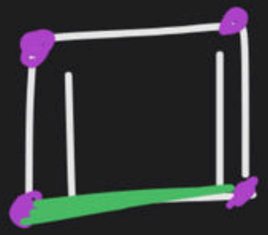
Resonance Energy, Sigma Resonance, SIR Effect

Course on General Organic Chemistry (GOC) for Dropper 13th students

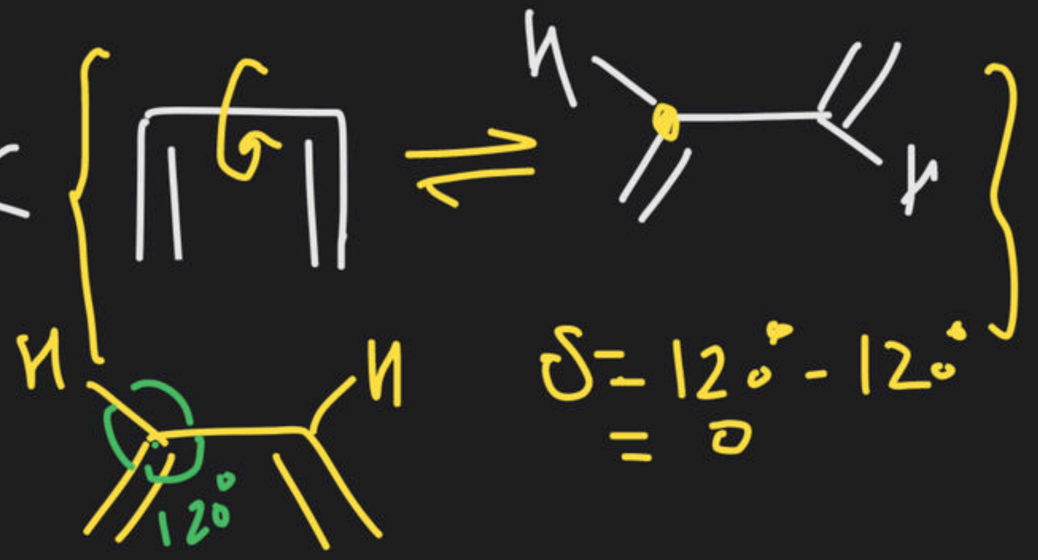
Surendra K Mishra • Lesson 11 • Sept 29, 2021

(#) Anti Aromatic Compound

⇒ Cyclic compounds which are highly unstable than its open chain analogous form is known as Antiaromatic compound.



$S = 120^\circ - 90^\circ$
$= 30^\circ$



$S = 120^\circ - 120^\circ$
$= 0$

Condition for a compound to be Antiaromatic

Compound must

(a) be cyclic ✓

(b) be planer

(c) be conjugated ✓

(d) have $(4n)$ no. of π e^-s, where $n = 1, 2, 3 \ldots$ ✓

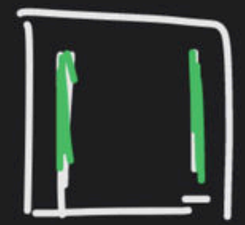
Note

(i) Cyclic compounds containing more than 7 carbon atoms are

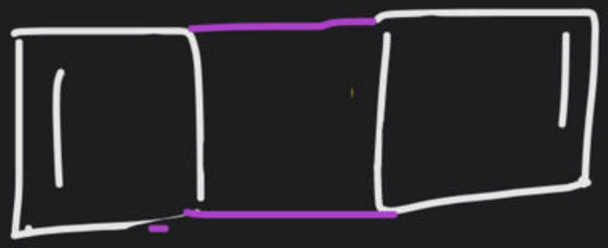
loose

Either Aromatic ($4n+2$) or Non Aromatic (Rest all Cases)..

(M.Fav) Antiaromatic Compounds are highly unstable at Room Temperature & doesn't exist. All Compound easily dimerises.

2 

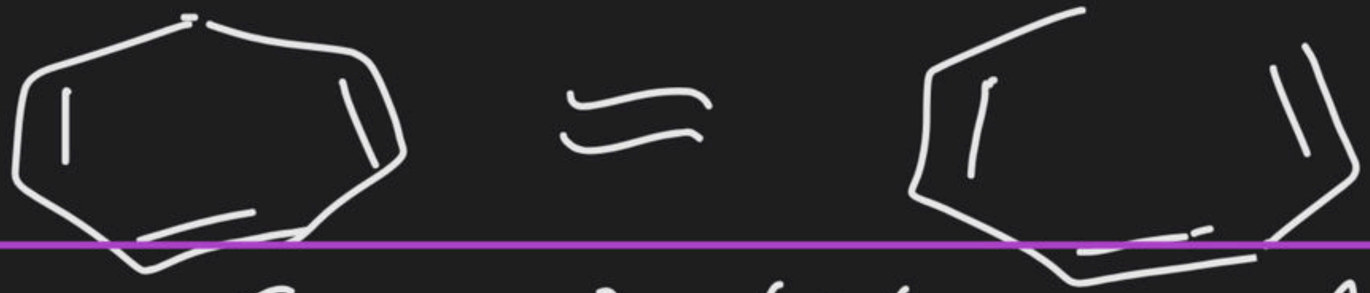
(Anti Aromatic)



(Non Aromatic)

(#) **Non Aromatic**

Cyclic Compounds which are comparatively stable than its open chain analogous form.



