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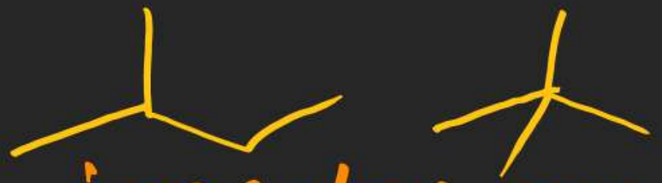
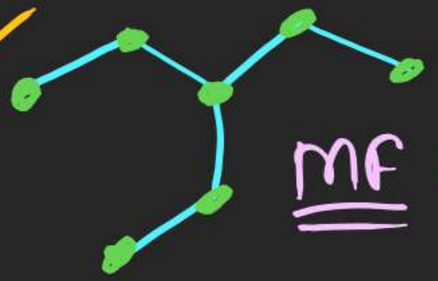
(2)  

n-pentane isopentane neo-pentane

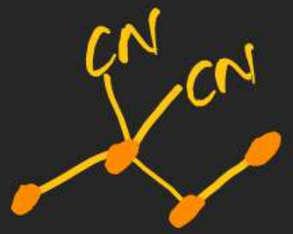
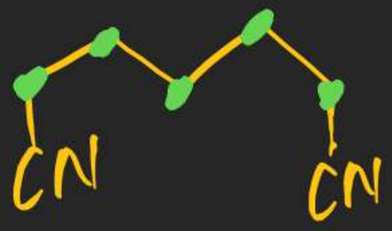
Chain Isomers

(Homologues)

Not isomers

(3)  

MF C_7H_{16} MF C_8H_{18}

(4)  

(Not isomer)

(5) $H_3\overset{3}{C}-\overset{2}{C}H-CH_3$ $H_3\overset{4}{C}-\overset{3}{C}H_2-\overset{2}{C}H_2$ (Chain Isomers)

$\overset{1}{C}N$ $\overset{1}{C}N$

MF C_4H_7N MF C_4H_7N

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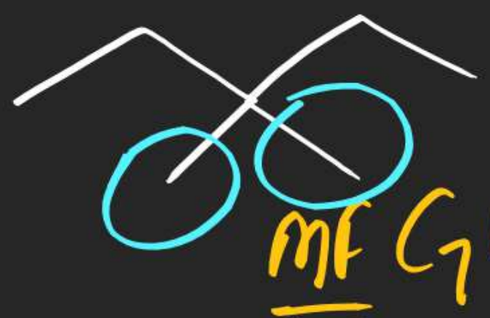
(6) $H_3C-\overset{3}{\underset{1}{CH}}(COOH)-\overset{2}{CH_3}$ $\quad$ $H_3C-\overset{4}{CH_2}-\overset{3}{\underset{1}{CH_2}}(COOH)-\overset{2}{CH_3}$ $\quad$ Chain Isomers

(7) $H_3C-\underset{CHO}{CH}-CH_3$ $\quad$ $H_3C-CH_2-\underset{CHO}{CH_2}$ $\quad$ Chain Isomers.

(8)

MF C_7H_{16}



MF C_7H_{16}

Chain Isomerism

(9)

.

Chain Isomers

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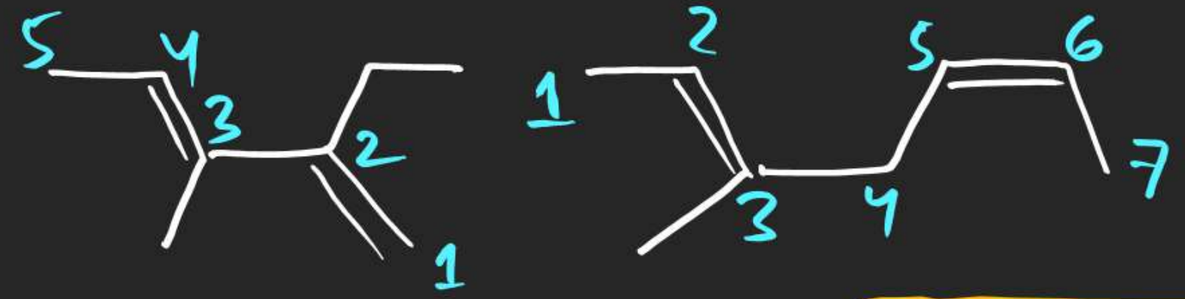
(10) 

Chain Isomers.

