

CHAPTER 8.6

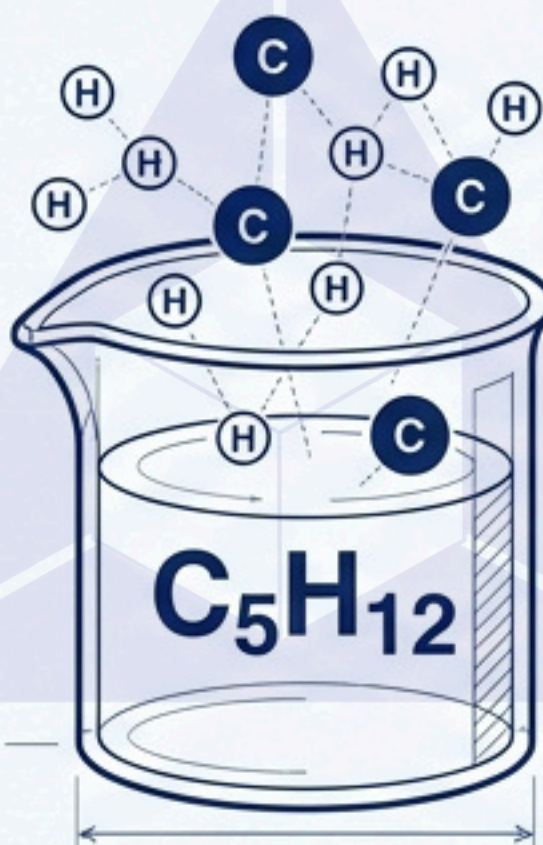
Isomerism: The Architecture of Molecules

Understanding how identical atomic ingredients assemble into divergent structures.

Foundational Organic Chemistry

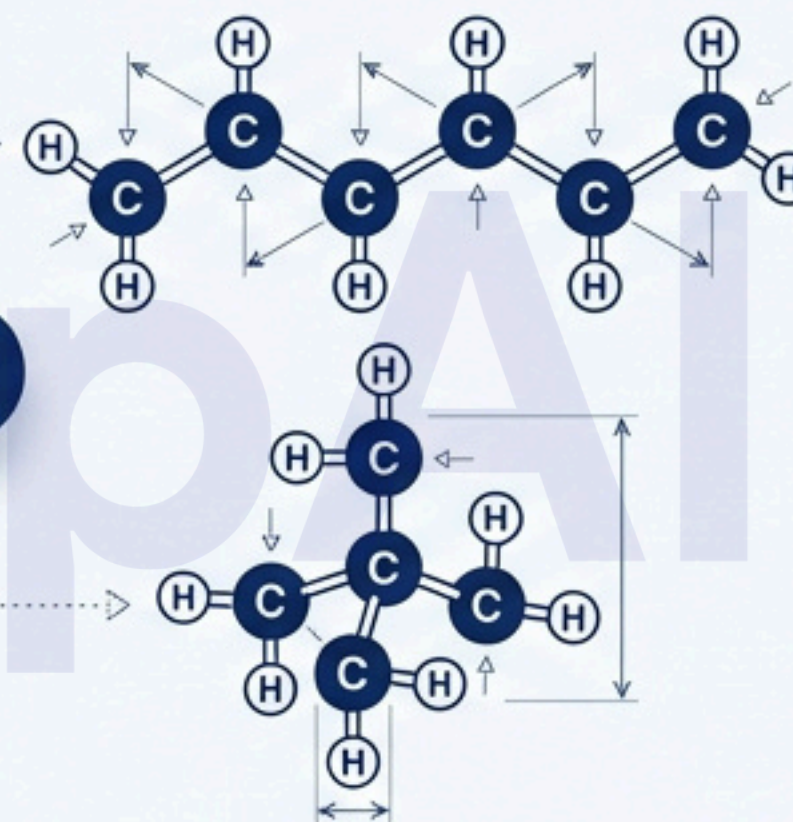
The Core Paradox

Identical Ingredients



Compounds sharing the exact same molecular formula (the raw atomic count).