$\Rightarrow$ **Condⁿ for a Compound to be Non Aromatic**

Compound Should not be

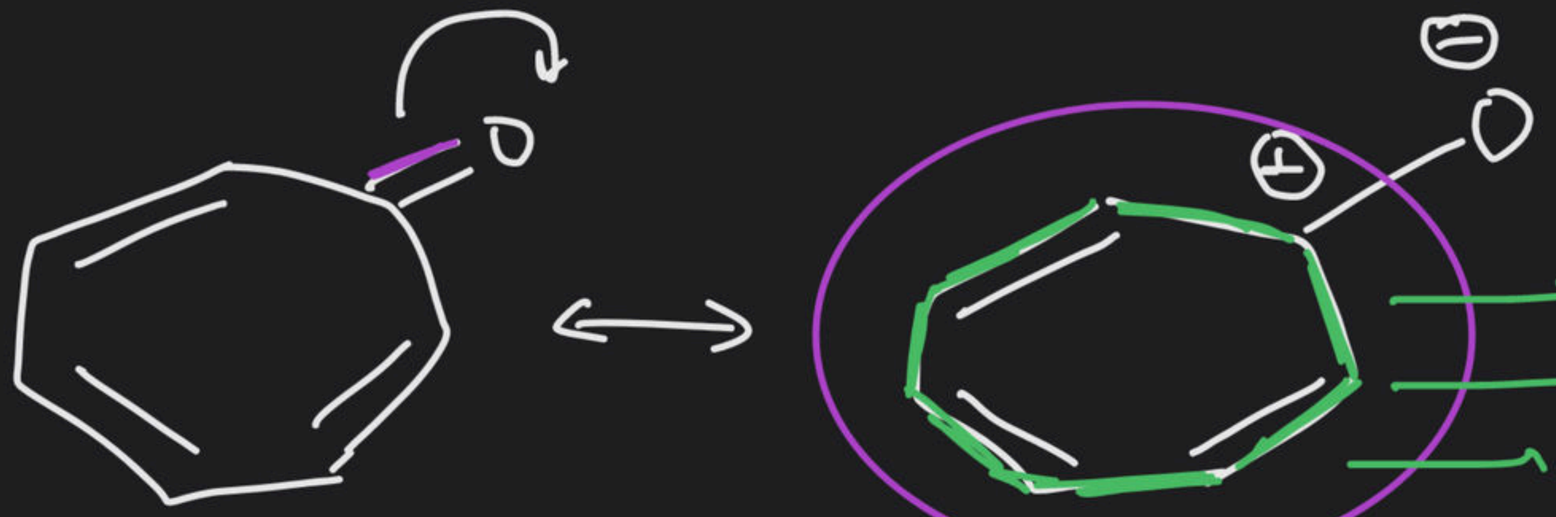
(a) Aromatic

(b) Anti Aromatic

(#) Quasi Aromatic Compound

Aromatic Compounds having Charge Dispersion are known as Quasi Aromatic Compound.

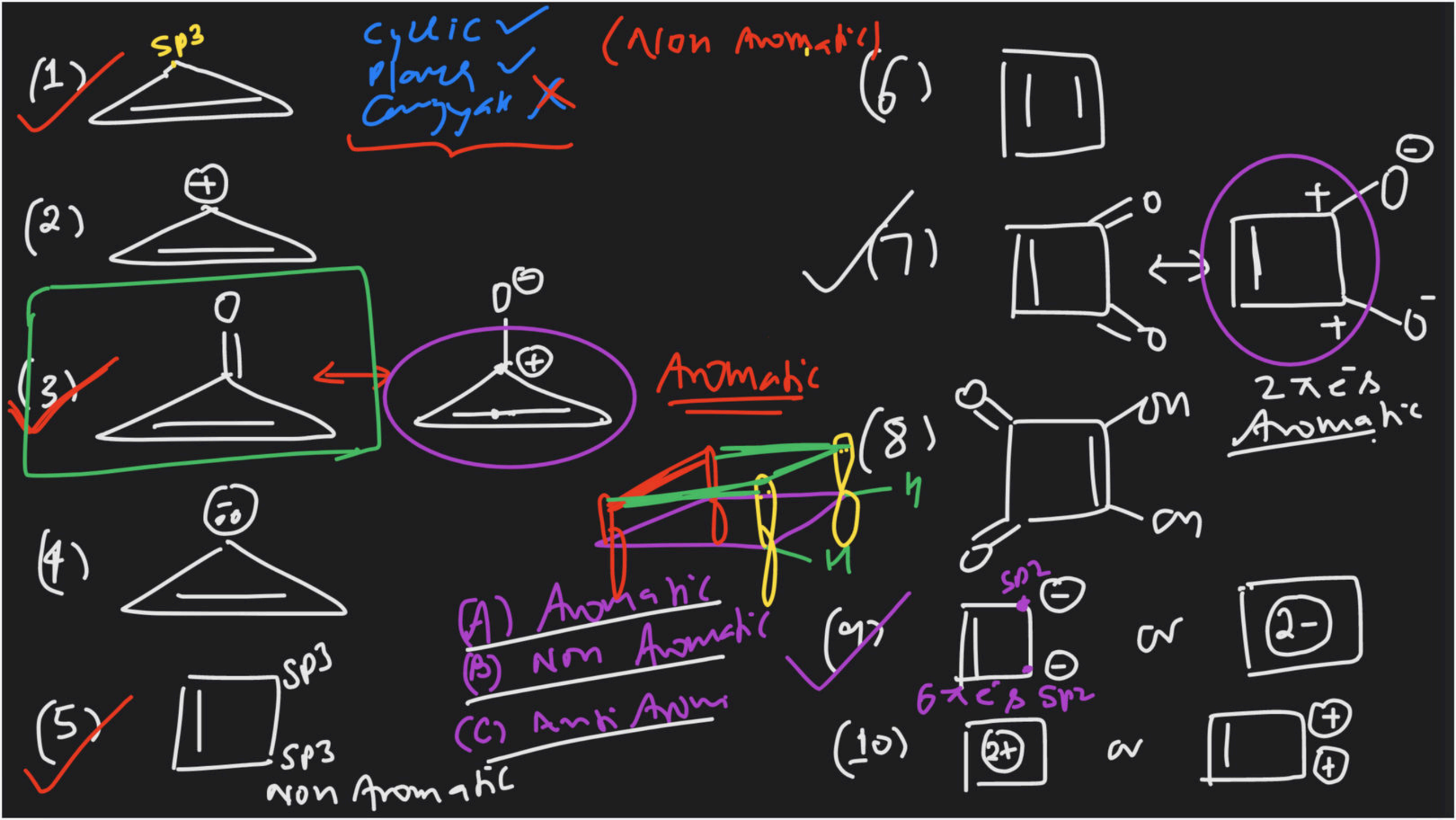
Ex:

