

VIDYAPEETH



BATCH CODE: 19-PJ301EA 2025

SUBJECT NAME: CHEMISTRY

CHAPTER NAME:

Organic chemistry IUPAC Nomenclature

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Lecture No.

02

By – Swapnil Sir



Today's Goal



Subtopic

I.U.P.A.C. Nomenclature

→ Saturated Hydrocarbons

→ Unsaturated Hydrocarbons

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I.U.P.A.C. System



Prefix + Root word + Suffix-I + Suffix-II

⇒ R.O.W. ⇒ Longest possible chain ^{#1} ⇒ no. of carbons present ⇒ R.O.W.

C₁ = meth

C₄ = But

C₇ = Hept

C₁₀ = Dec

C₂ = Eth

C₅ = Pent

C₈ = Oct

C₁₁ = UnDec

C₃ = Prop

C₆ = Hex

C₉ = Non

C₁₂ = dodec

Suffix-I

⇒ Bonds in longest possible chain, between carbon

—ane

= ene

≡ yne



Suffix-II \Rightarrow functional group presence $\begin{cases} \rightarrow \text{monofunctional} \\ \rightarrow \text{poly functional} \end{cases}$

\rightarrow monofunctional \Rightarrow S-II

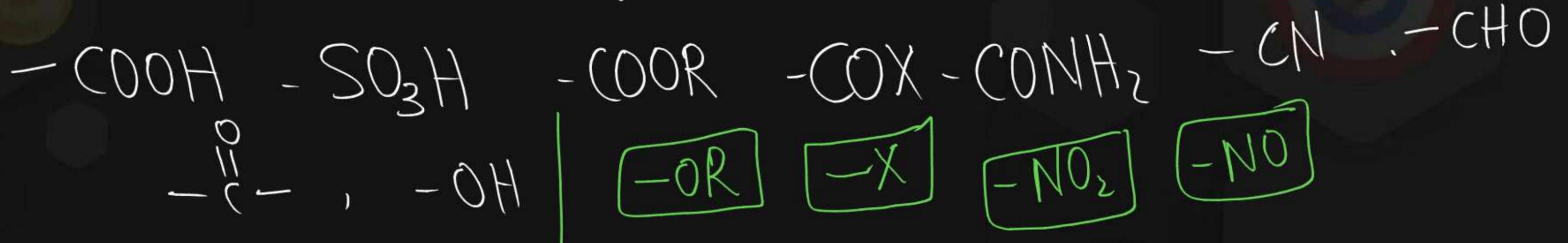
\rightarrow polyfunctional \Rightarrow S-II \Rightarrow most senior group ^{#2}

& rest all functional groups serves as

Prefix

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\rightarrow functional group $\begin{cases} \rightarrow \text{Suffix-II} \\ \rightarrow \text{Prefix} \end{cases}$



Prefix →

Longest possible chain

Substituent

Hydrocarbon ✓
functional group ✓



Hydrocarbons →

ALK ane → yl.
ene → enyl
yne

CH₄ Metane
CH₃-CH₃ Ethane
CH₃-CH₂-CH₃ Propane
1° 2° 1°

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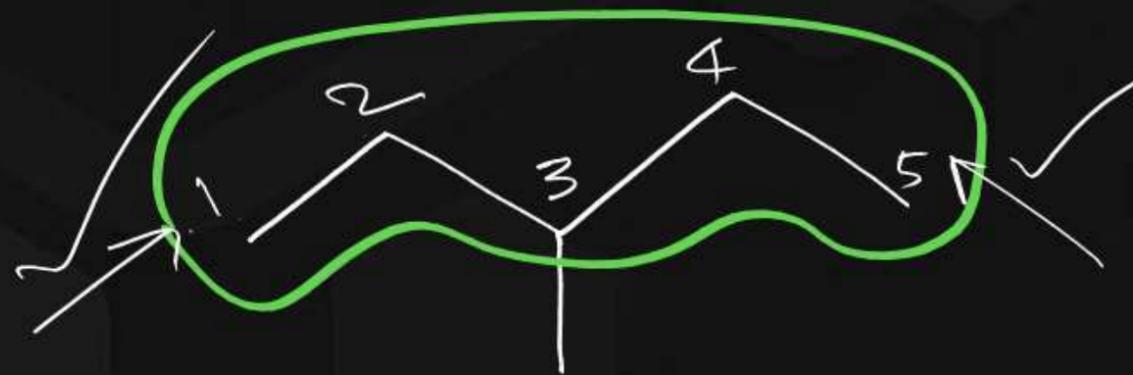
-CH₃
-CH₂-CH₃
-CH₂-CH₂-CH₃
CH₃-CH-CH₃
|

>CH₂
normal n-
n-propyl
s-propyl

Rules to writing IUPAC name



RW = Pent , s-I = ane , P = methyl



3-methylpentane

Always mention position of substituent

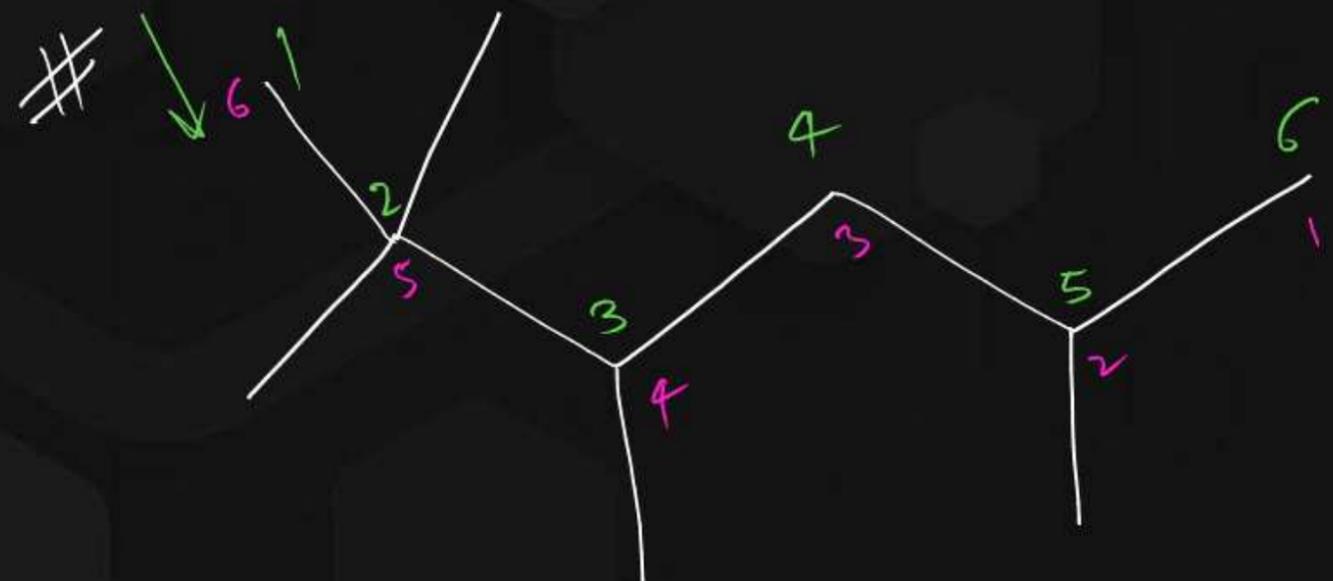
assign lowest position. (F.P.D.)

