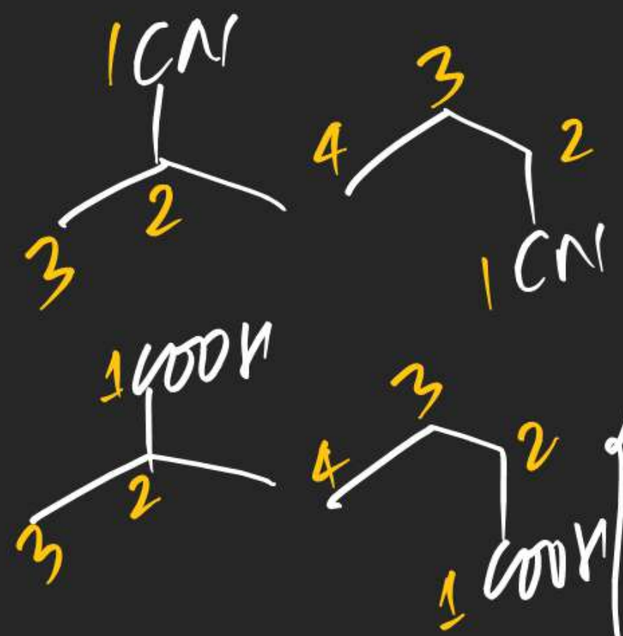
Nishant Jindal

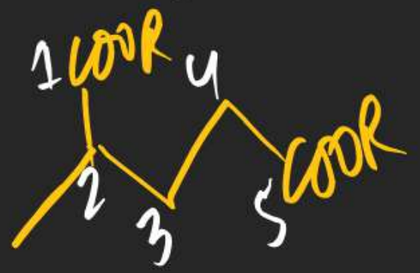
Structural Isomerism

HW (Discussion)

Chain isomerism



(1) not isomer
(2) Chain isomer
(3) Chain isomer
(4) "
(5) "
(6) "
(7) "
(8) "
(9) "
(10) "



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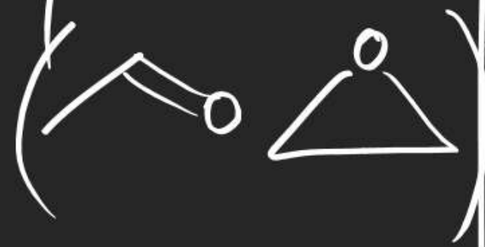
Structural Isomerism

Ring chain isomerism HW discussion

(11) Ring chain



(12) "

(13) "

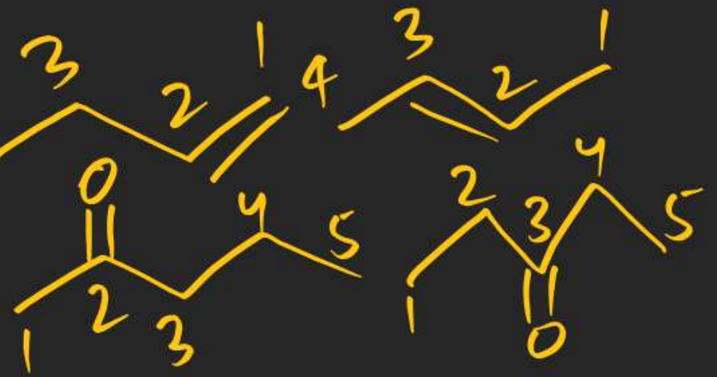
(14) "

Position isomerism

(16) X

(17) Position isomer

(18) "

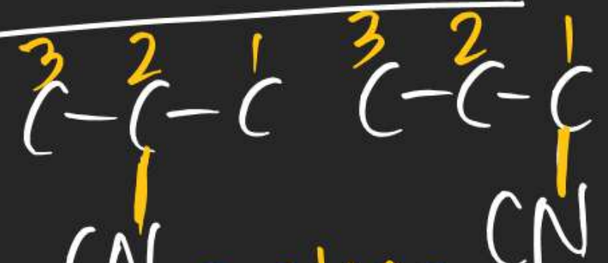


(19) "

(20) "

(21) "

(25)



Position isomer.

