Doubt Clearing Session

Course on Structural Isomerism & Geometrical Isomerism

SURENDRA K MISHRA • Lesson 4 • Sept 18, 2021

Basic Strgth

(i) localised e⁻ pair > delocalised e⁻ pair

P — localised

Q — localised

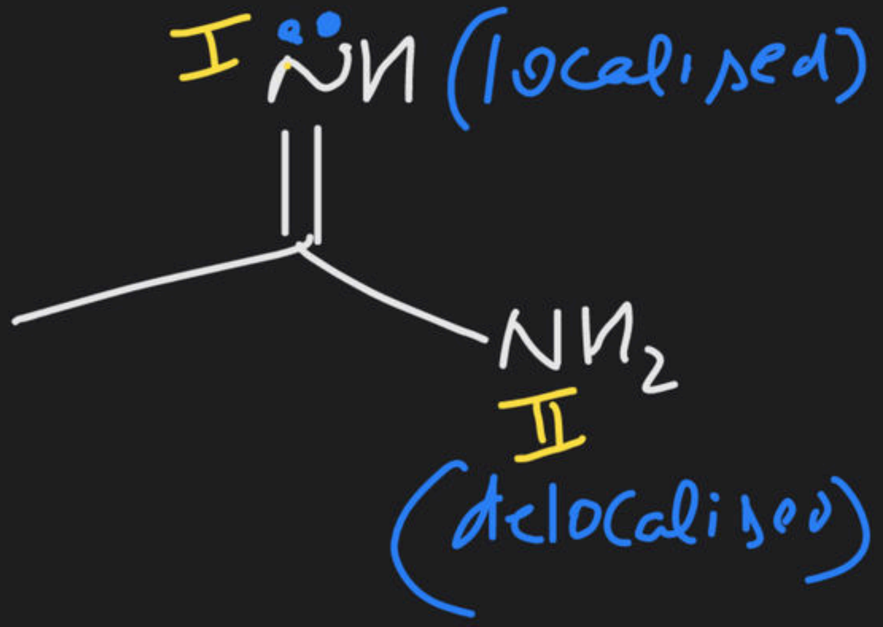
(ii) check stability of Conjugate Acid

- Resonance stabilised
- $sp^3_N > sp^2_{N1} > sp_N$ (hybridisation)
- m/p > 0 (Solvation effect)

(iii) Observe effect of attached atom/group

EDG > EWG

(15)

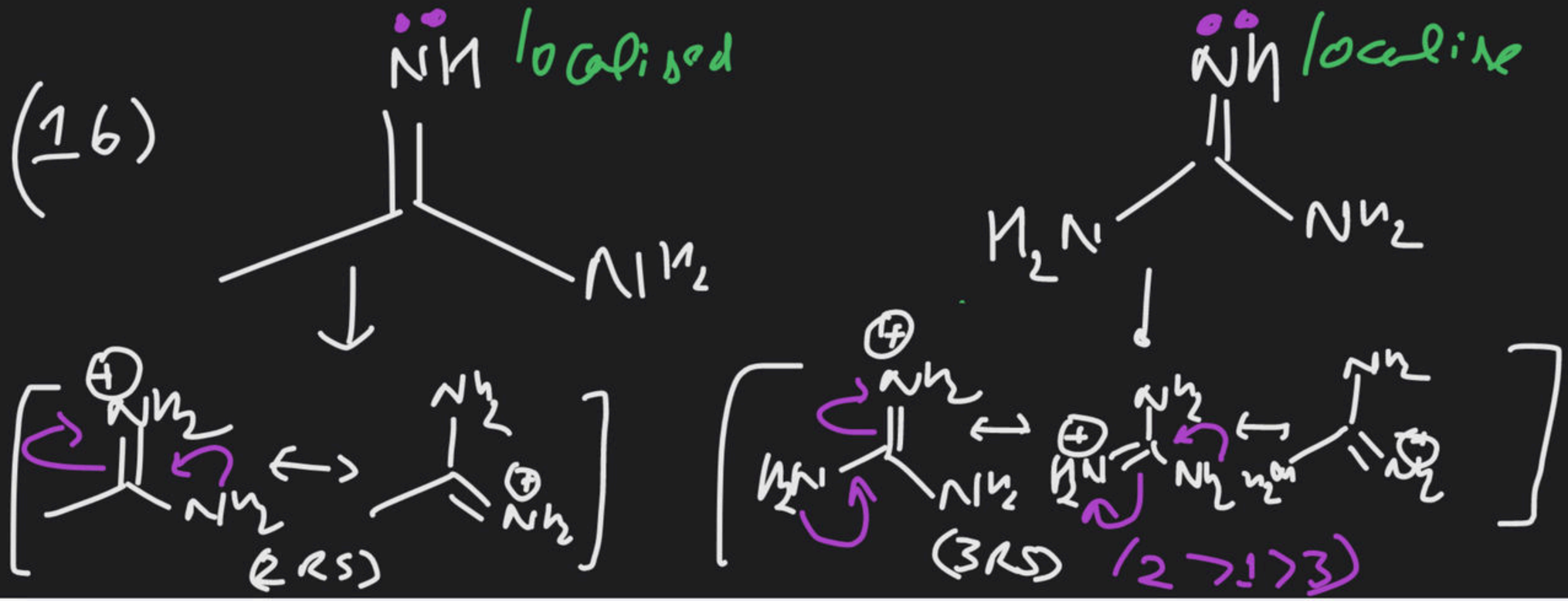


delocalised.