assign lowest number started from the end where F.P.D. gets lowest



2-methylpentane

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~~2+4+5+5 = 16~~

$2+2+3+5$

$\Rightarrow 12$

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2,2,3,5-tetramethylhexane

RW-HEX 1 5-1 = 11

Prefix \rightarrow

lowest sum of locant Rule

if different substituent write in alphabetical order

- # di^o
- tri^o
- tetra
- penta
- hexa





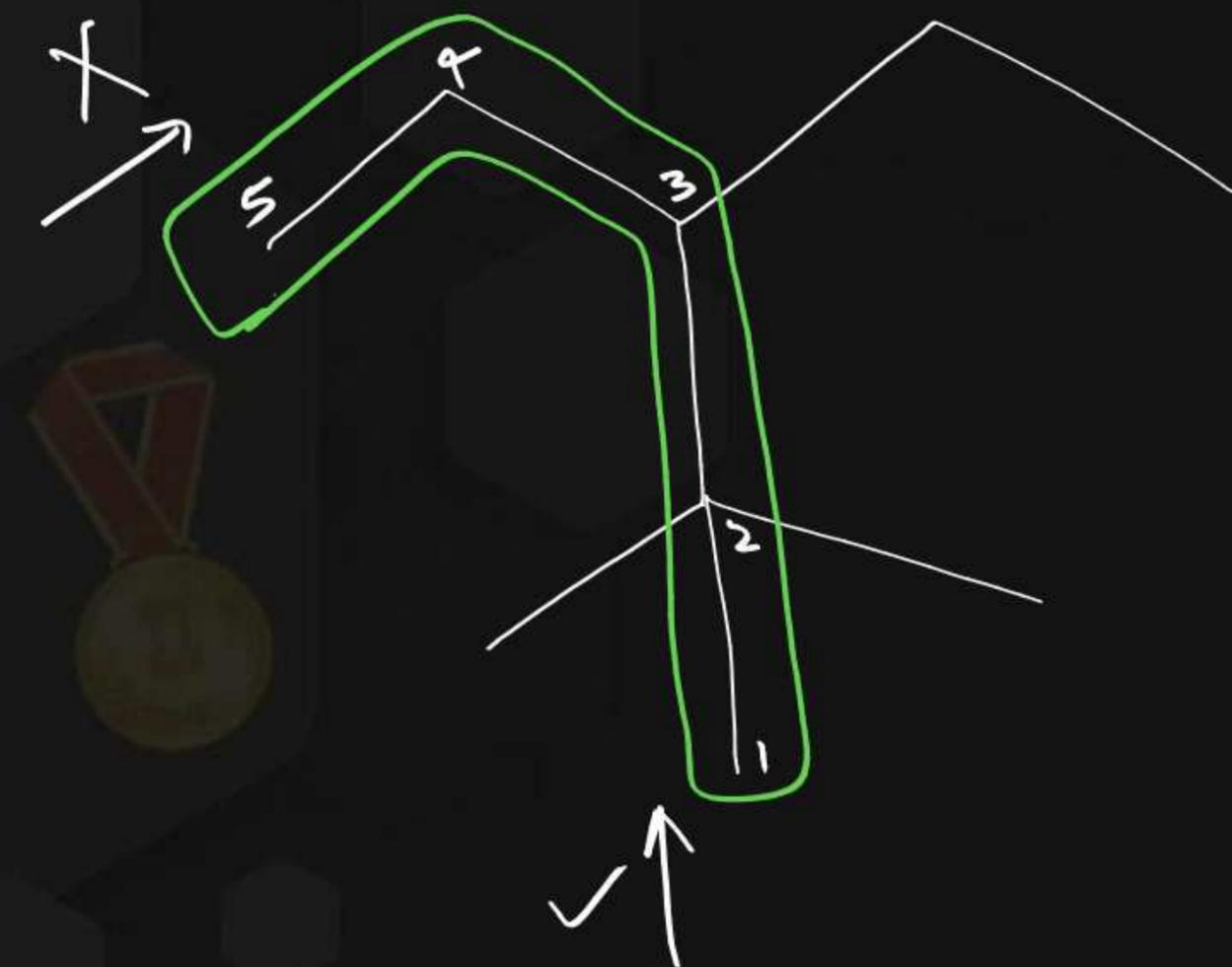
more than one possible chain
 → select longest chain containing max^o
 number of substituents.