(#) Ring Chain Isomerism:-

⇒ Compounds having same MF But difference in Ring & Chain formate.

or

If any atom which is in acyclic segment in one isomer & in cyclic segment in another isomer then they are known as Ring chain isomers.

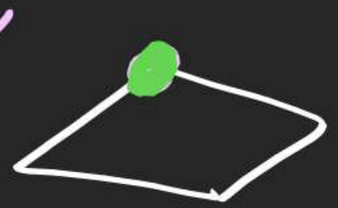
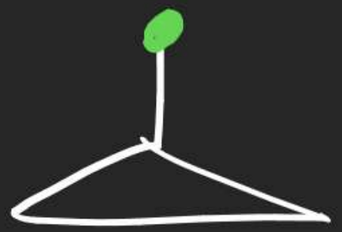
Note Each Isomer must have at least 1 degree of Unsaturation.

(11)  ∴ (Ring-Chain Isomers)

MF: C_3H_6 MF C_3H_6

(12)  

(13)  

(14)   Ring Chain Isomer

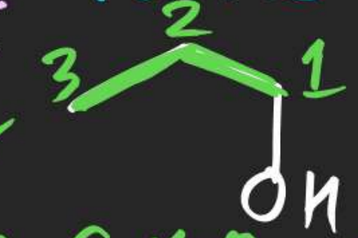
(15)  

(#) Position Isomerism:

⇒ Compounds having same m.f But different position of atoms/groups are known as Position isomers.

Note:- For Position isomers, Chain length must be same.

(16)



