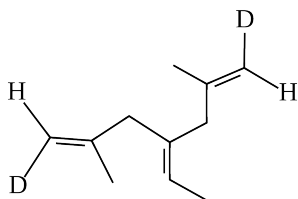
[JEE Main 2024 (Online) 1st February Evening Shift]

Scan or tap for the full solution



- Q.30** Number of geometrical isomers possible for the given structure is/are _____.

[JEE Main 2024 (Online) 30th January Evening Shift]



Scan or tap for the full solution



- Q.31** 2-chlorobutane + Cl₂ → C₄H₈Cl₂ (isomers)
Total number of optically active isomers shown by C₄H₈Cl₂, obtained in the above reaction is _____.

[JEE Main 2024 (Online) 30th January Evening Shift]

Scan or tap for the full solution



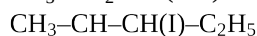
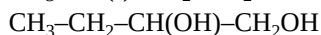
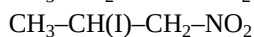
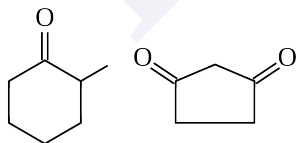
- Q.32** 3-Methylhex-2-ene on reaction with HBr in presence of peroxide forms an addition product (A). The number of possible stereoisomers for 'A' is _____.

[JEE Main 2024 (Online) 27th January Morning Shift]

Scan or tap for the full solution



- Q.33** Total number of compounds with Chiral carbon atoms from following is _____.



[JEE Main 2024 (Online) 27th January Evening Shift]

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ANSWER KEY

Section A (MCQ) — 20 questions

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	3	2	4	1	2	1	3	2	4	4	2
Ques.	12	13	14	15	16	17	18	19	20		
Ans.	4	2	3	3	3	3	3	1	2		

Section B (Numerical) — 13 questions

Ques.	21	22	23	24	25	26	27	28	29	30	31
Ans.	14	3	8	4	32	1	9	2	6	4	6
Ques.	32	33									
Ans.	4	5									