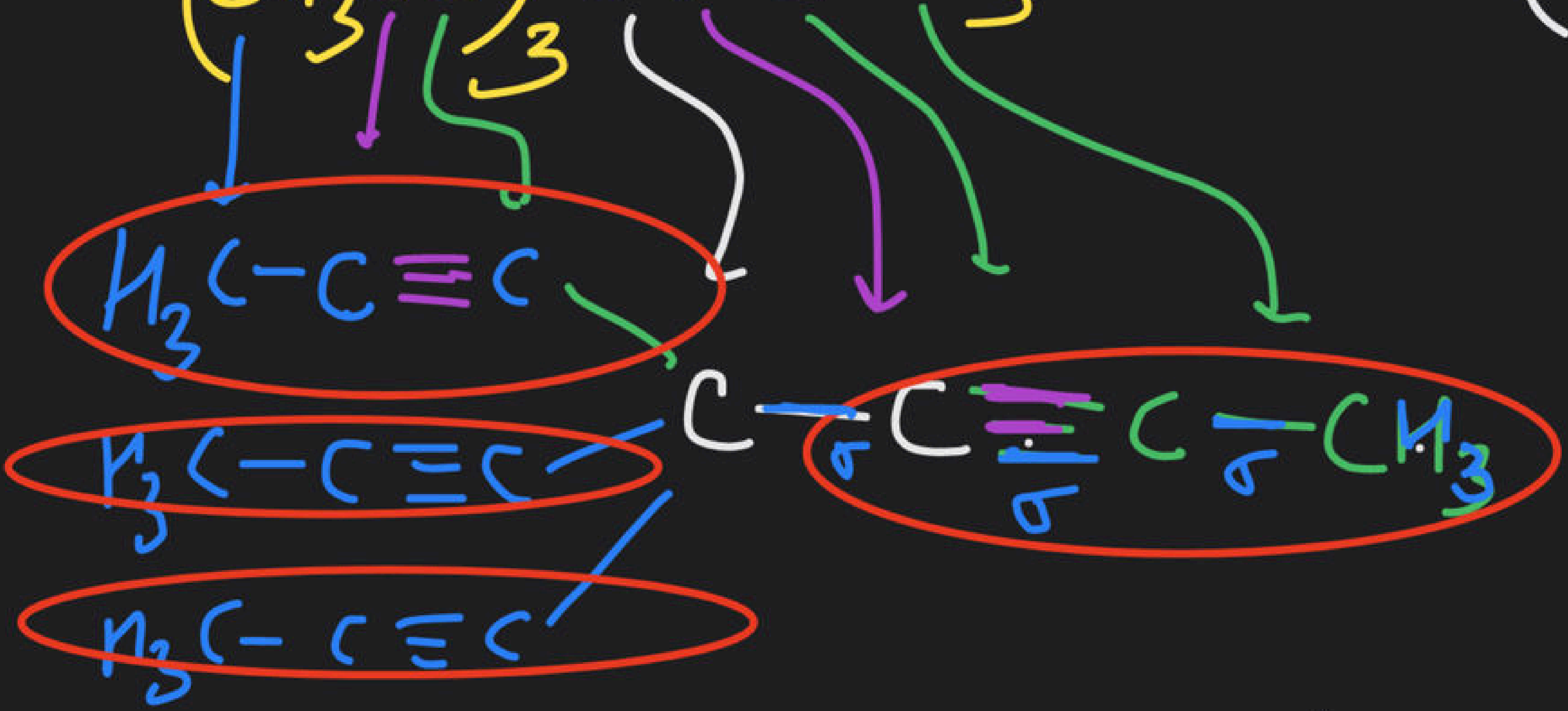
Doubt Clearing Session

Course on Nomenclature of Organic Compounds for Class XI

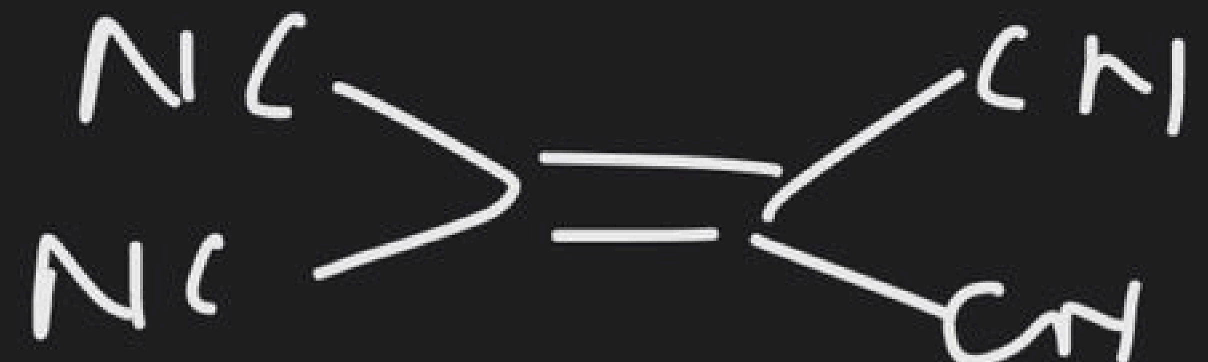