Divergent Results

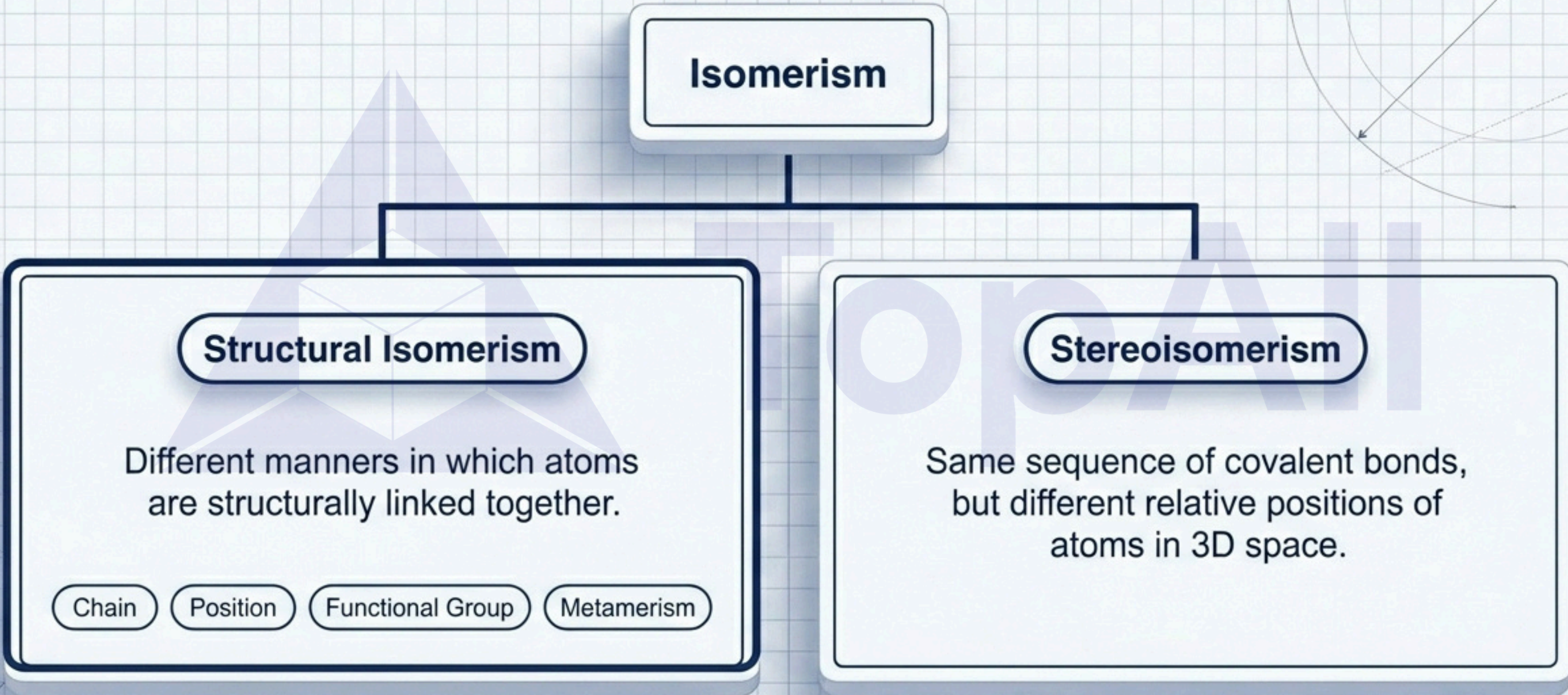


Fundamentally different physical and chemical properties due to how those atoms are arranged in space.

Definition: Isomerism

The Two Domains of Isomerism

Isomerism



```
graph TD; Isomerism --> StructuralIsomerism[Structural Isomerism]; Isomerism --> Stereoisomerism[Stereoisomerism]; StructuralIsomerism --> Chain[Chain]; StructuralIsomerism --> Position[Position]; StructuralIsomerism --> FunctionalGroup[Functional Group]; StructuralIsomerism --> Metamerism[Metamerism];
```

Structural Isomerism

Different manners in which atoms are structurally linked together.

Chain

Position

Functional Group

Metamerism

Stereoisomerism

Same sequence of covalent bonds, but different relative positions of atoms in 3D space.



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



Turn theory into marks with **unlimited MCQs, smart analysis, and focused revision.**

Practice Now



At prep.topall.app

Key Highlights

- » Free Study Material, Videos & Infographics
- » Push Your Limits with Level-Based Challenges
- » Climb the Leaderboard Among Fellow Aspirants
- » Practice Unlimited MCQs for NEET & JEE
- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter



Structural Isomerism: Skeletons & Positions

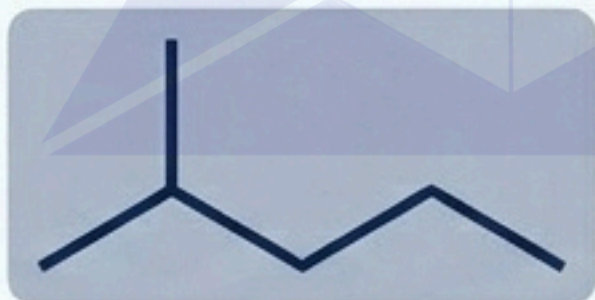
Chain Isomerism

Different carbon skeletons.