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Structural Isomerism

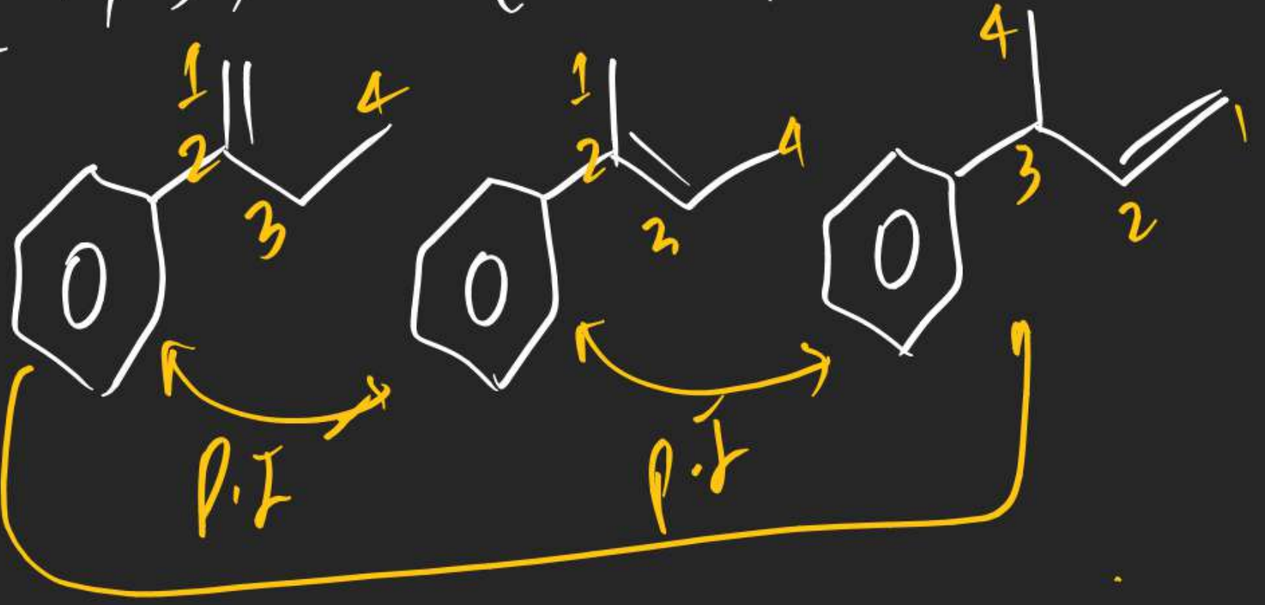
(26) 

Position isomers

(27) 

(Position isomers)

(1, 3) (1, 4)

(28) 

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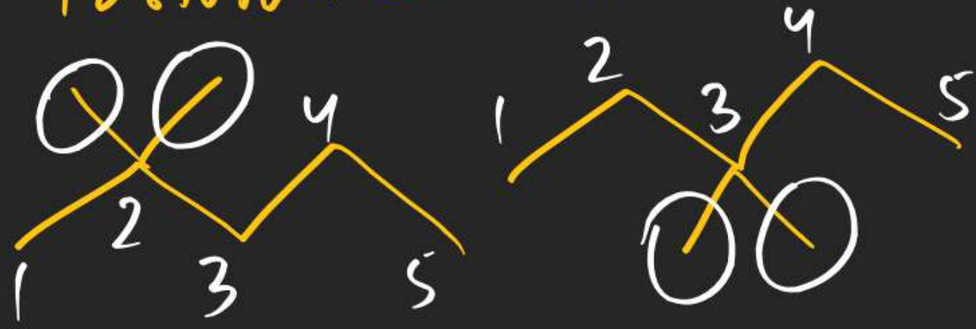
Structural Isomerism

(29) Position isomers

(30) 

Position isomers

NOTE Functional isomerism:

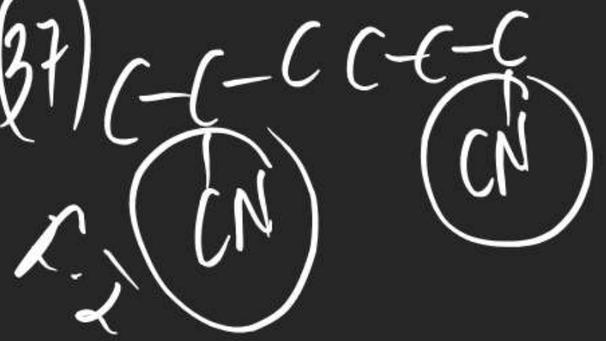
(32) FI (Ketone, Aldehyde)

(33) " (Acid, Ester)

(34) " (Aldehyde, Alcohol)

(35) " (double, Triple)

(36) " (primary, Sec, Tert Amine)

(37) 

Structural Isomerism

(38) F.I (Primy, Sec & Tert. Acid amide)

New discussion metamerism

(44) metamers

(45) ''

(46) ''

(47) identical

(48) metamers

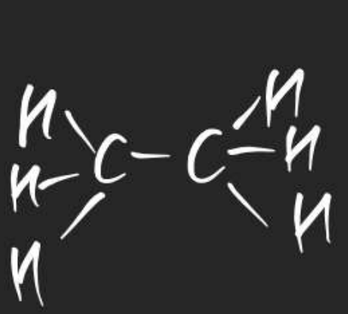
(49) ''