SURENDRA K MISHRA • Lesson 4 • June 22, 2021

(7) $(CH_3CC)_3CCCCH_3 \Rightarrow (CH_3CC)_4C$

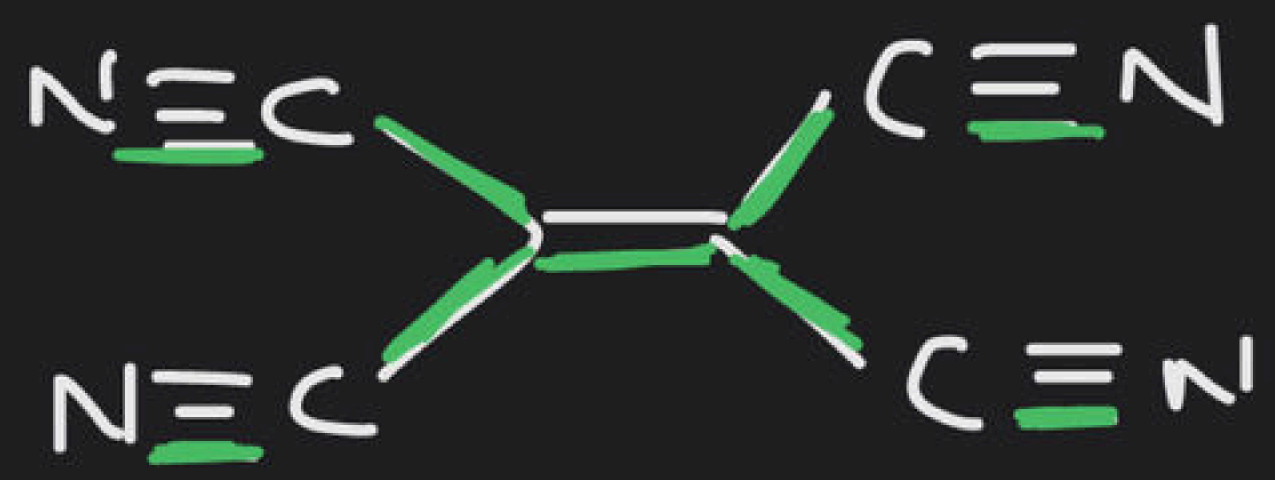


σ	π
4×6	4×2
$= 24\sigma$	8π

(8)