Formula: C_5H_{12}



Pentane



Isopentane

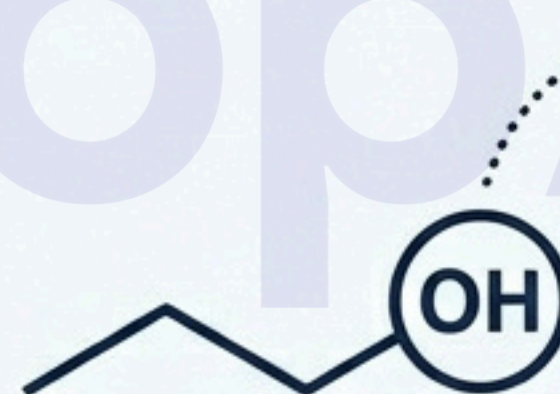


Neopentane

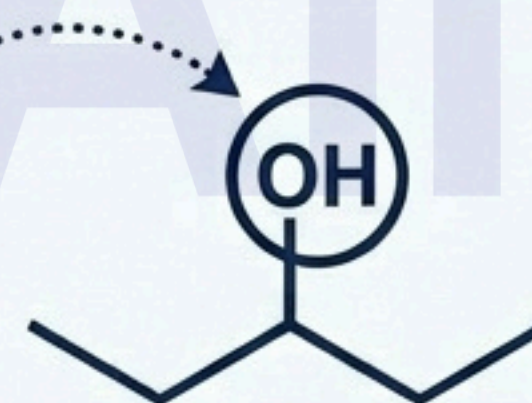
Position Isomerism

Different position of a functional group.

Formula: C_3H_8O



Propan-1-ol



Propan-2-ol

Structural Isomerism: Functions & Chains

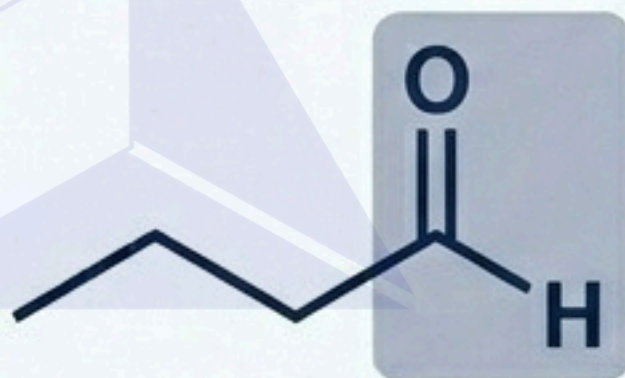
Functional Group Isomerism

Completely different functional groups.

Formula: C_3H_6O



Propanone
(Ketone)

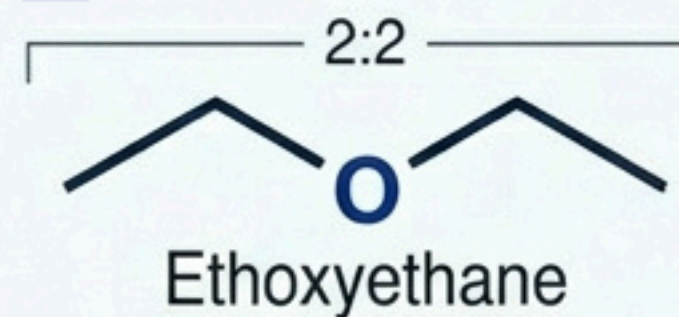
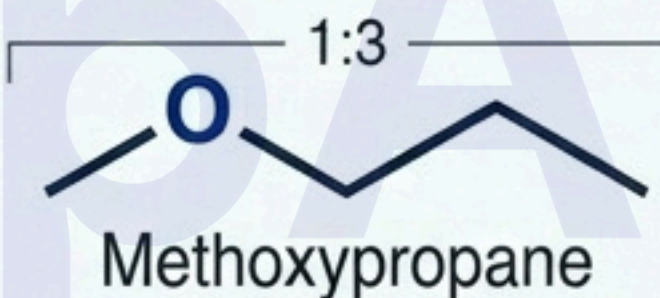


Propanal
(Aldehyde)

Metamerism

Different alkyl chains around a polyvalent group.

Formula: $C_4H_{10}O$



Synthesis

Exam Focus: Mental Model

- Isomers share a **molecular formula** but possess completely different physical and chemical properties.
- The primary classification asks one core question: Do they differ in atomic linkage (**Structural**) or spatial arrangement (**Stereo**)?
- The 4 Structural Differentiators:

Skeleton (Chain) → Group Location (Position) → Group Identity (Functional) → Chain Distribution (Metamerism)



You've Learned the Theory.

Now Let's Test It.

Reading notes gets you knowledge.

Practicing MCQs gets you marks.

That's exactly what TopAll Pro is built for.

Try TopAll Pro Now

What TopAll Pro Does Differently

-  **Stuck? Snap it. Solve it. — Doubts AI**
Photo → step-by-step solution in seconds, 24/7
-  **Your AI Coach finds your blind spots**
Concept-level weakness detection — not just chapter-level
-  **4.5 Lakh+ questions. Never run out.**
13× more content than any other prep app in India
-  **Build your own test in 60 seconds**
Pick a chapter, set difficulty — AI does the rest instantly.
-  **AI Recommendation that helps you improve**
AI Recommendation Analysis your Tests and tell you where you need to improve.



Practice the moment you finish studying
Jump in while the concept is still fresh in your head

4.5L+
MCQs

1.5L+
Students

AI Powered
In-Depth Analysis