(I > II)

localised

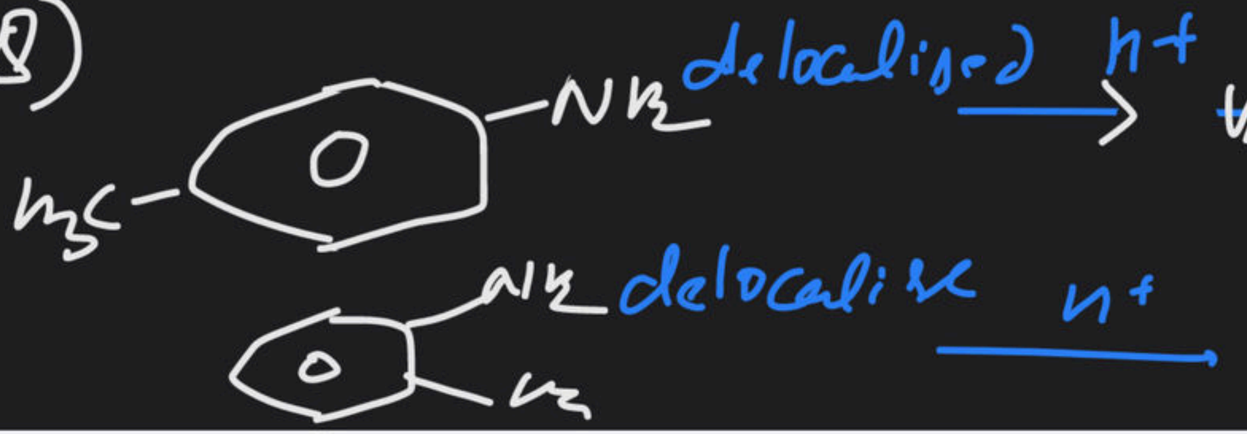
(16)



(17)

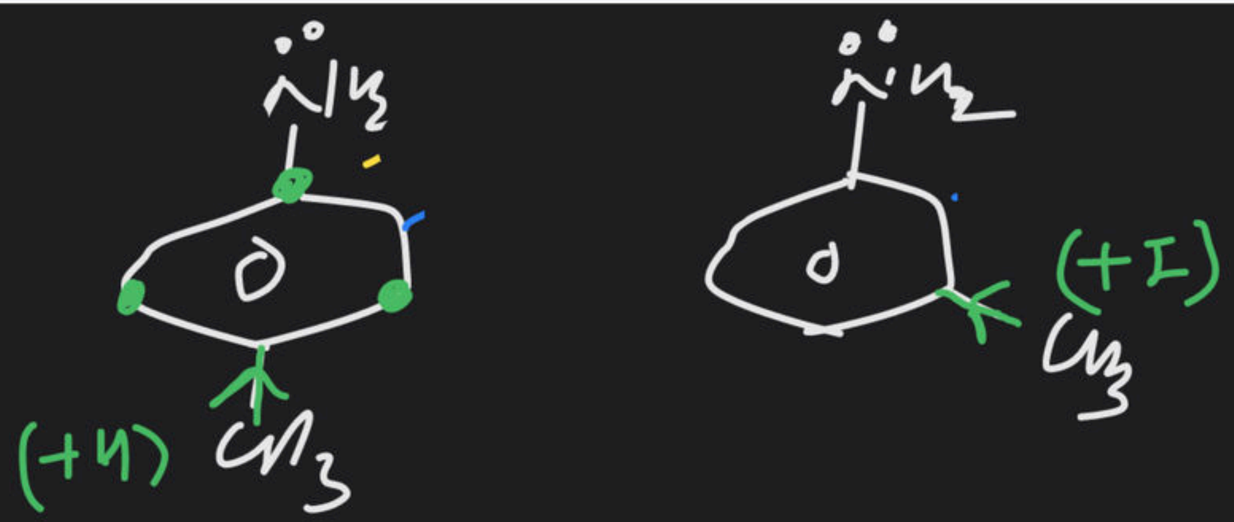
(1 > 2)

(18)



(1 > 2)

(19)



(1 > 2)

(20)

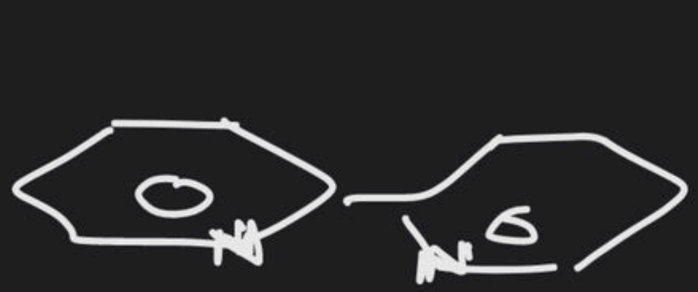
(21)