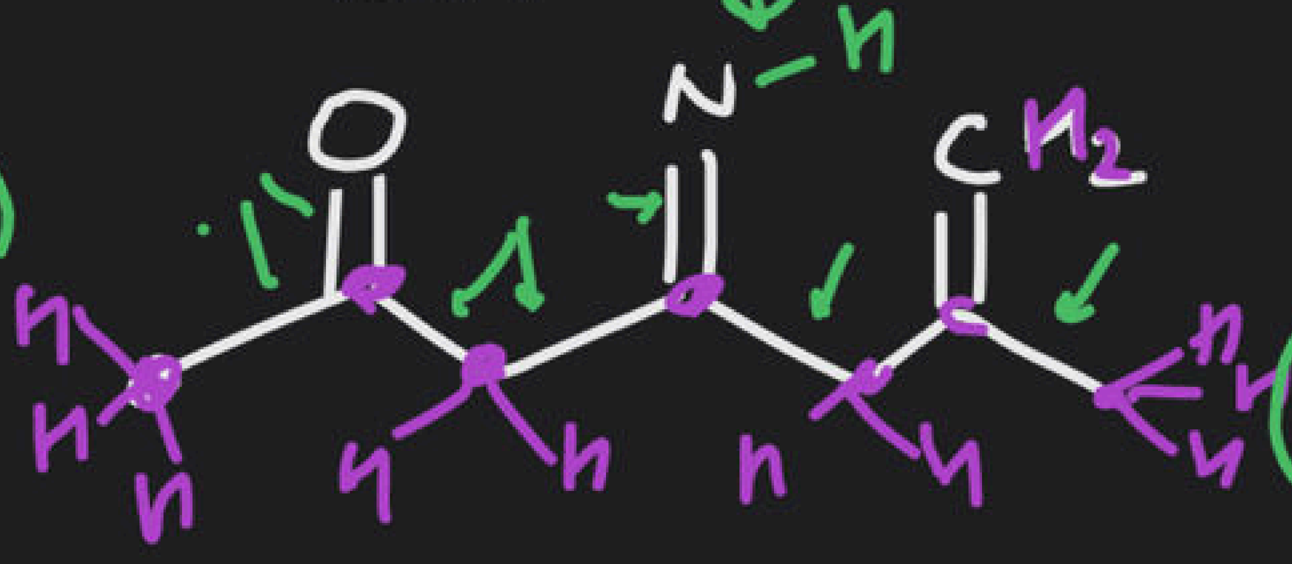


$\Rightarrow$



9σ, 9π

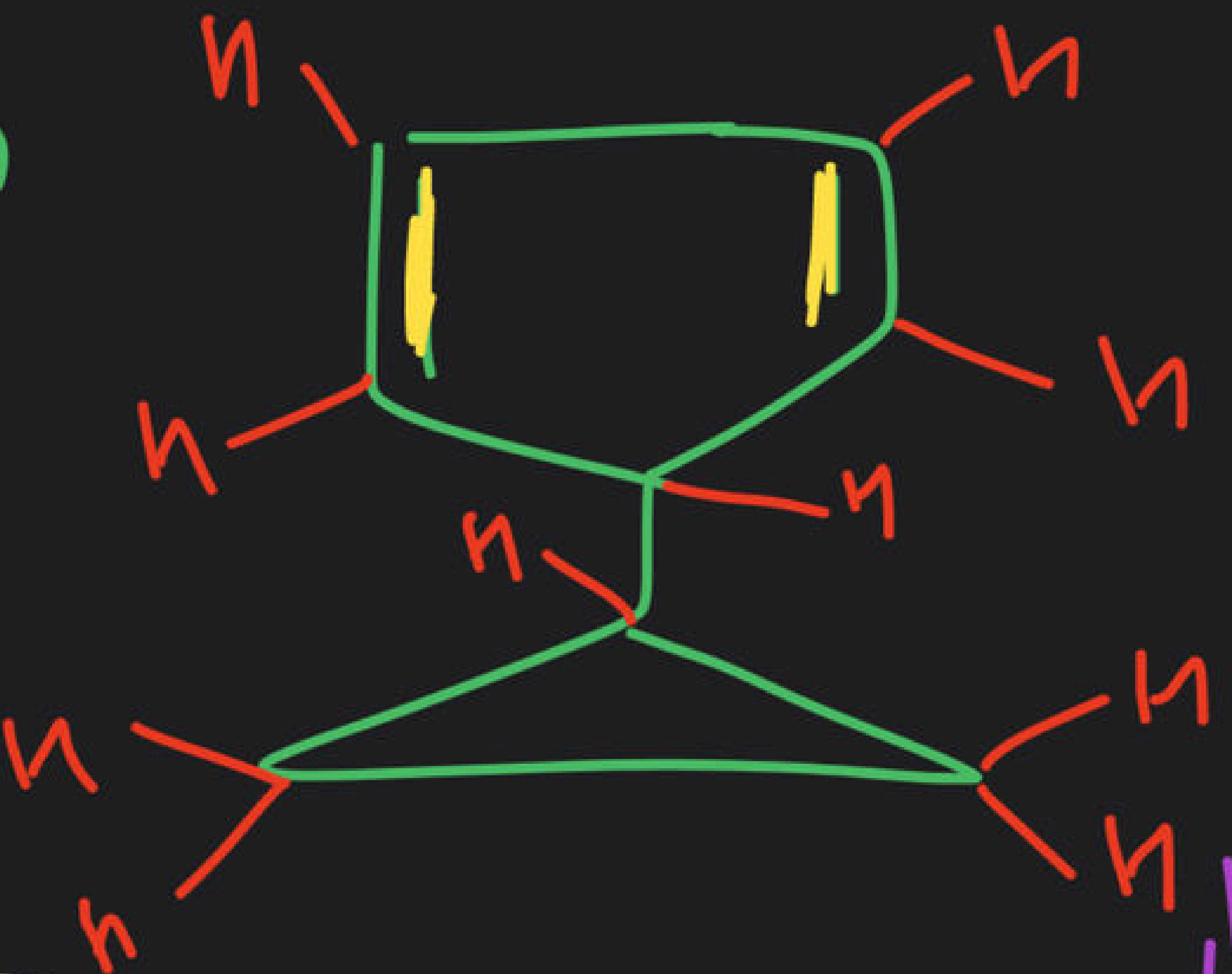
(9)