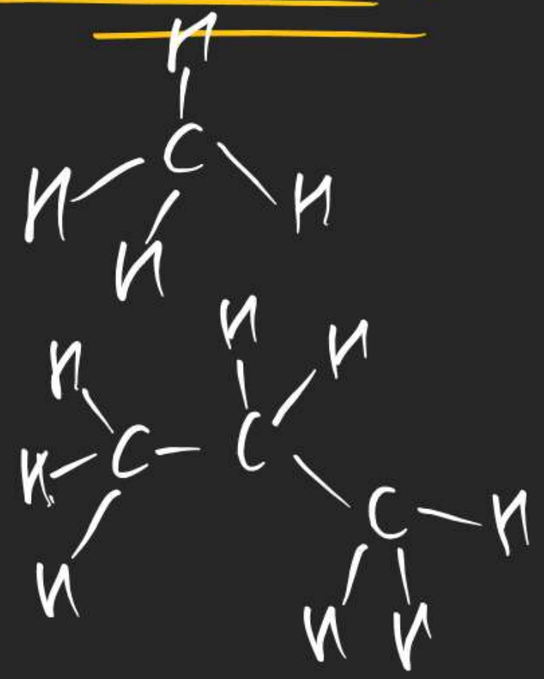
(50) metamers

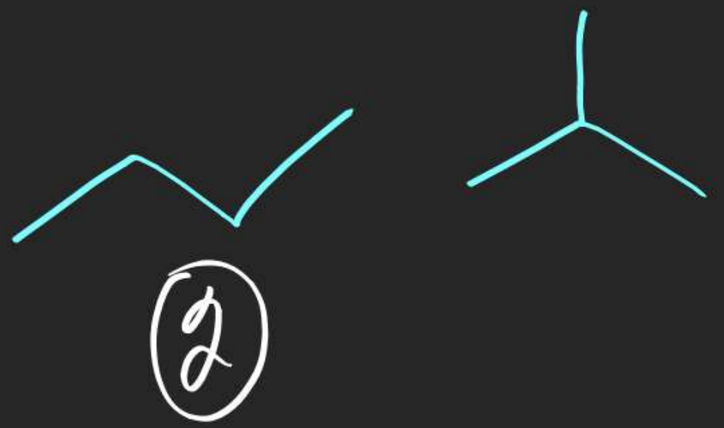
Structural Isomerism

(#) Calculation of Structul Isomers :

	Str. Isomers
(1) CH_4	X
(2) C_2H_6	X
(3) C_3H_8	X
(4) C_4H_{10}	2







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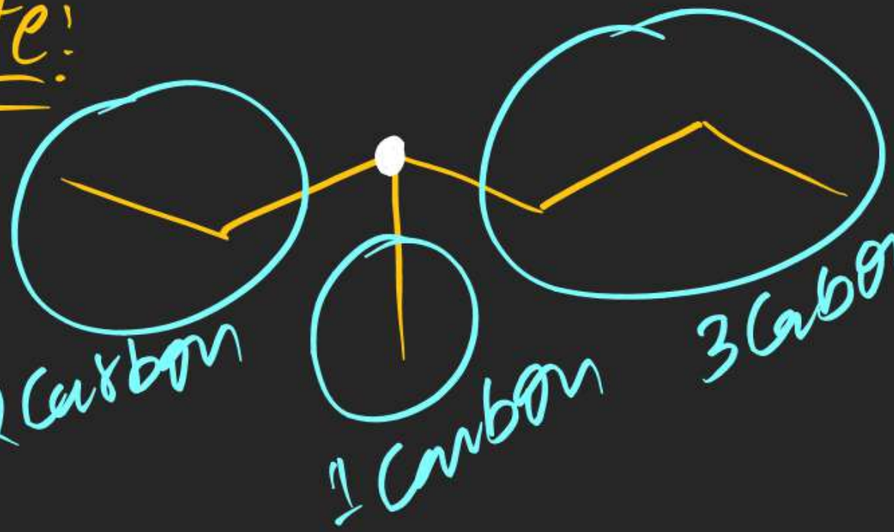
Structural Isomerism

Note: Substituent can be used not greater than 1 Carbon atom

(a)



(b)

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Structural Isomerism

(5) C_5H_{12}

Total No. of structural isomers

3

5 Carbon chain ⟹

4 Carbon chain ⟹

3 Carbon chain ⟹

Structural Isomerism

(6) C_6H_{14} (Alkane no π Bond & no Ring form)