(22)

(23)

(24)

(25)



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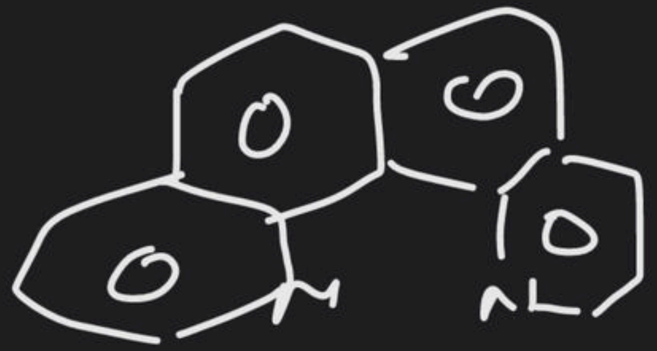
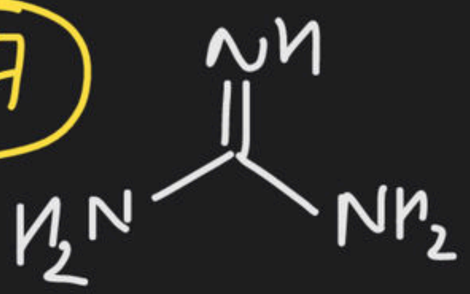


Note

Aliphatic Amine is more Basic than Aromatic Amine.

M.F

27



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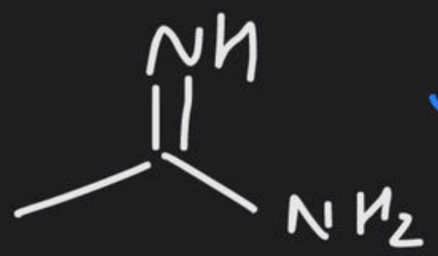

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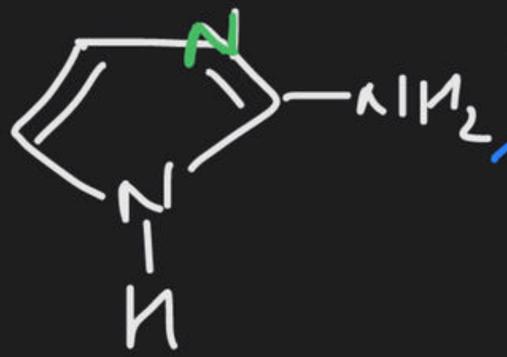
} Aliphatic Amine

pK_b 0.4 2 4



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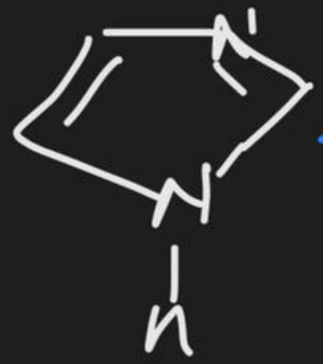

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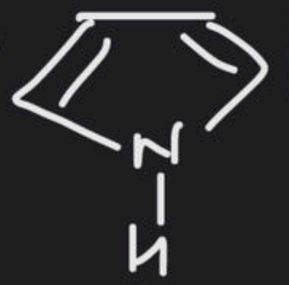


} Aromatic Amine

5.5 7 8.8 9.6 14

Isomerism

Ring chain

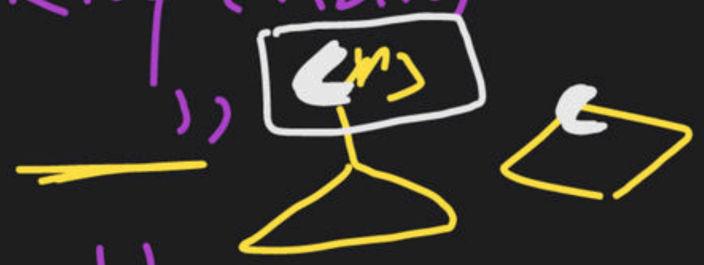
(2) "

(3) "

(4) "

(5) "

(6) "



Position:-

(2) Position isomers (=)

(3) "

(4) Chain

(5) ———

(6) Position (–NO2)

(7) " (–Me)

(8) " (–OH)

(9) " (–Me)