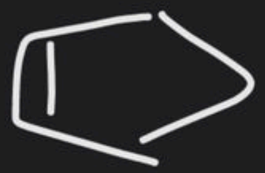


Aromatic

Aromatic

Quasi Aromatic


(1)
sp3
cyclic ✓
planar ✓
conjugate ✗
(Non Aromatic)
(2)
(3)
Aromatic
(4)
(5)
sp3
sp3
non Aromatic
(A) Aromatic
(B) Non Aromatic
(C) Anti Arom
(6)
(7)
2πe⁻s
Aromatic
(8)
(9)
sp2
6πe⁻s sp2
or
2-
(10)
2+
or

(11) 

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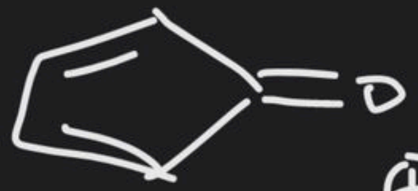
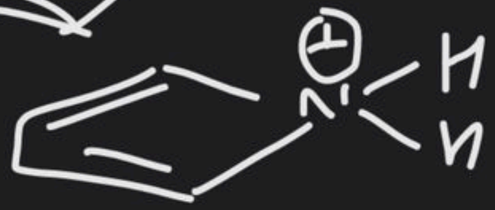
(14) 

(15) 

(16) 

(17) 

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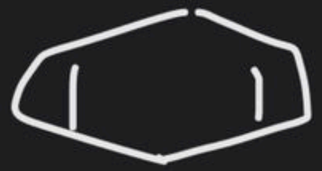
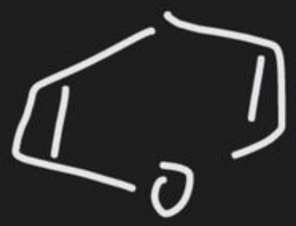
(19) 

(20) 

(21) 

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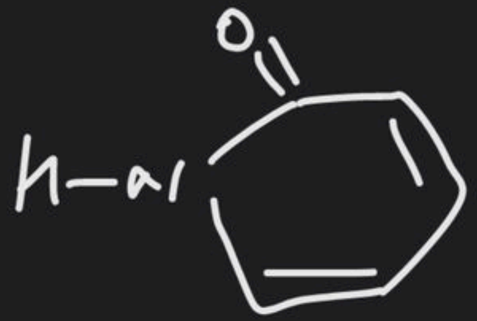
(23) 

(24) 

(25) 

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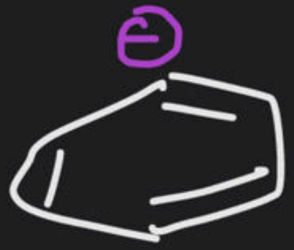
(29) 

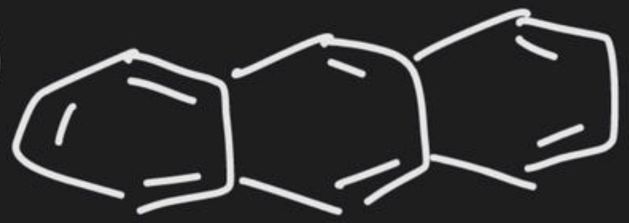
(30) 

(31) 

(32) Inorganic Benzene / $B_3N_3H_6$ / Borazine or Borazole

(33)

(34)