$12 + 9 + 1$

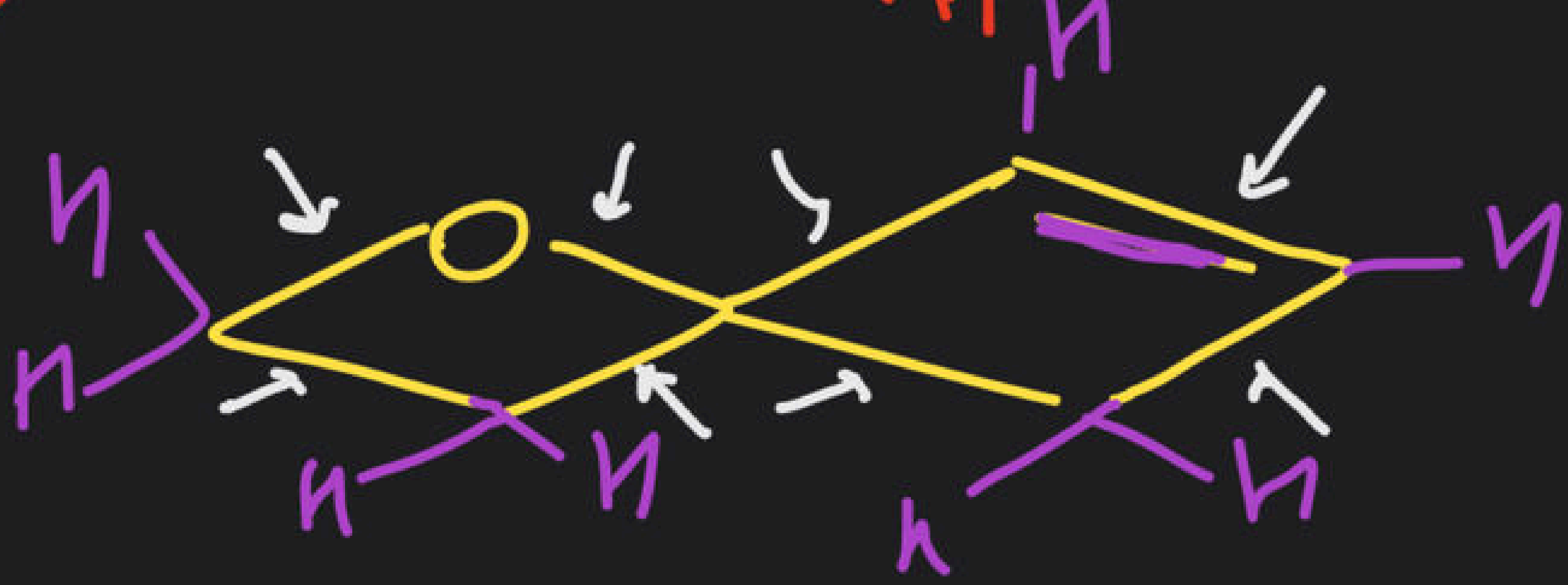
22σ
3π

(10)