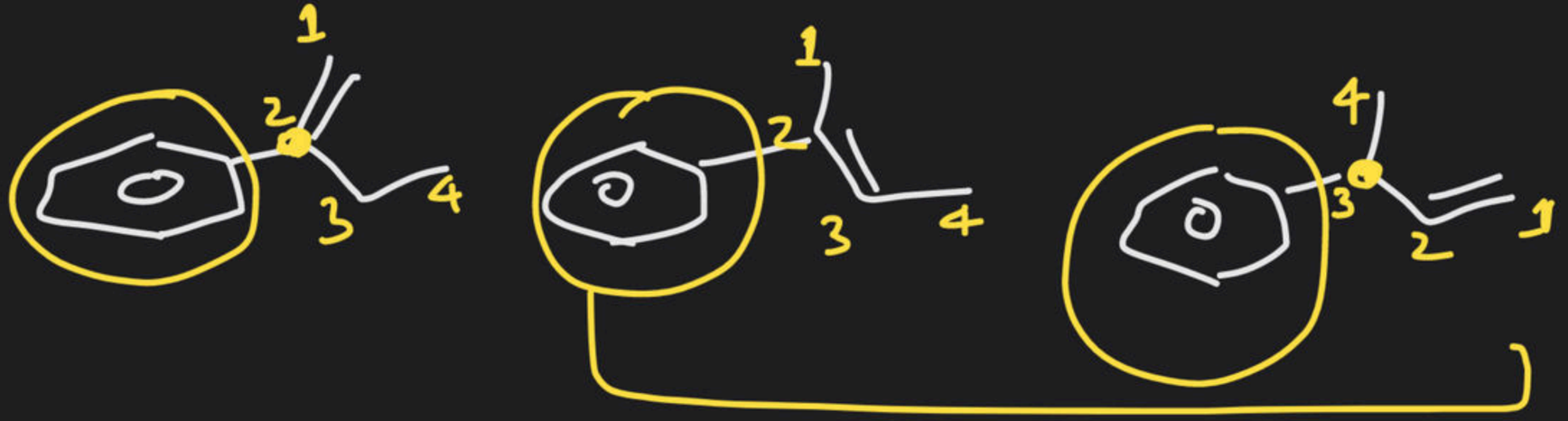
(-(1)

(10) ——

(11) AB ⟶ Position (double Bond)

AC ⟶ Position (Phenyl)

BC ⟶ Position (double bond & Phenyl)



(12) Position (=)

(13) " (—Cl)

(14) P.I (—Br & —Cl)

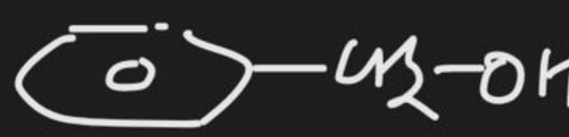
(15) ——

(16) ——

(#) Functional Isomerism

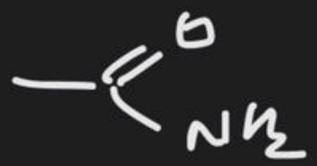
Compounds having same molecular formula but diff. type of functional groups are known as functional isomers.

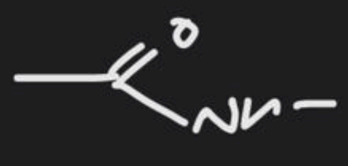
Note: (i) $= 4 \equiv$ diff. f-groups

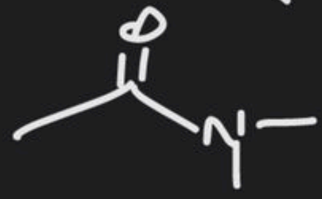


diff. f. groups

diff. f. groups







diff. f. groups.

(1) CH_3-CH_2-OH CH_3-O-CH_3 (Functional isomers)

MF C_2H_6O C_2H_6O Same

F. groups $-OH$ (Alcohol) $-O-$ (Ether) aliph.

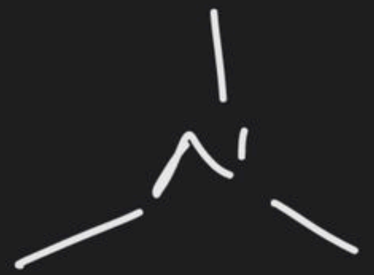
(2) 

(3) 

(4) $CH_3-CH-CH_3$ $CH_3-CH_2-CH_2$

(5)

(6)



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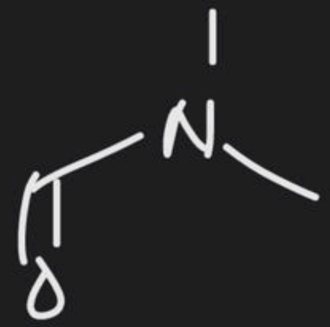

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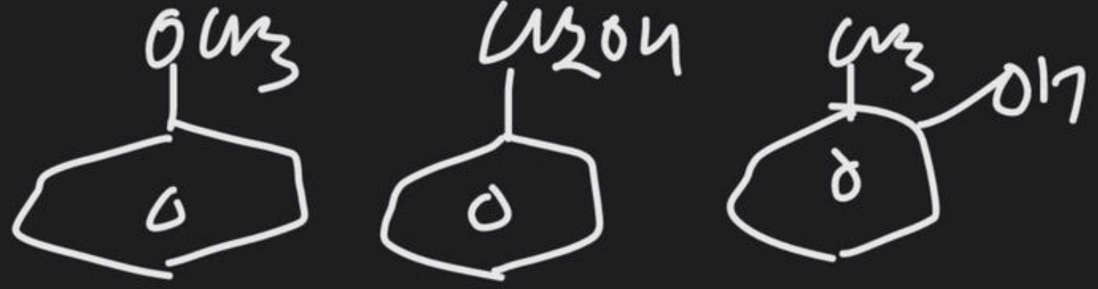