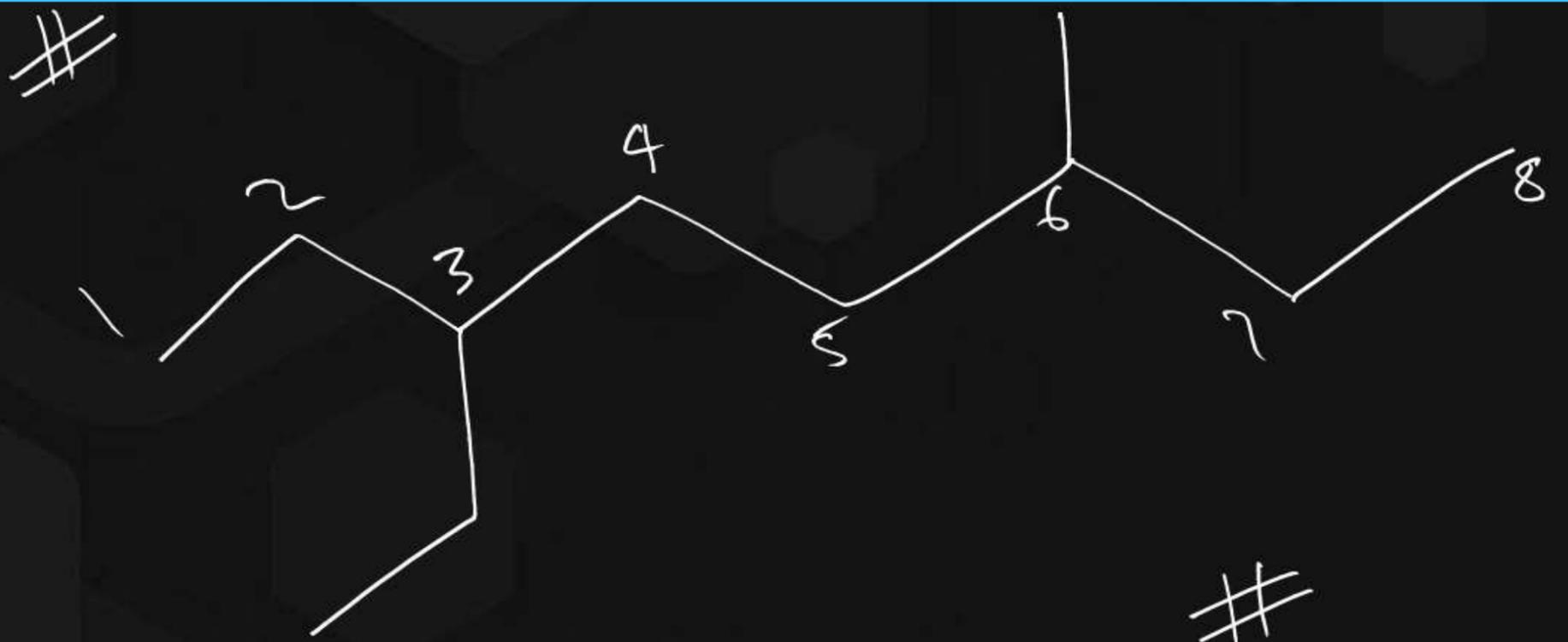
RW = Pent , S-I = ane.

Prefix → 2, 2, 3

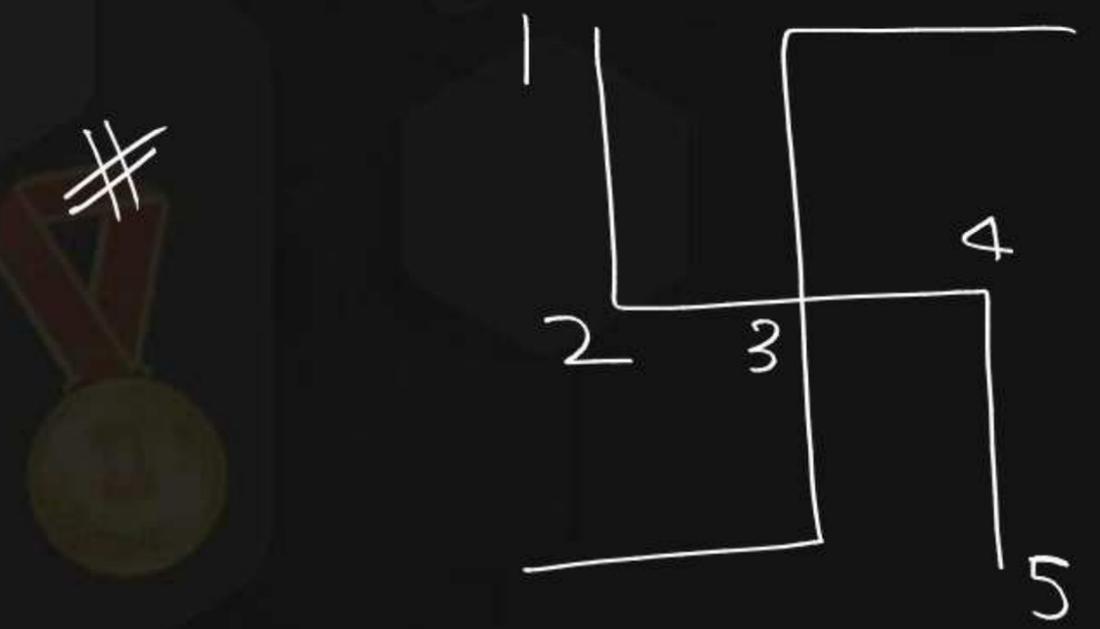
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3-ethyl-2,2-dimethylpentane.