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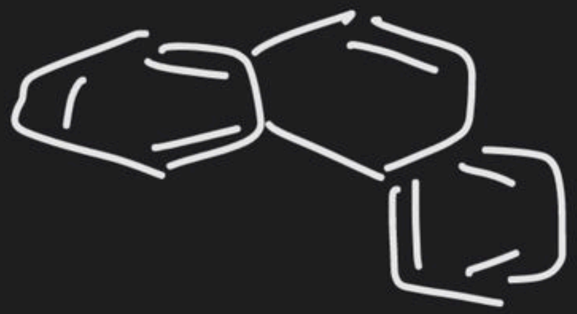
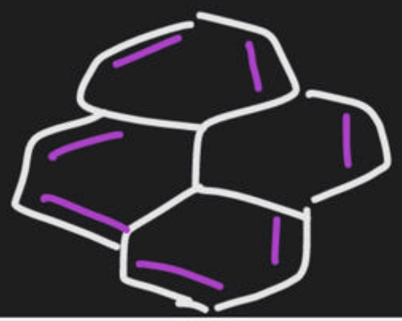


(36)



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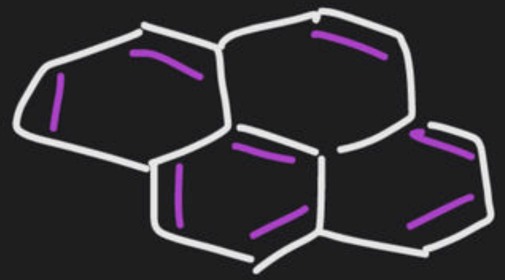
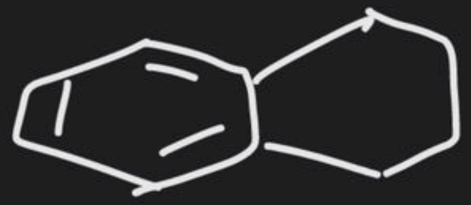


(38)



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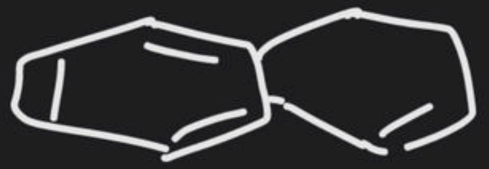
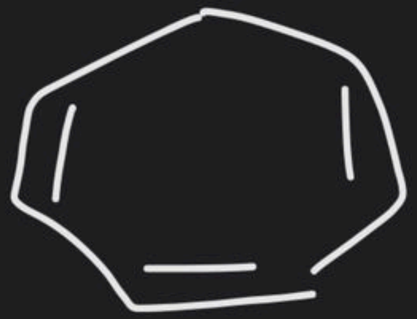


(40)

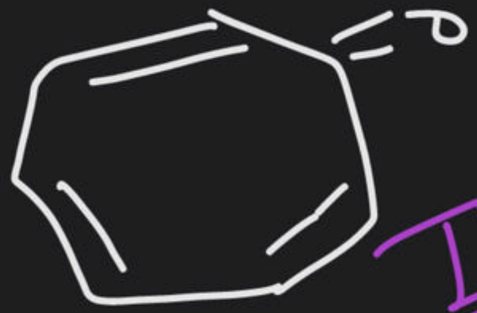
(41)

(42)



(43)

(44)



(Cyclo octa Tetraene)

Twf

(45) Annulene [8]

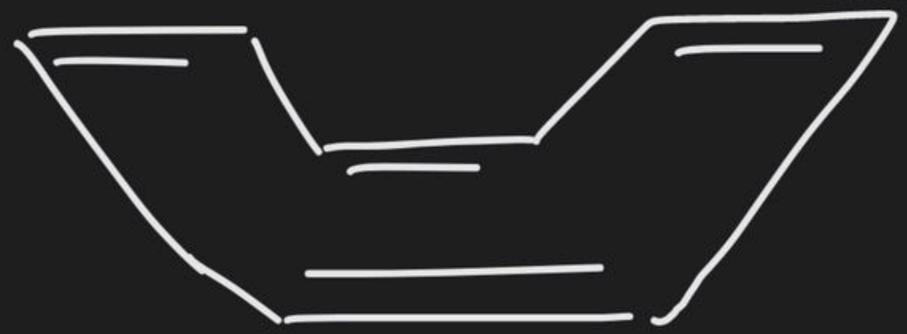
COT

(d) Annulene [n]

⇒ Cyclic polyene with n Carbon atom & $\frac{n}{2}$ no. of double bonds.