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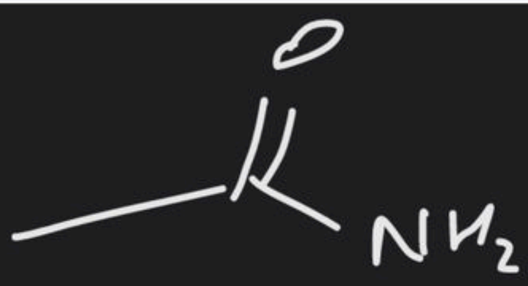

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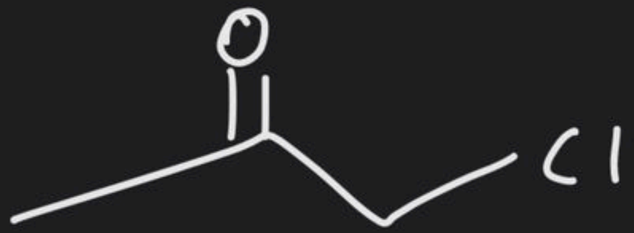

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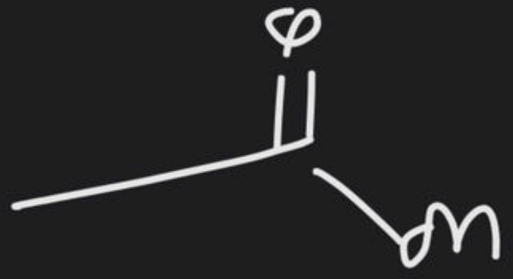

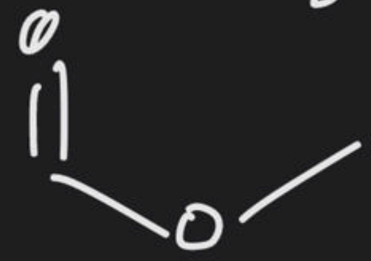

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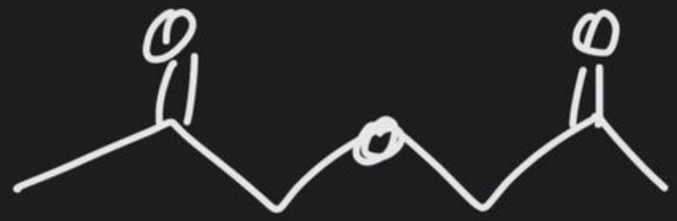
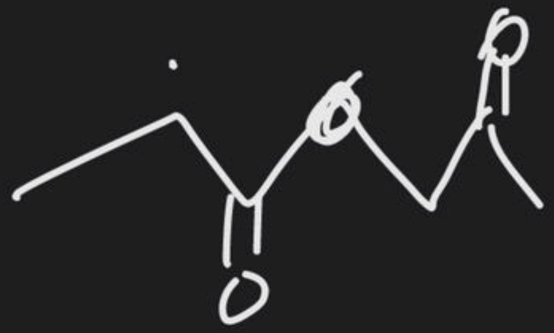
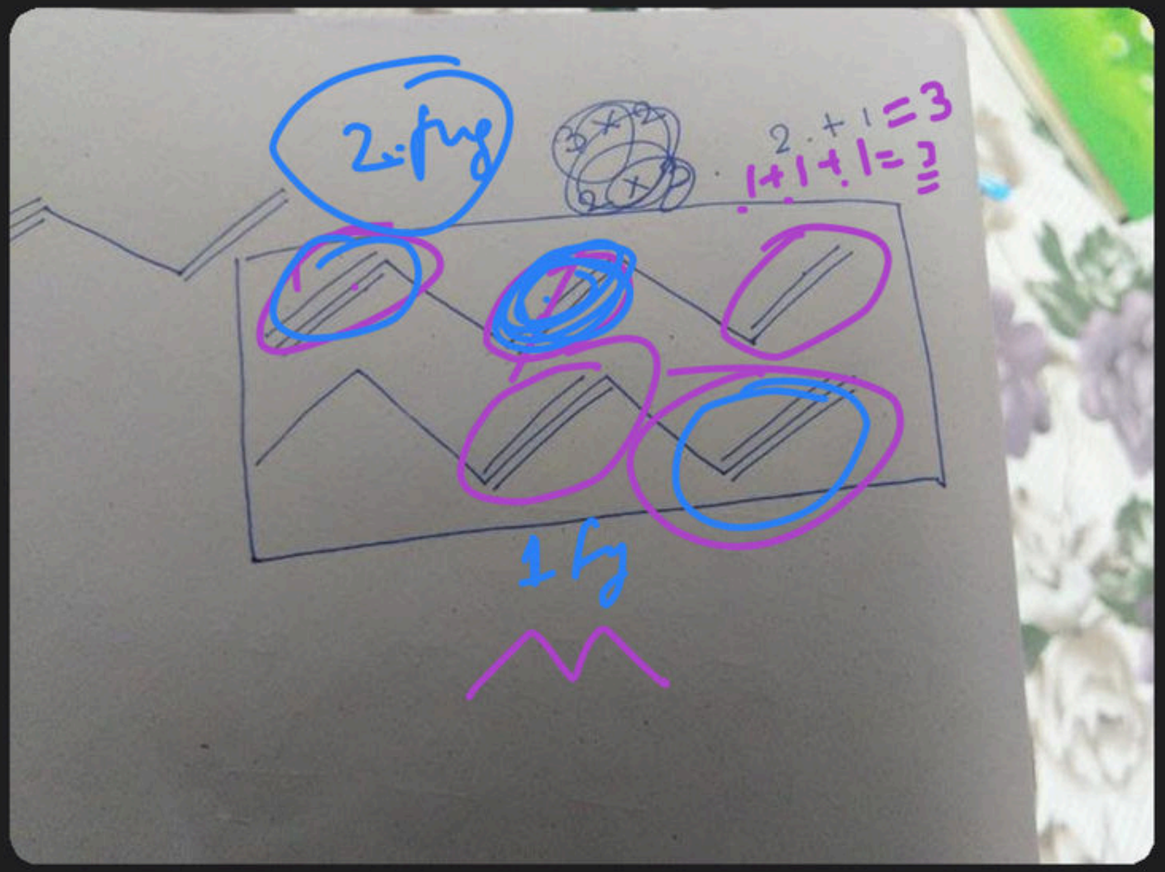