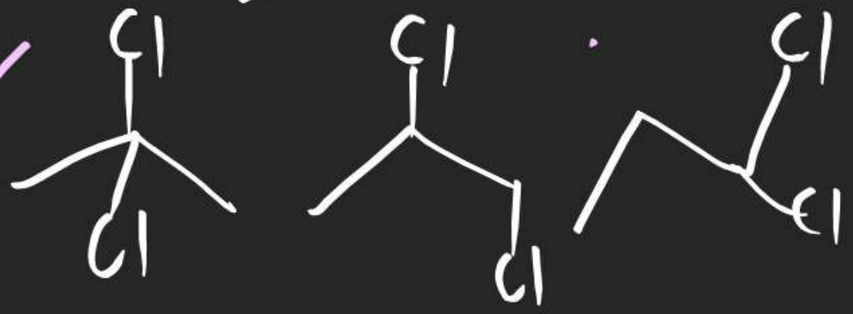
m.f C_3H_8O
3C-chain

m.f C_3H_8O
3C-chain

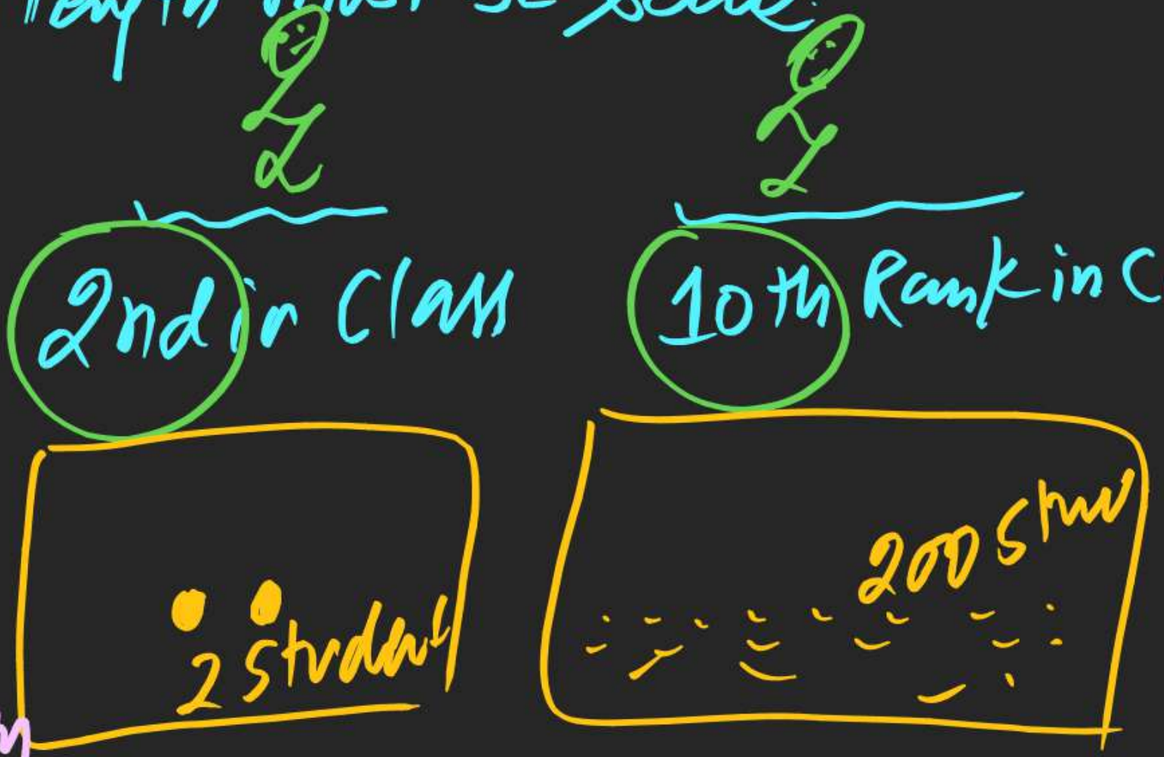
Position Isomers

(17)

(18)



Position isomers.



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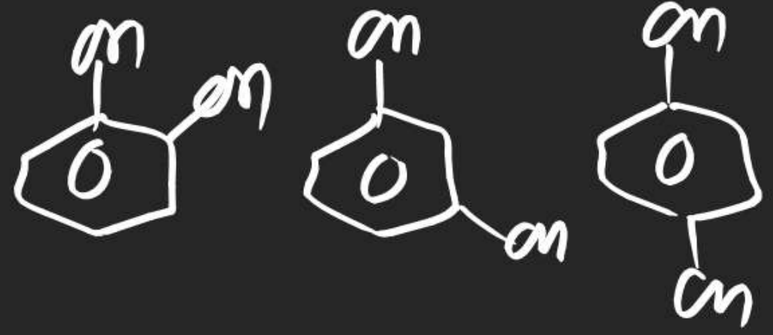
(19)

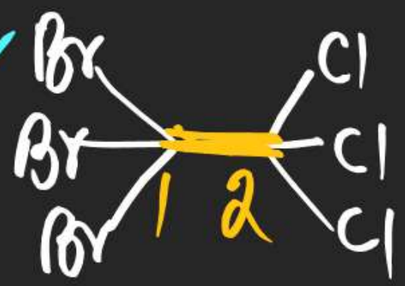
(20)

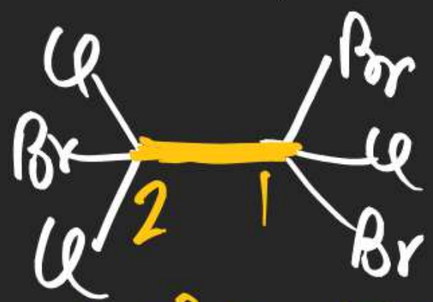
(Position Isomers)

(21)



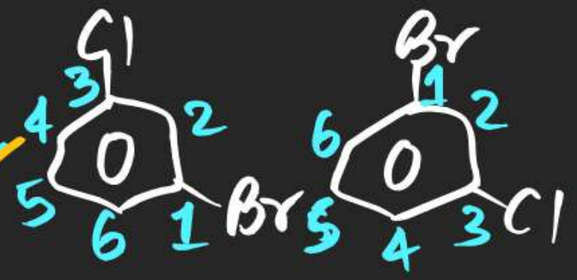
(22)





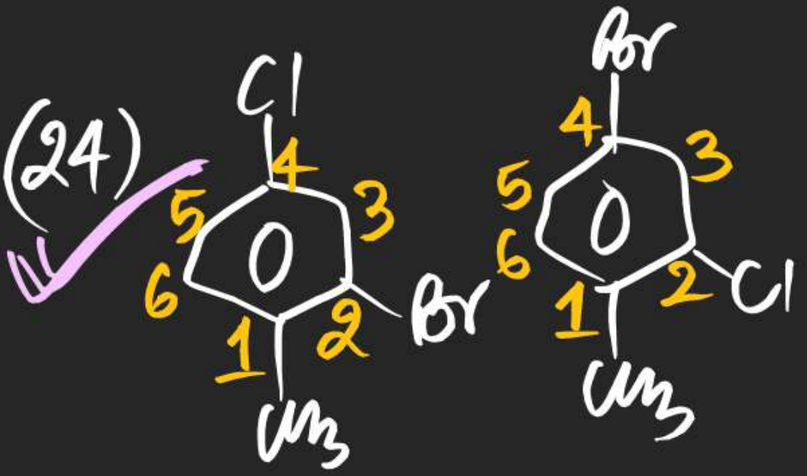
(Position Isomers)