Non Aromatic

Non planer

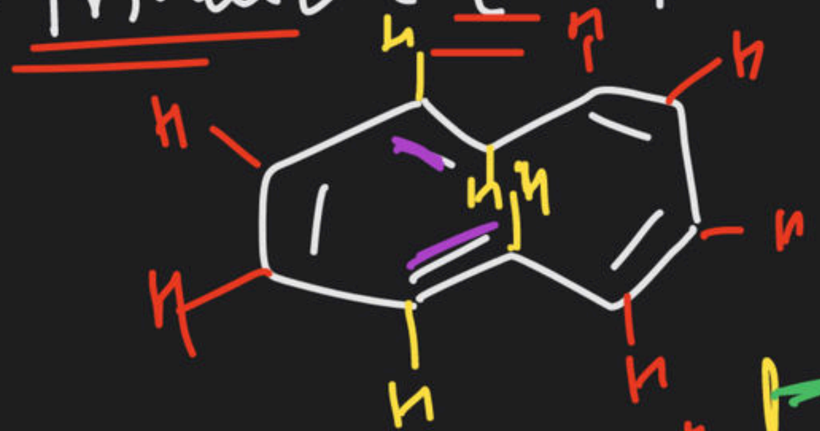


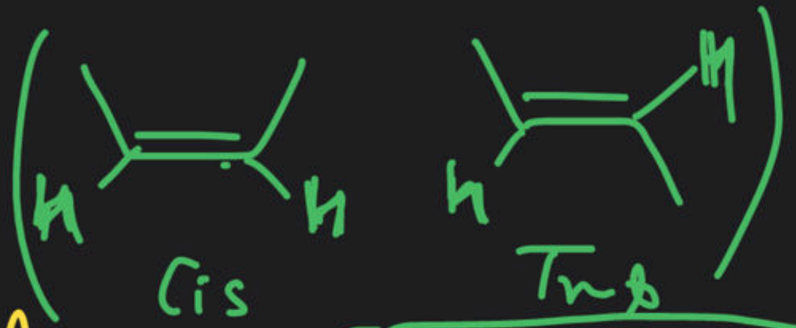
(Tub shaped)

(Tub shaped)

M.Imp

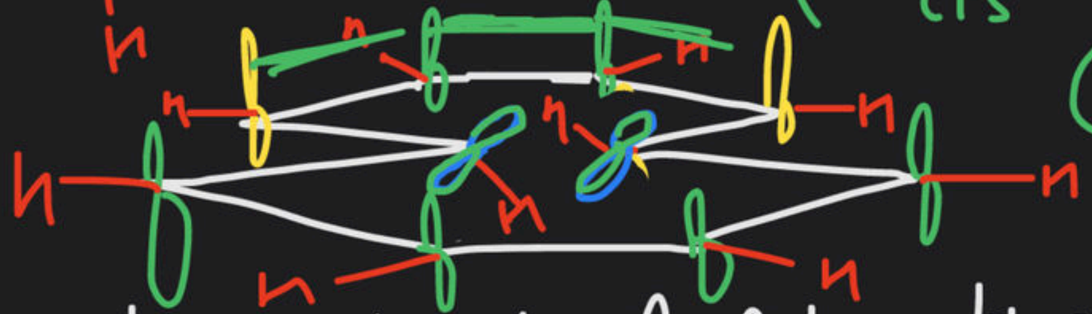
(46) Annulene [10]





Cis Trans

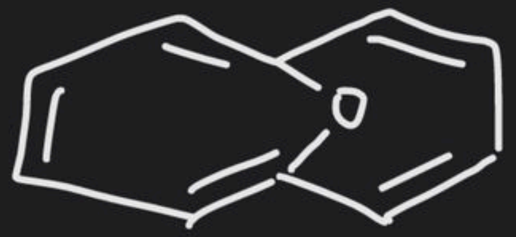
Non Aromatic



Non planer due to Repulsion b/w Two trans inter-

Venity H. atom.

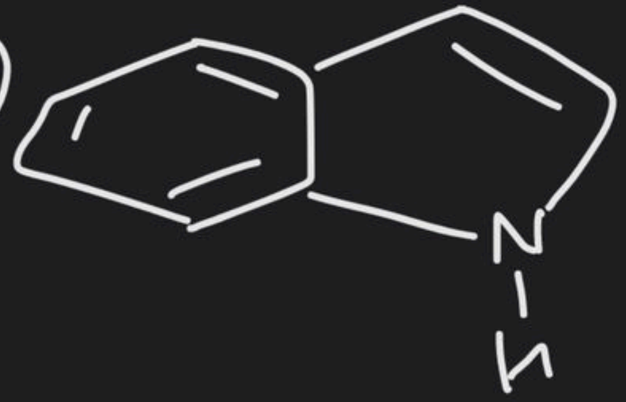
(47)



(48)

(49)

(50)



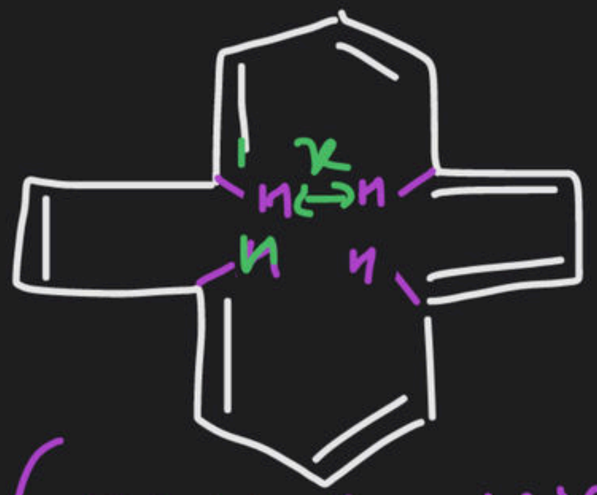
(Indole)

(51)