unacademy

▲ 3 • Asked by Akanksha

Please help me with this doubt



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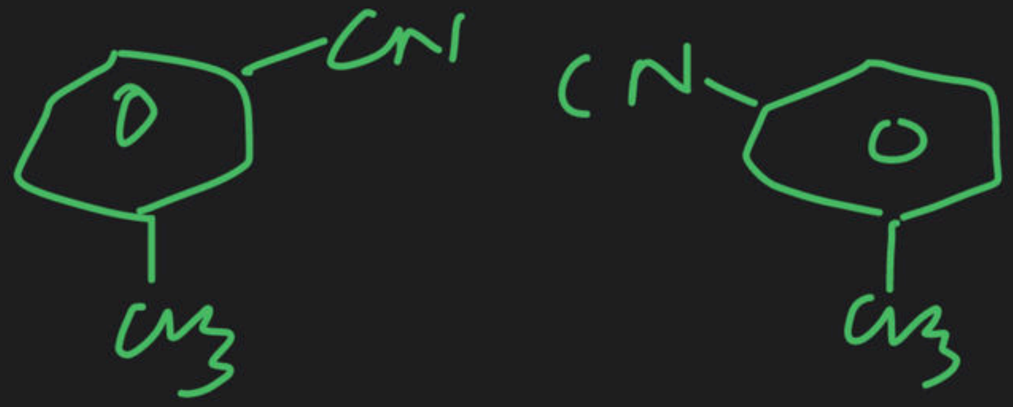

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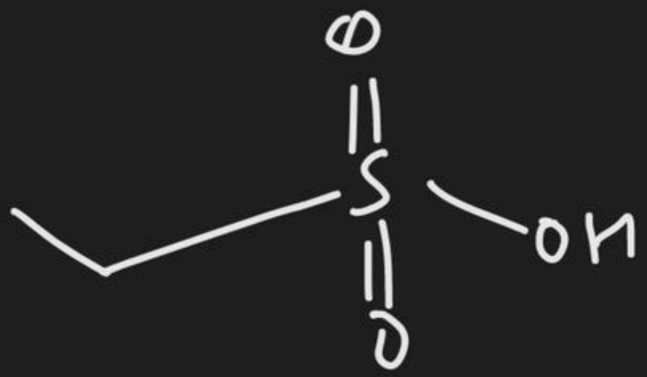
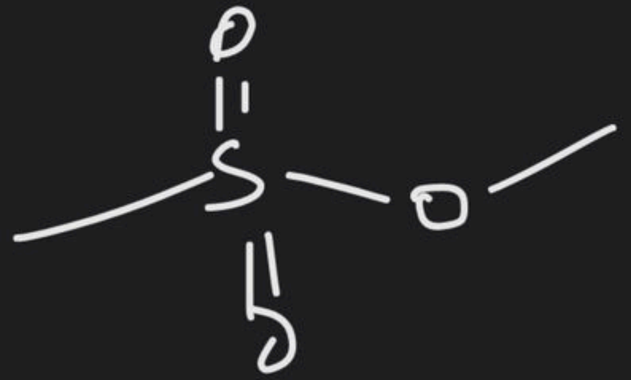
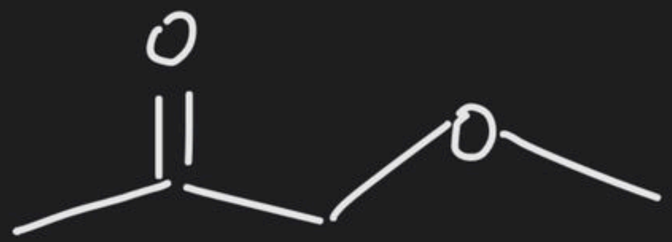
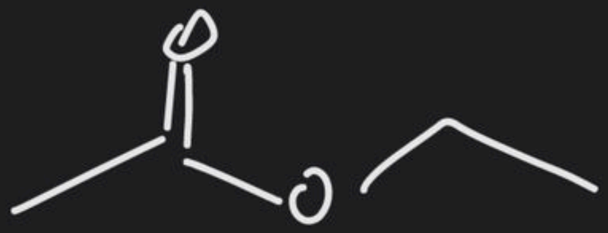