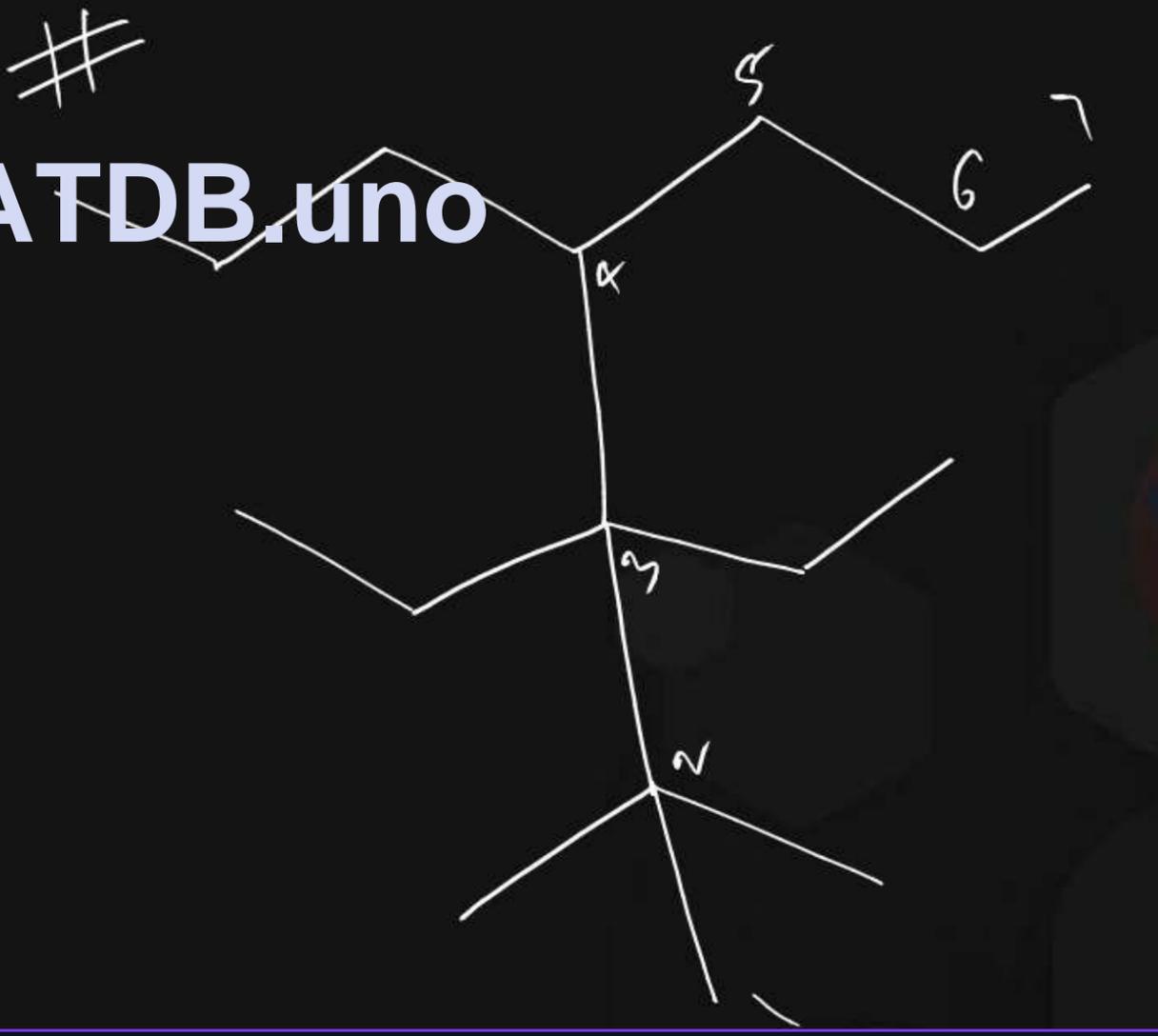




F.P.D. Same from either side than preference by using alphabetical

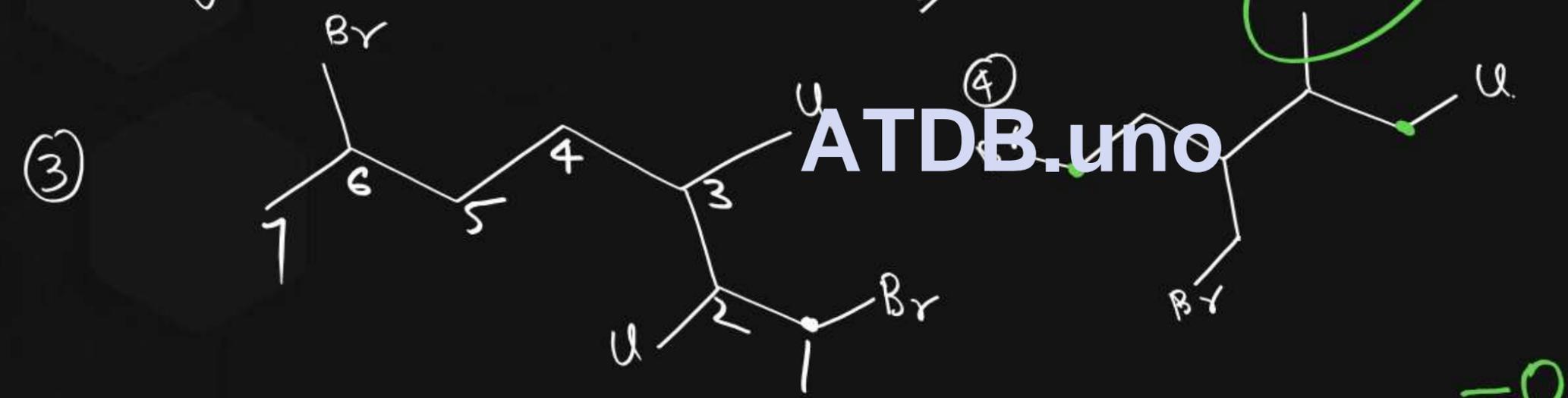
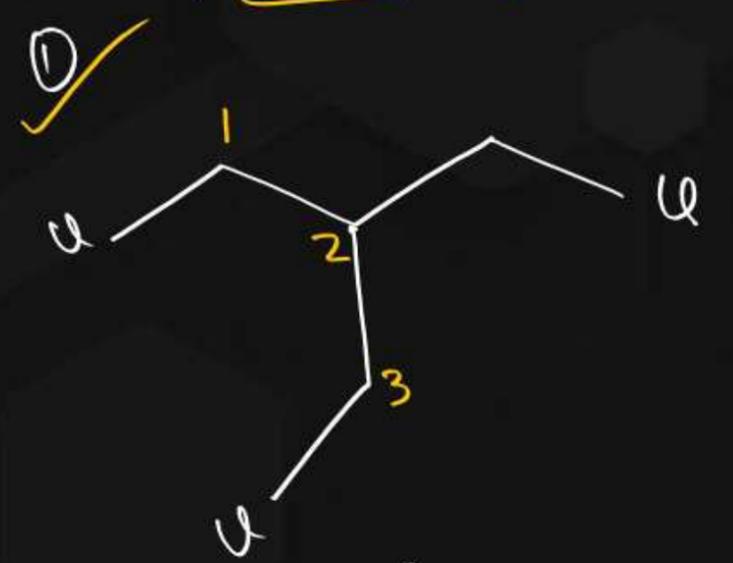