(23)



(Identical)

(24)



(Position Isomers)

(25)

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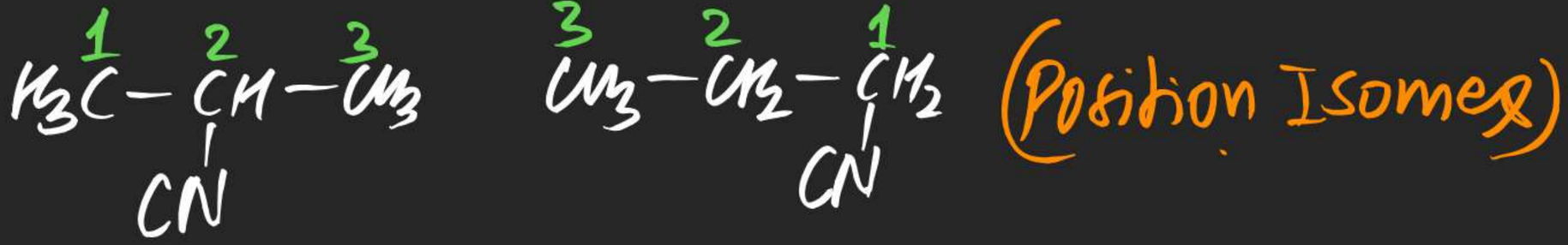
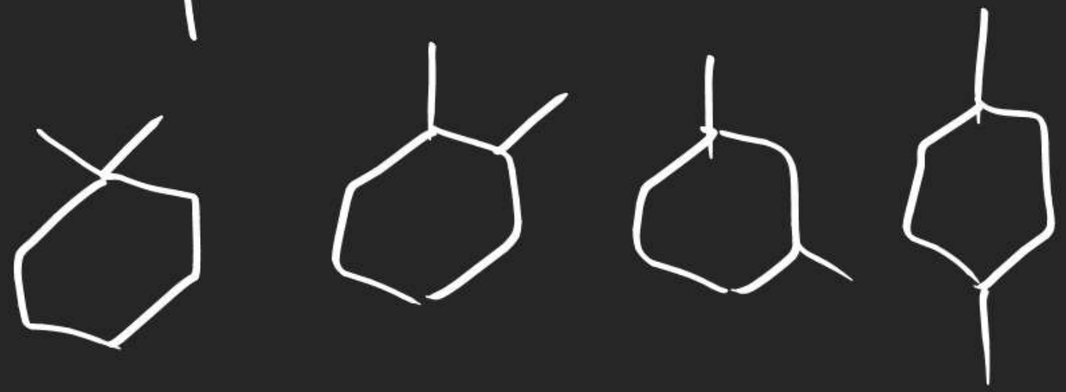
(26)  (Position Isomer)

(27) 

(28) 

(29) 

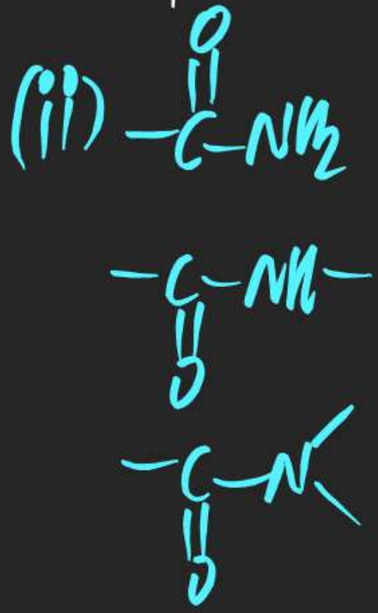
(#) Functional Isomerism:

Compounds having same MF But difference in functional groups are known as functional isomers.

Note

(i) 

diff. f. groups

(ii) 

diff. f. groups

(iii) 

diff. f. groups.