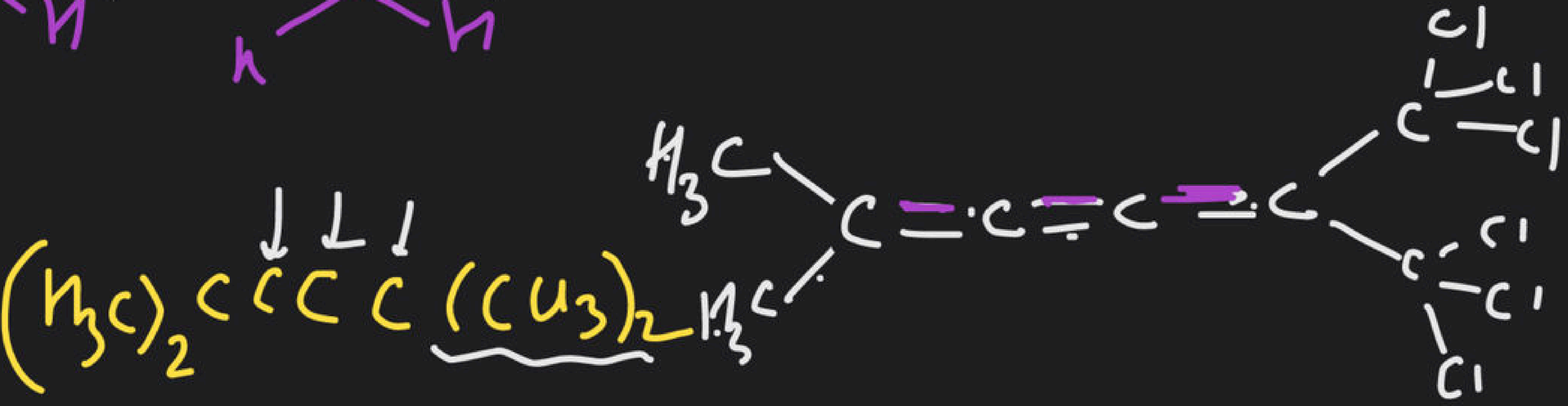
(19σ 2π)

11



	σ	π
A	14	2
B	16	1

(12)