Aromatic

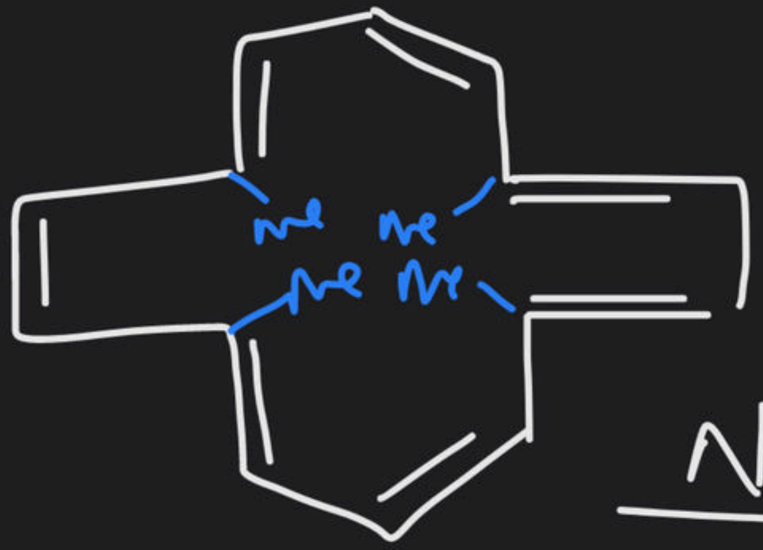
(52) Annulene [14]

"



(Slight Repulsion & Aromatic)

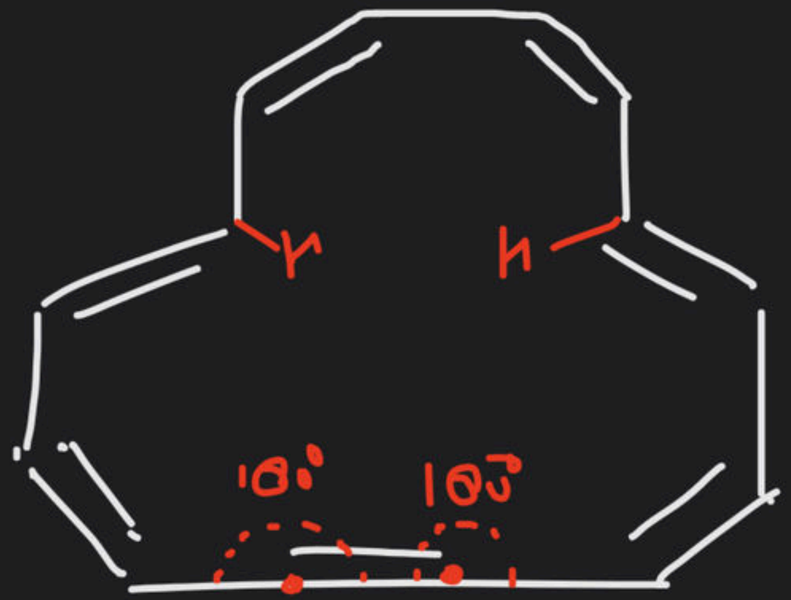
(53)



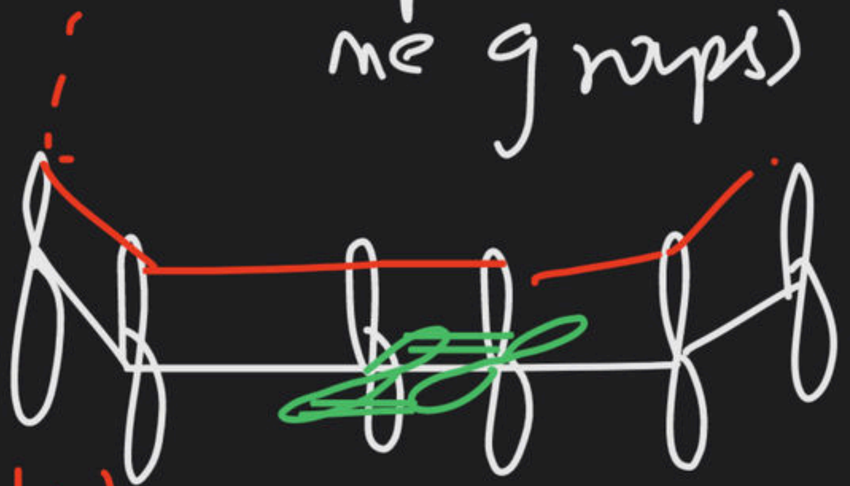
(A) Aromatic
(B) Non Aro
(C) Anti

Non Aromatic (Non planer due to hype Repulsion b/w me groups)

(54)



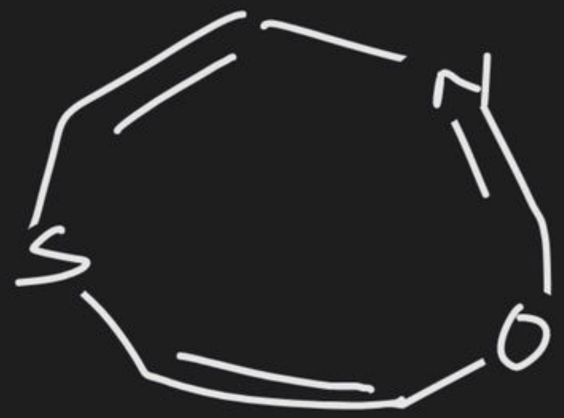
(14 πe^-'s) (Aromatic)