(30) H_3C-CH_2-OH $H_3C-O-CH_3$ (Functional isomers)

MF ⇒ C_2H_6O MF ⇒ C_2H_6O

—OH & —O—

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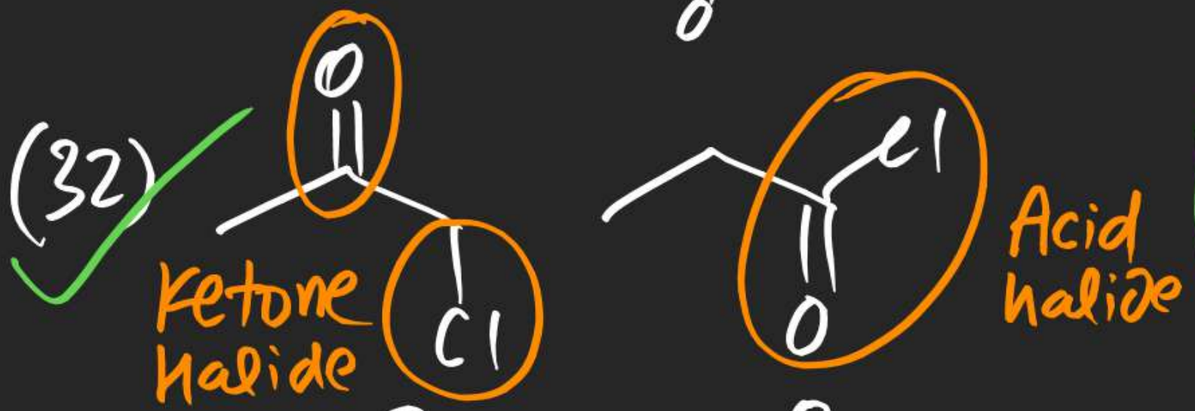
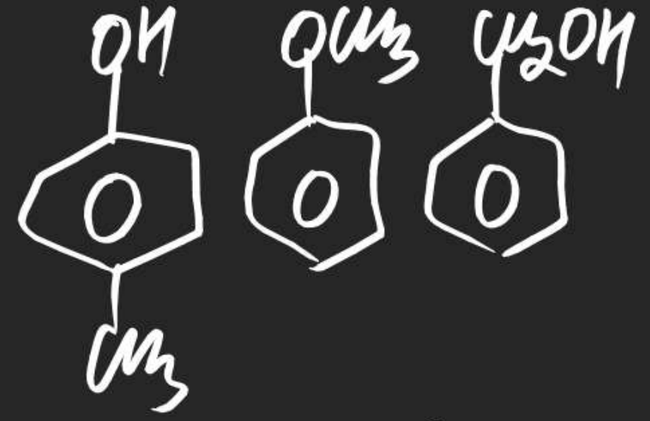
(31) 

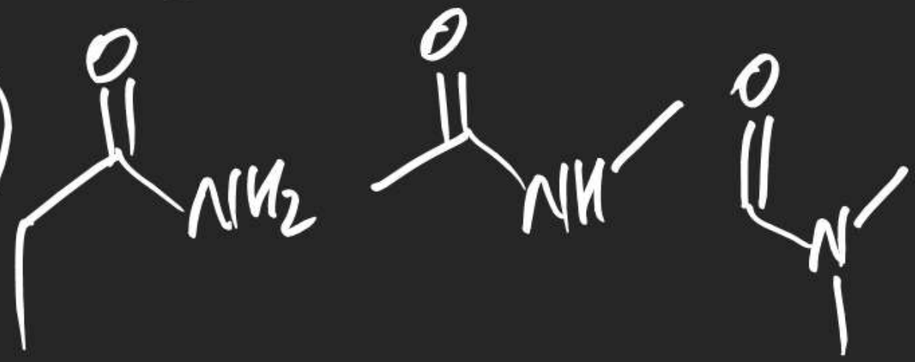
(32) 

(33) 

(34) 

(35) 

(36) 

(37) 

(38) 