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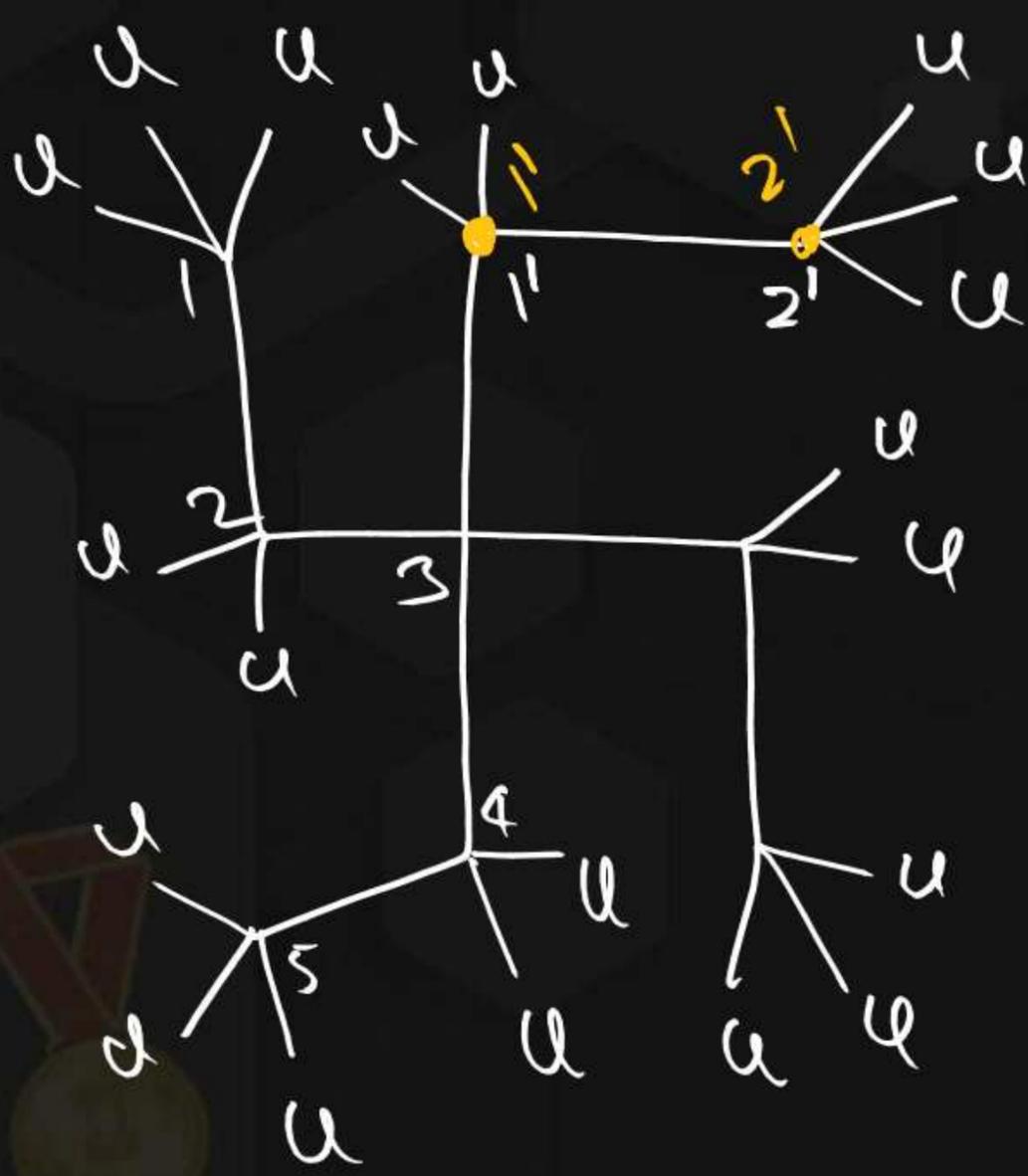


Halo → prefix.