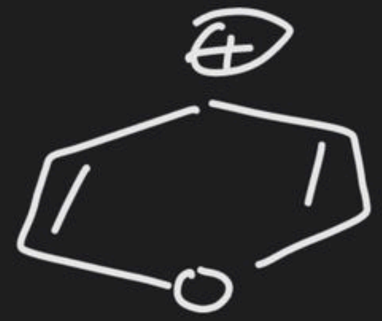
(55) Annulene [16]

(56) Annulene [18]

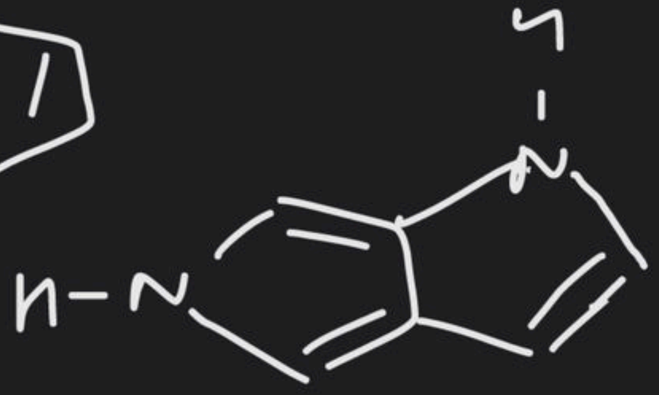
(57)



(58)



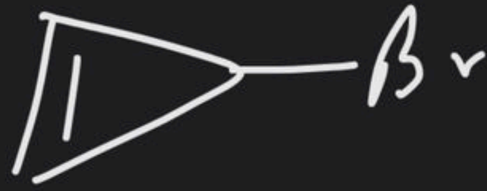
(59)



(60) Azulene

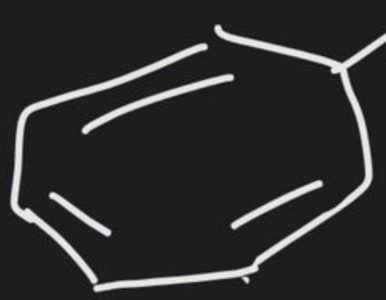
(61) Find Reactions

(a) in which Aromatic product is obtained / which are feasible

(1)  $\xrightarrow{AgNO_3}$

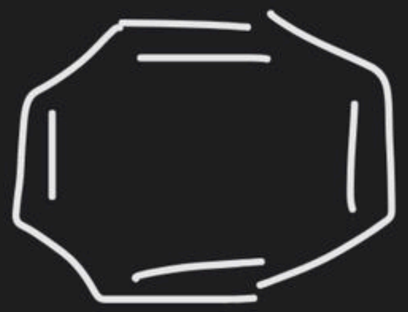
(2)  $\xrightarrow{\text{?}}$ 

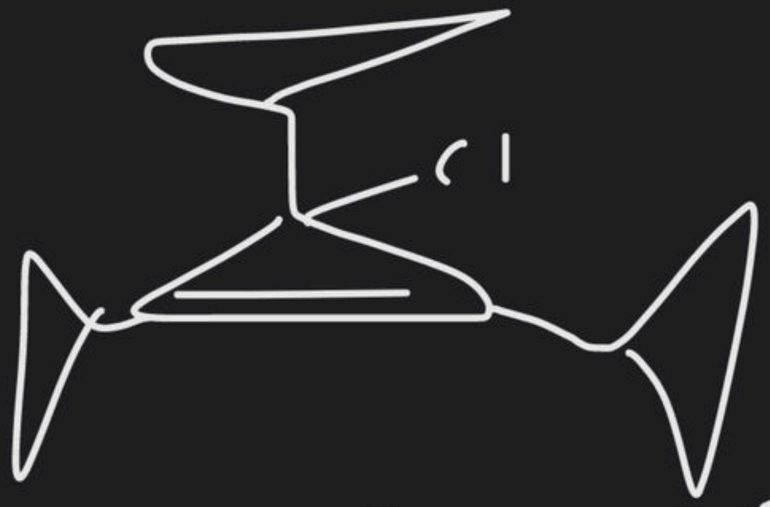
(Anti Aromatic)