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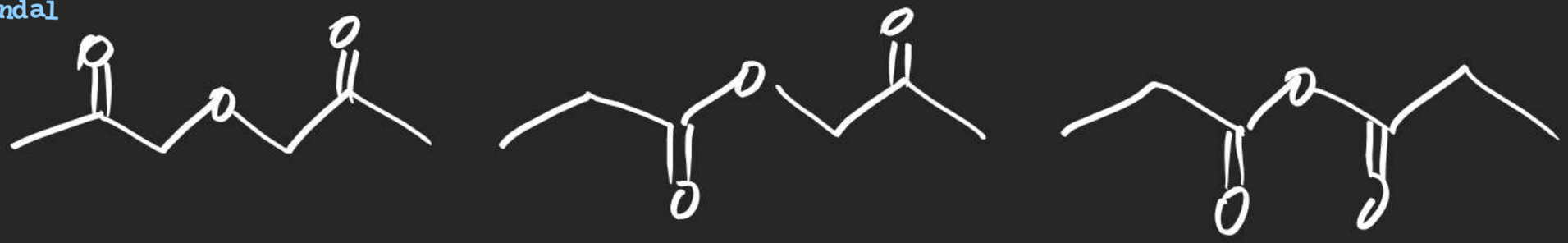
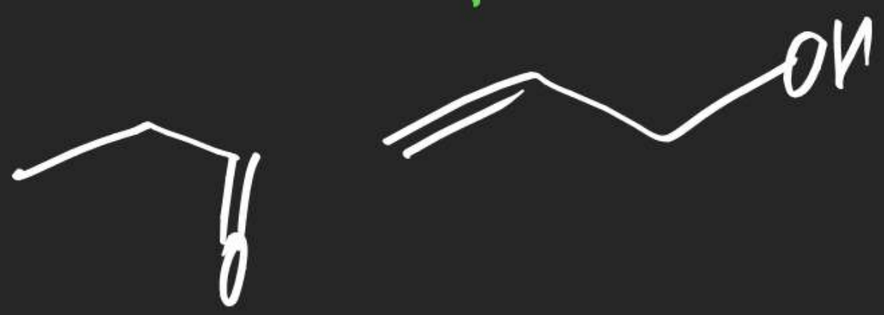
(39) 

(40) $H_3C-CH(NO_2)-CH_2$ $H_3C-CH_2-CH_2(ONO)$

(41) $H_3C-CH(CN)-CH_3$ cyanide $H_3C-CH_2-CH_2(CN)$ isocyanide

F. Isomers

(42) 

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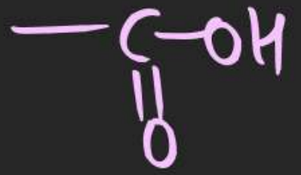
(#) **Metamerism**: Compound having same MF But difference in alkyl groups w.r.to Bivalent functional groups.

Monovalent

$-NH_2$

$-OH$

$-SH$



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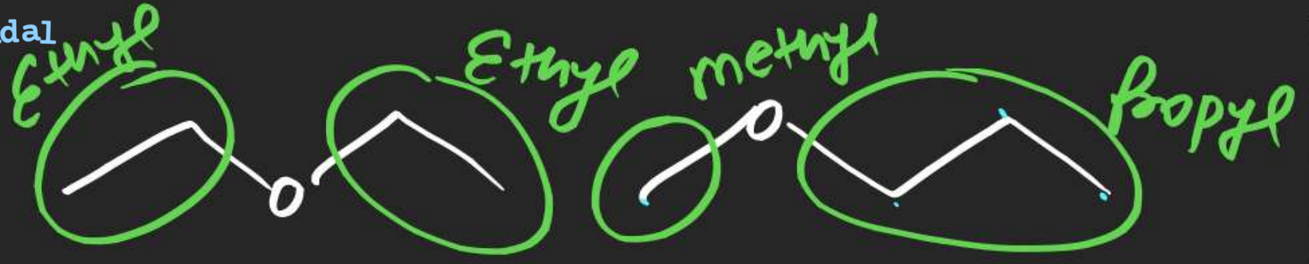
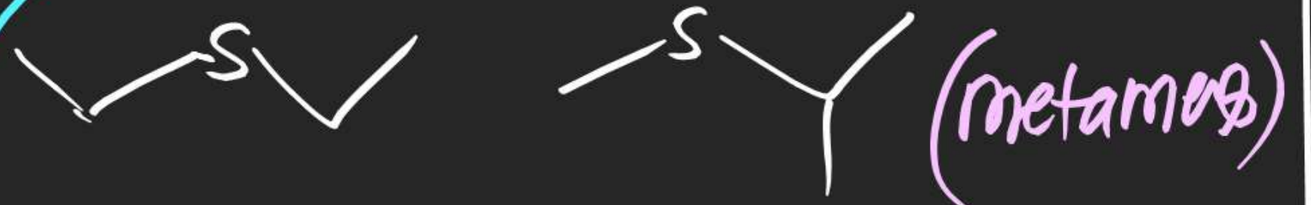
(43) 

MF ⇒ $C_4H_{10}O$

MF $C_4H_{10}O$

Metamers

(44) 

(metamers)

(45) 

(46) 

(47) 

Metamers

(48) 

(49) 

(50) 

(51) Draw Hydrocarbon with least mol. wt which can show.

Alkane	Alkene	Alkyne
(a) Chain isomerism		
(b) Ring chain isomerism		
(c) Position isomerism		

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Tautomerism:-

(1, 2 & 3)