(15)

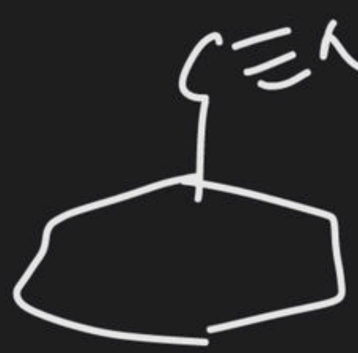
(16)





(17)

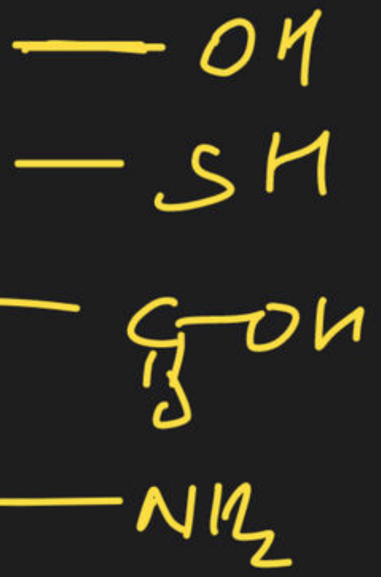
(18)



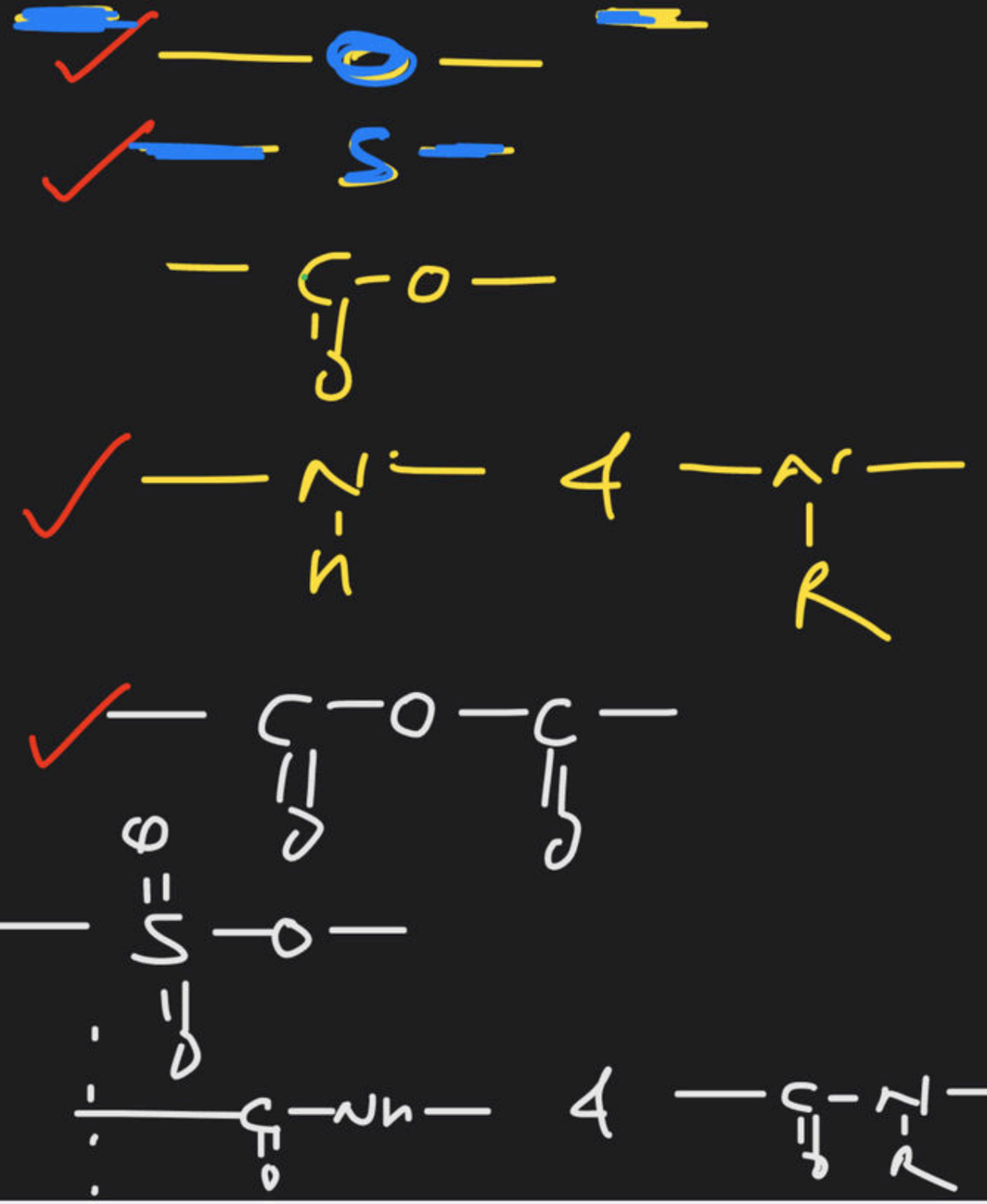
Metamerism

Compounds having same molecular formula But diff. alkyl groups w.r.to Bivalent functional groups.