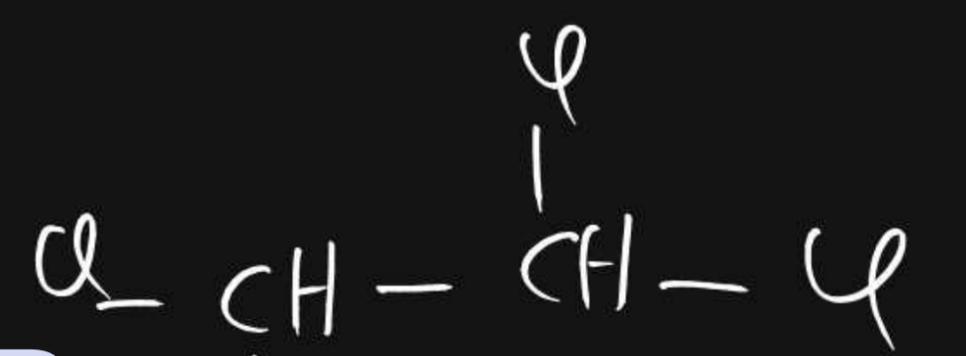


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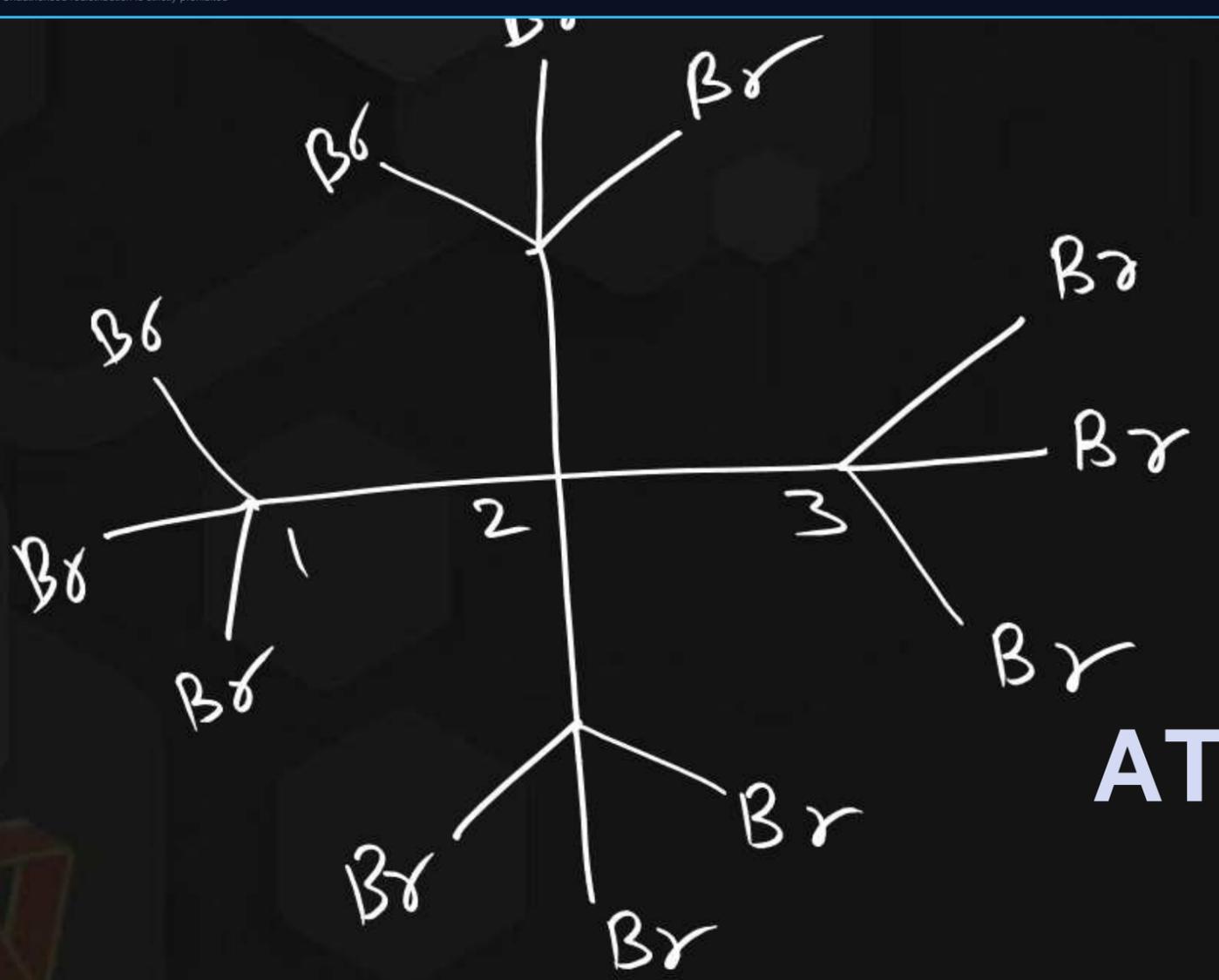
alkoxy
-O-R
methoxy



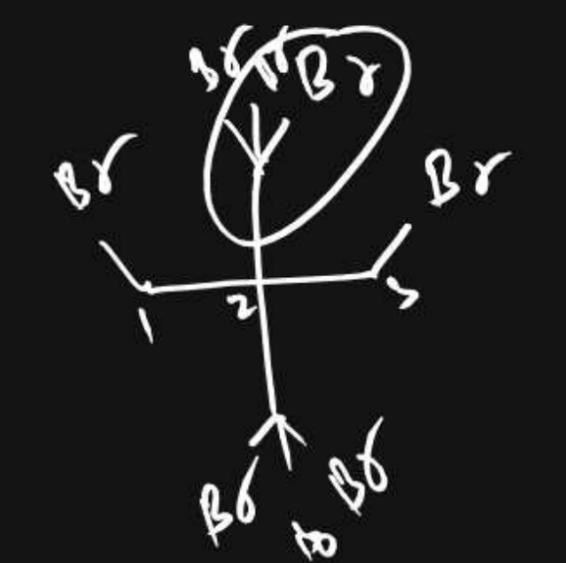
3,3-bis(1,1,2,2,2-pentachloro ethyl) - 1,1,1,2,2,4,4,5,5,5
 dichloro
Pentane