(3)  $\xrightarrow{AlCl_3}$

(4)  $\xrightarrow{NaH}$

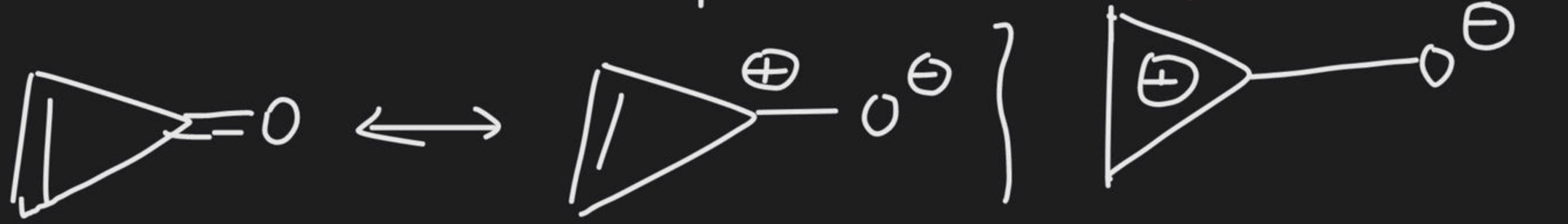
(5)  $\xrightarrow{Na/Li}$

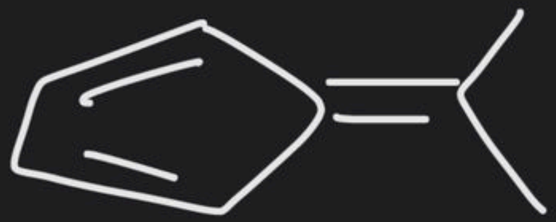
(6)  $\xrightarrow{Na/Li}$

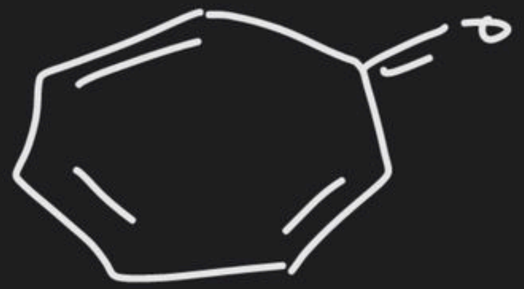
(7)  $\xrightarrow{AlCl_3}$

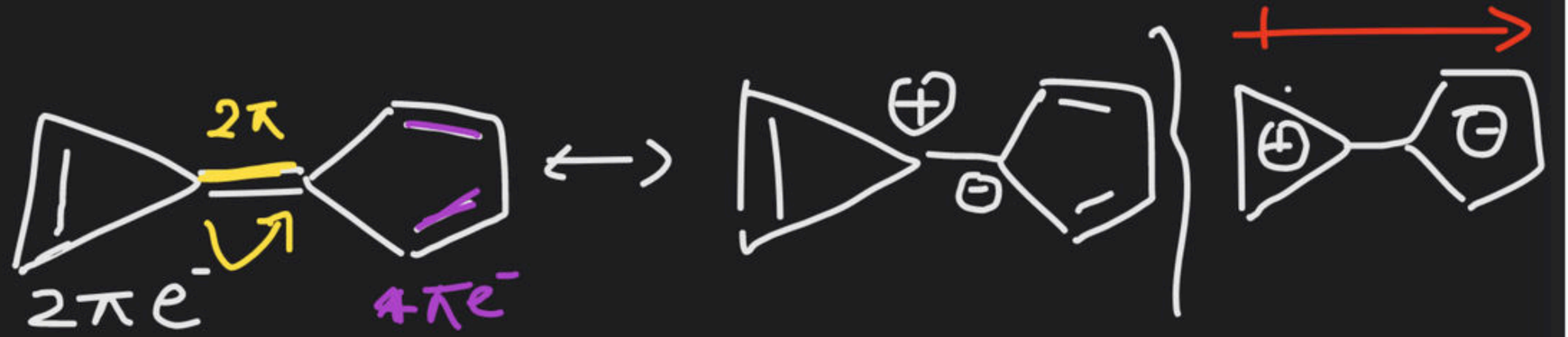
(8)  $+ Ph_3C^{\oplus} \longrightarrow$

(62) Find direction of dipole moment

(1) 

(2) 

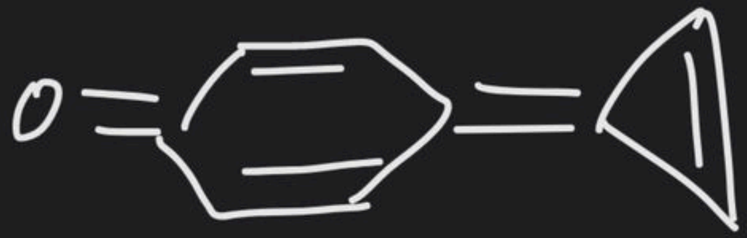
(3) 

(4) 

(5)

(6)

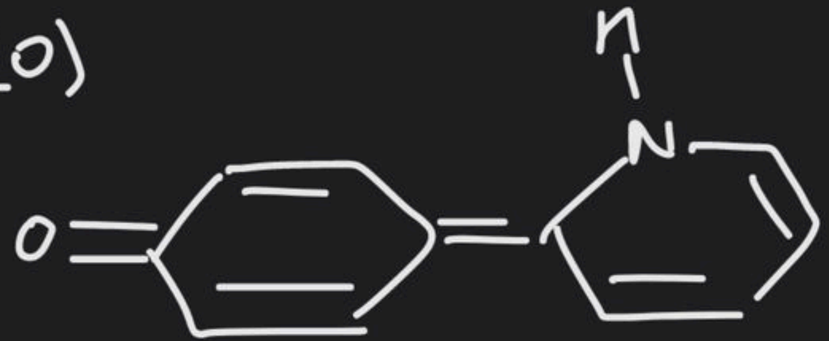
(7)



(8)

(9)

(10)



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▲ 4 • Asked by Yuvrajvidh...

Sir ajj mera doubt bata dijiye ye question kese solve kare
Bulls eye ke batch test me aya tha.....

Question 60
YOU DIDN'T ATTEMPT

Your Time Taken: 1m 15s | Avg Time Taken By Others: 23s | Attempt Accuracy: 0%

Stereochemistry & Isomerism

Total number of structure isomers of molecular formula C_7H_{16} having at least one methy substituent as per IUPAC rules :

7