Monovalent



Bivalent



(1) $CH_3-CH_2-O-CH_2-CH_3$ $\quad$ $CH_3-O-CH(CH_3)_2$

M.f $\quad$ $C_4H_{10}O$ $\quad$ $C_4H_{10}O$ (same)

Alkyl groups) $\quad$ 2-7 groups $\quad$ me & i-Pro groups (diff)

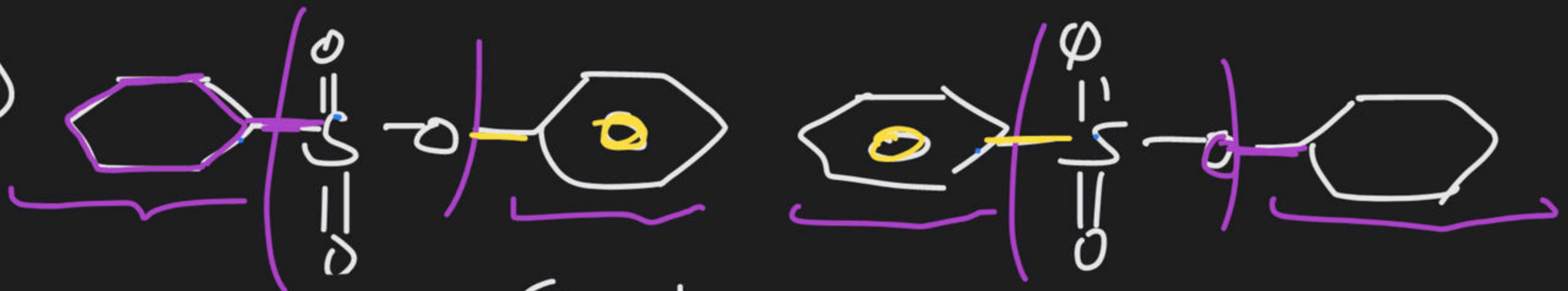
(metamers)

(2) 

(3) 

(Identical)

(4)



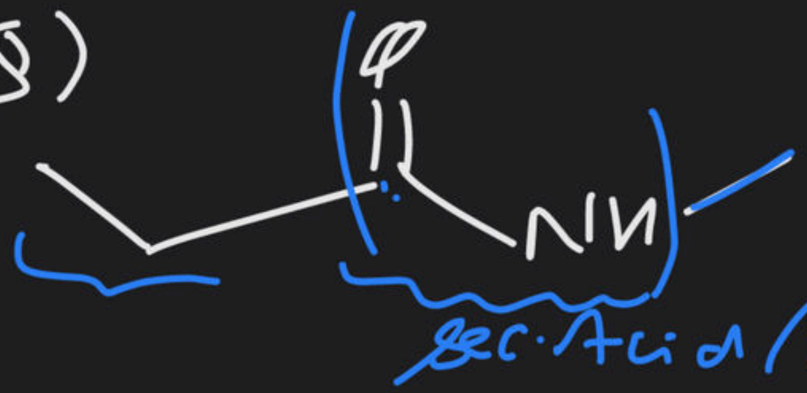
(Metamers)

(5)

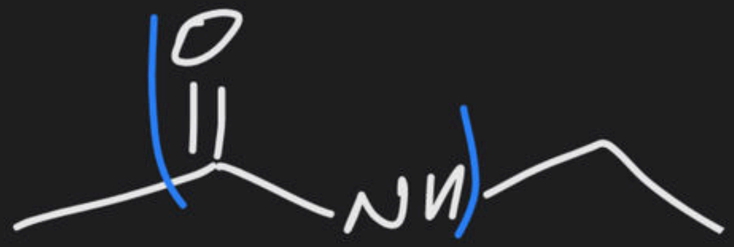
(6)

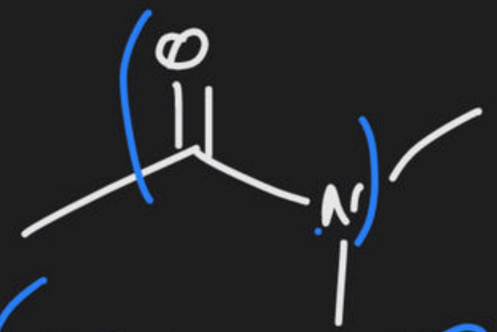
(7)

(8)



Sec. Acid Amide





(Tertiary Acid Amide)

AB

AC

(A) Metamer

(B) Functional isomer

(#) **Preference order of type of isomerism.**

Ring chain > Tautomer > functional isomer

> metamer > chain > position.

Tautomer

Ex: A Compound having

(i) MF $C_6H_{10}O_3$

(ii) "+" test for Alcohol (— OH)

(iii) ——— Carbonyl (— C(=O) —)

(iv) ——— Ester. (— C(=O) — O —)

} 4 "O"

Comment on Str. of Compound