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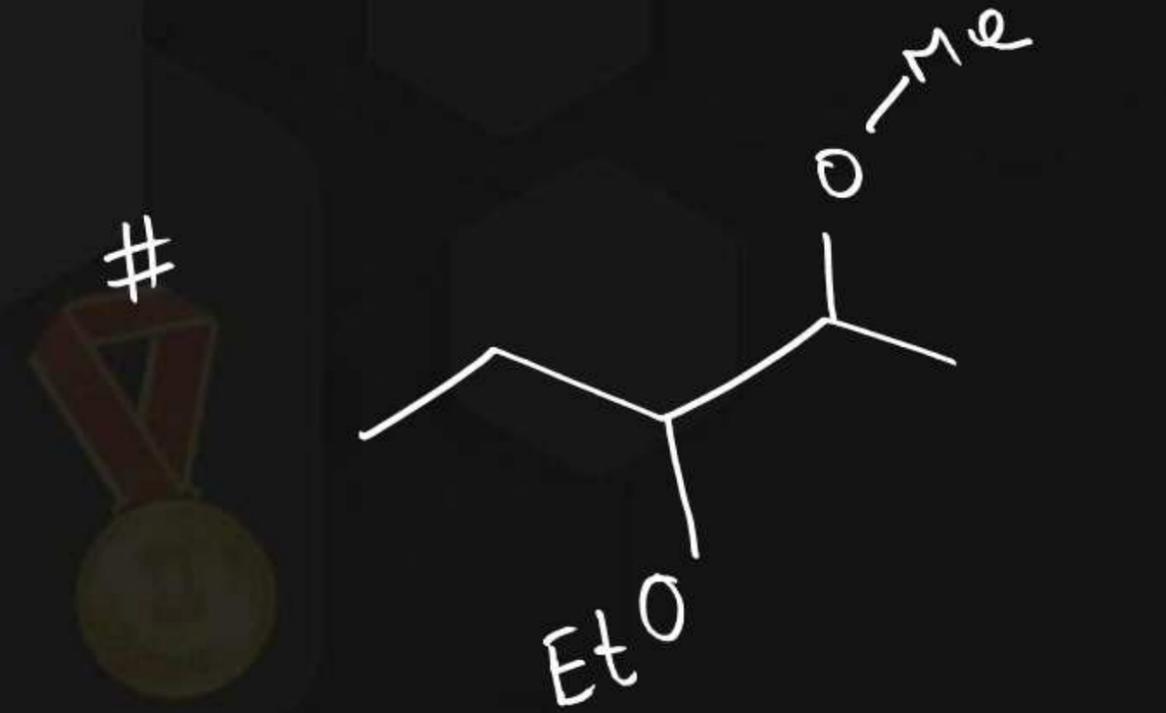
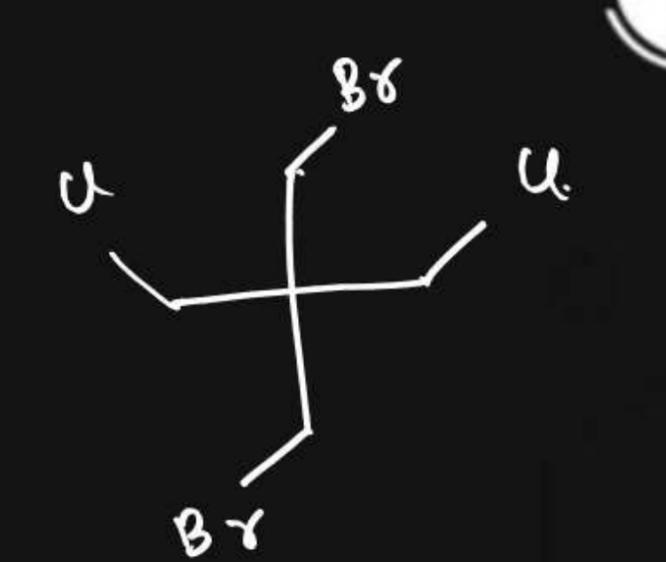
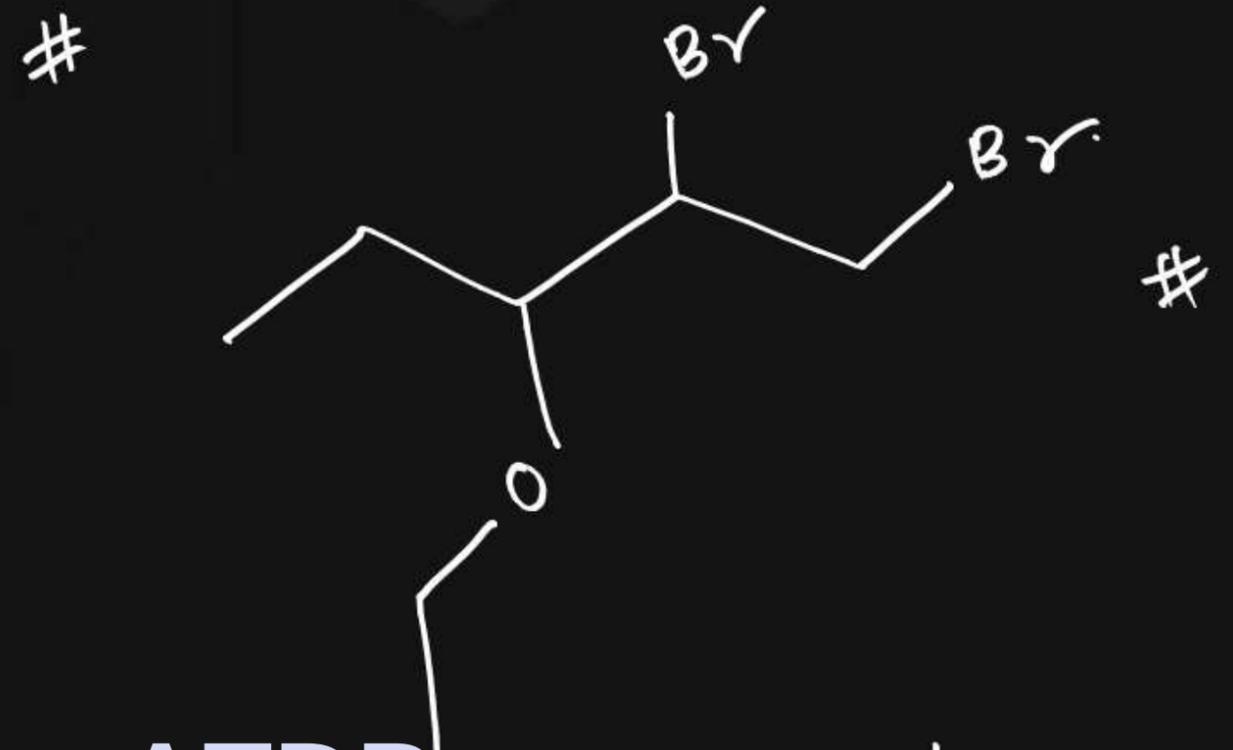
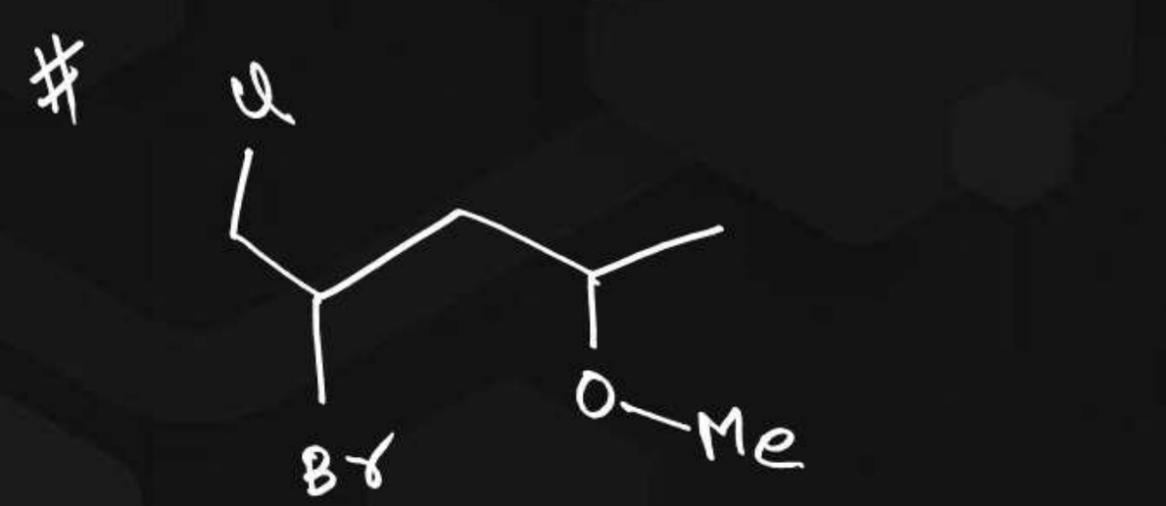