(5)

Soln:

6 Carbon chain:

5 Carbon chain

4 Carbon chain:

3 Carbon chain

Carbon not Ravan

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Structural Isomerism

(7) C_7H_{16}

(8) C_3H_7Cl

(9) $C_4H_9Cl \Rightarrow C_4H_{10}$

(10) $C_3H_6Cl_2$

4

(11) C_3H_9N

(12) $C_4H_{11}N$

(13) $C_5H_{13}N$

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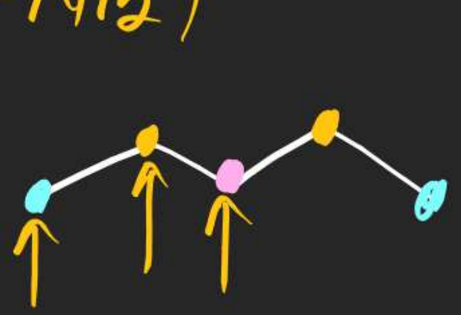
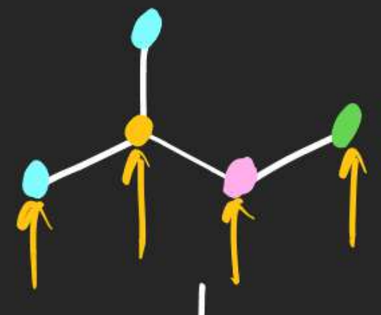
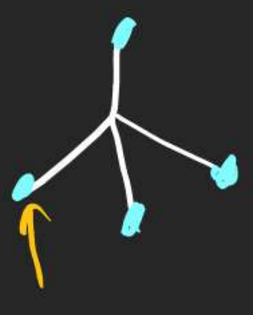
Structural Isomerism

Sol^{n} (13) $C_5H_{13}N$ (DOU = 0) No π Bond / No Ring

Primary Amine: ($-NH_2$)







8

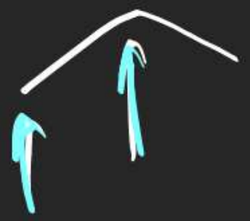
Sec. Amine ($-NH-CH_3$)

($-NH-CH_2-CH_3$)

4

2

Tertiary Amine ($N(CH_3)_3$)



1

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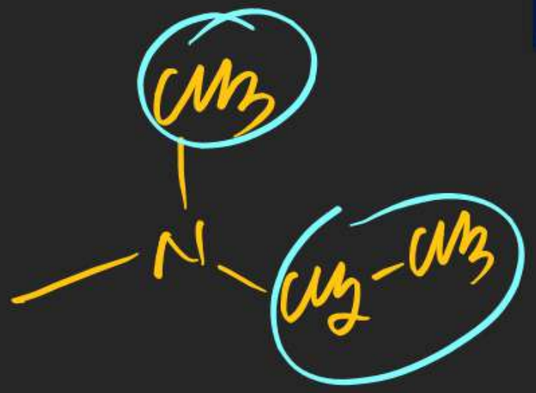
Structural Isomerism



1

Total = 17

C_nH_{2n}

(14) C_4H_8 [DOU = 1]

It contains Either

1 double Bond or 1 Ring

Soln:

1 double Bond

3

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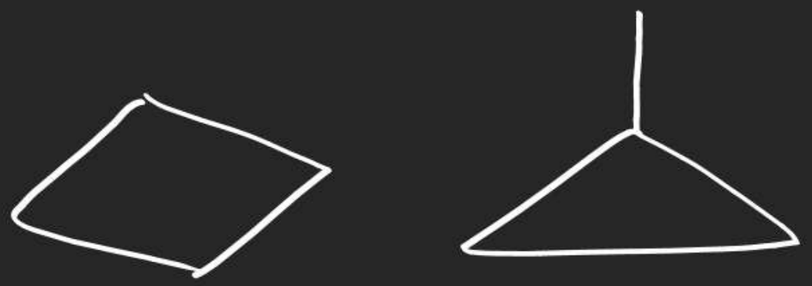
Structural Isomerism

1 Ring



2

Total = 5

(15) C_3H_6 (1 double Bond or 1 Ring)

(16) C_5H_{10}

(17) C_6H_{12}

Structural Isomerism

(18) $C_5H_{10}O$ (All Aldehyde)

(19) $C_5H_{10}O$ (All Ketone)

(20) C_7H_7Cl (All Benzenoid)

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Structural Isomerism

Tautomerism

⇒ Tautomers

$A \rightleftharpoons B$

(Intraconvertible)

other structural isomers

$P \not\rightleftharpoons Q$

(Non intraconvertible)

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Structural Isomerism