CH₃ PO - CH₂ - CH₂ PO₃
 - CH/Br₂



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➤ 1,1,1,3,3,3 hexabromo 2,2-dibromomethylpropane



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Side Chain within Side chain



(1,1-dimethyl ethyl)

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(1-methylpropyl)

5-()-6-() Decane



for complex chain

- 2 → bis
- 3 → tris
- 4 → tetrakis

(2',2'-dimethylpropyl)

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4,4-bis()-2,2,6,6-tetramethyl
Heptane



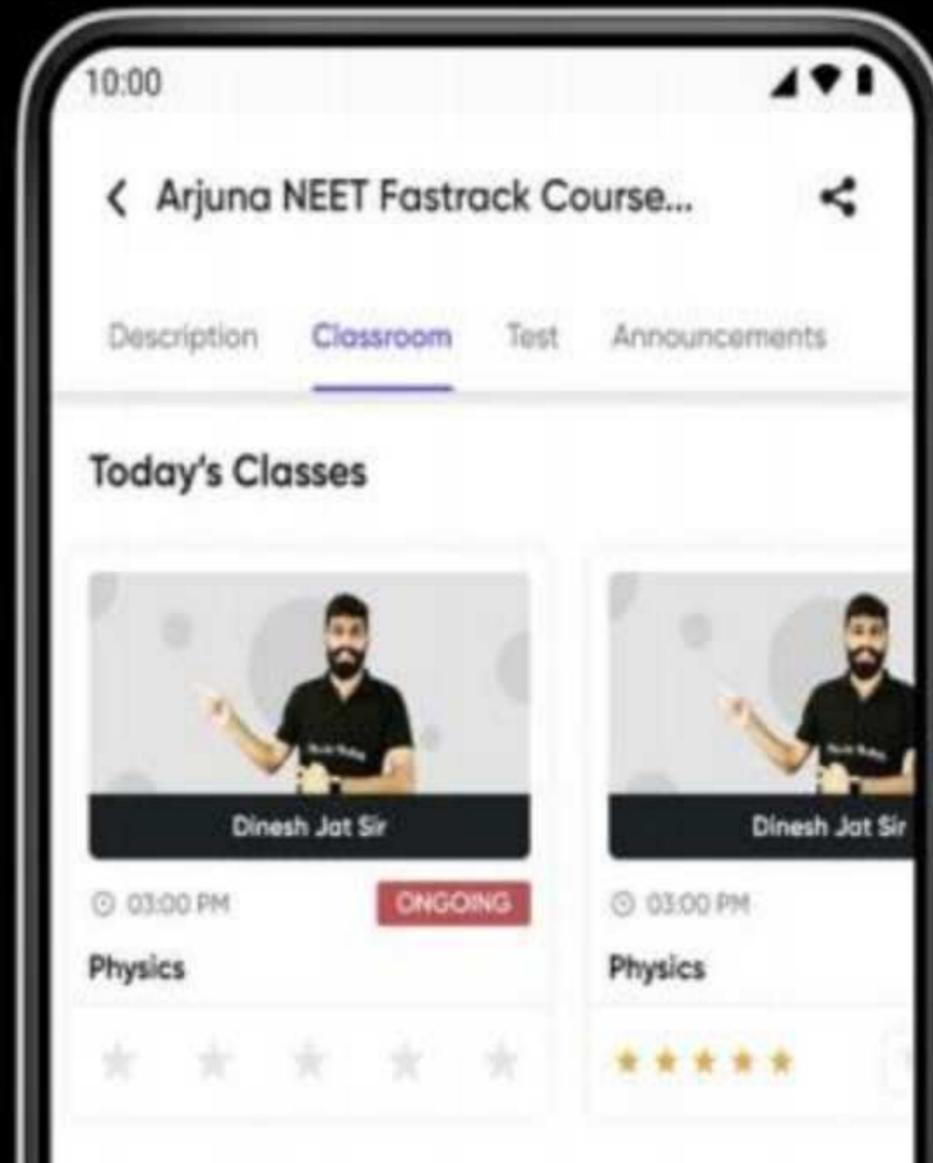
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Rate your today's class in the Batch



Solve the DPP and check Solution



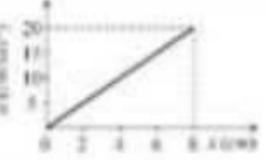
"SCAN" to join our "TELEGRAM" channel


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WORK, POWER AND ENERGY

DPP-1 (JAP/046)

[Introduction, Definition of work, work done by constant force, Area under force-displacement curve]

<p>1. A particle moves from position $\vec{r}_1 = 3\hat{i} + 2\hat{j} - 6\hat{k}$ to position $\vec{r}_2 = 14\hat{i} + 13\hat{j} + 9\hat{k}$ under the action of force $-4\hat{i} + \hat{j} + 3\hat{k}$ N. The work done by this force will be</p> <p>(A) 100 J (B) 50 J</p>	 <p>(A) 8×10^{-2} joules (B) 16×10^{-2} joules (C) 4×10^{-4} joules</p>
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Thank You!!!!

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