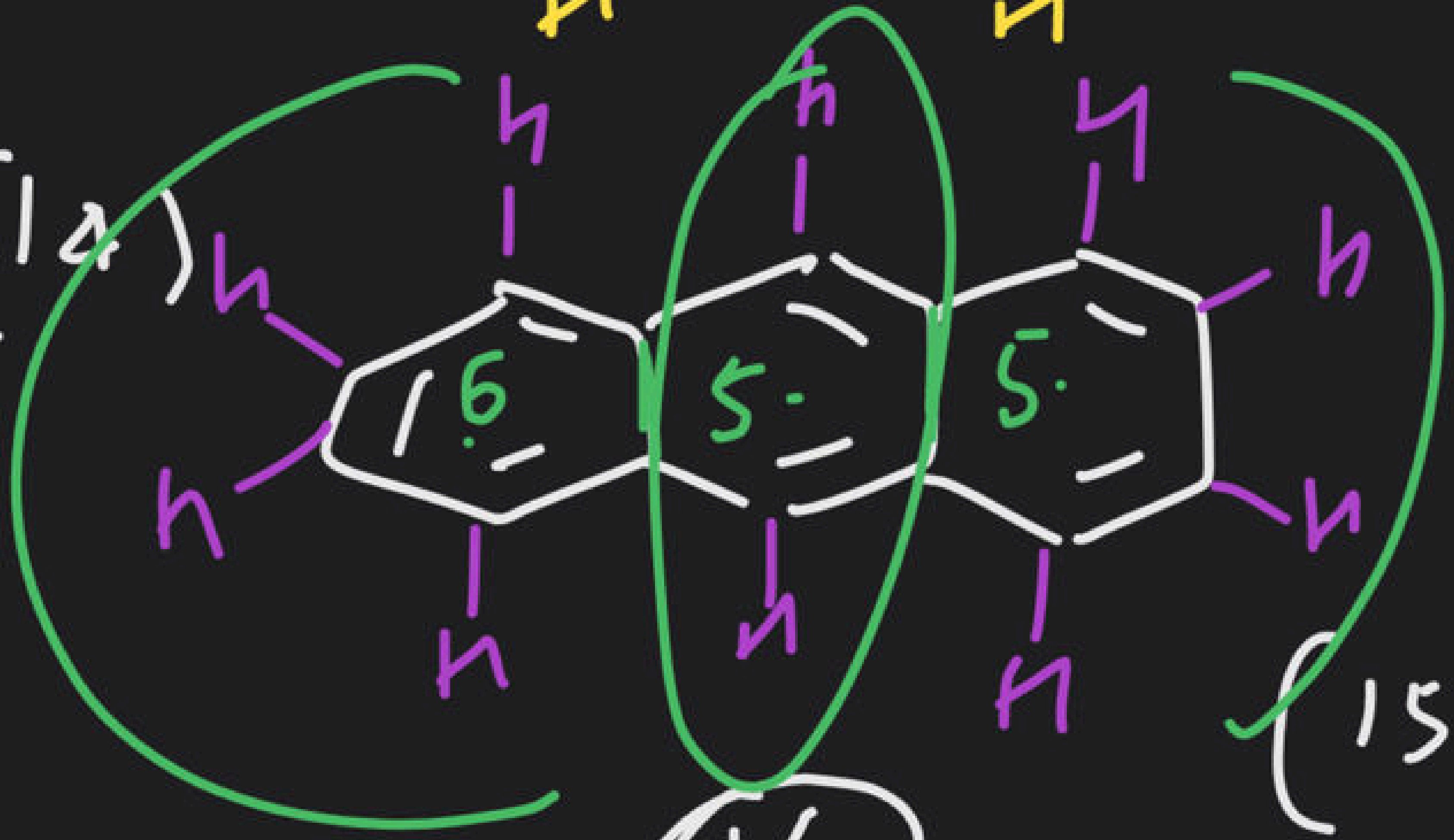


19σ

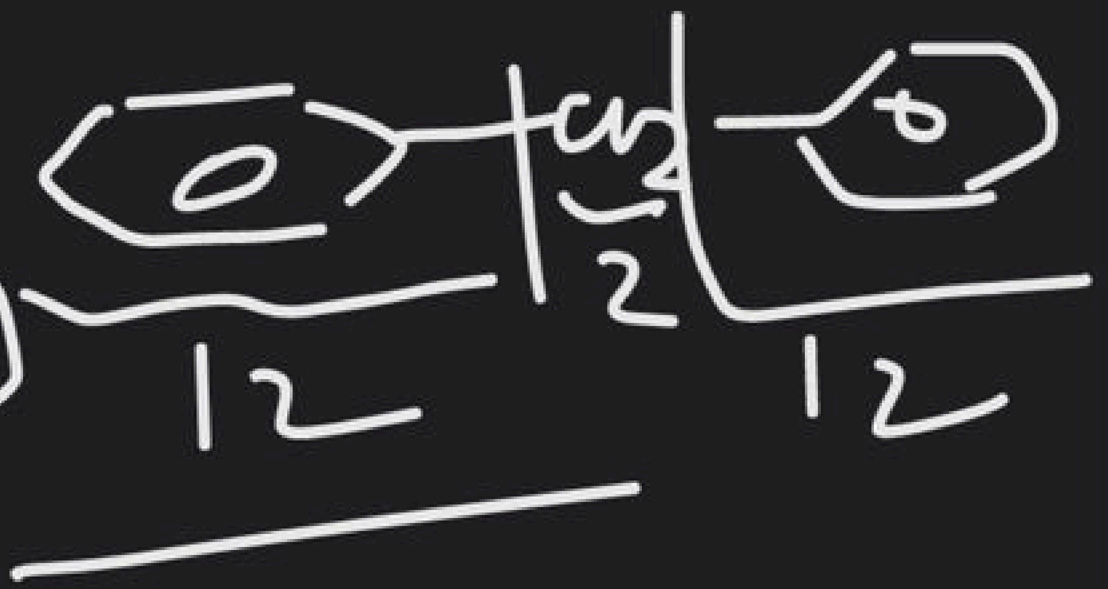
3π

(13)

(14)



(19σ 5π)



26σ 7π

48σ 12π

(15) 12σ 3π

Ph_4C

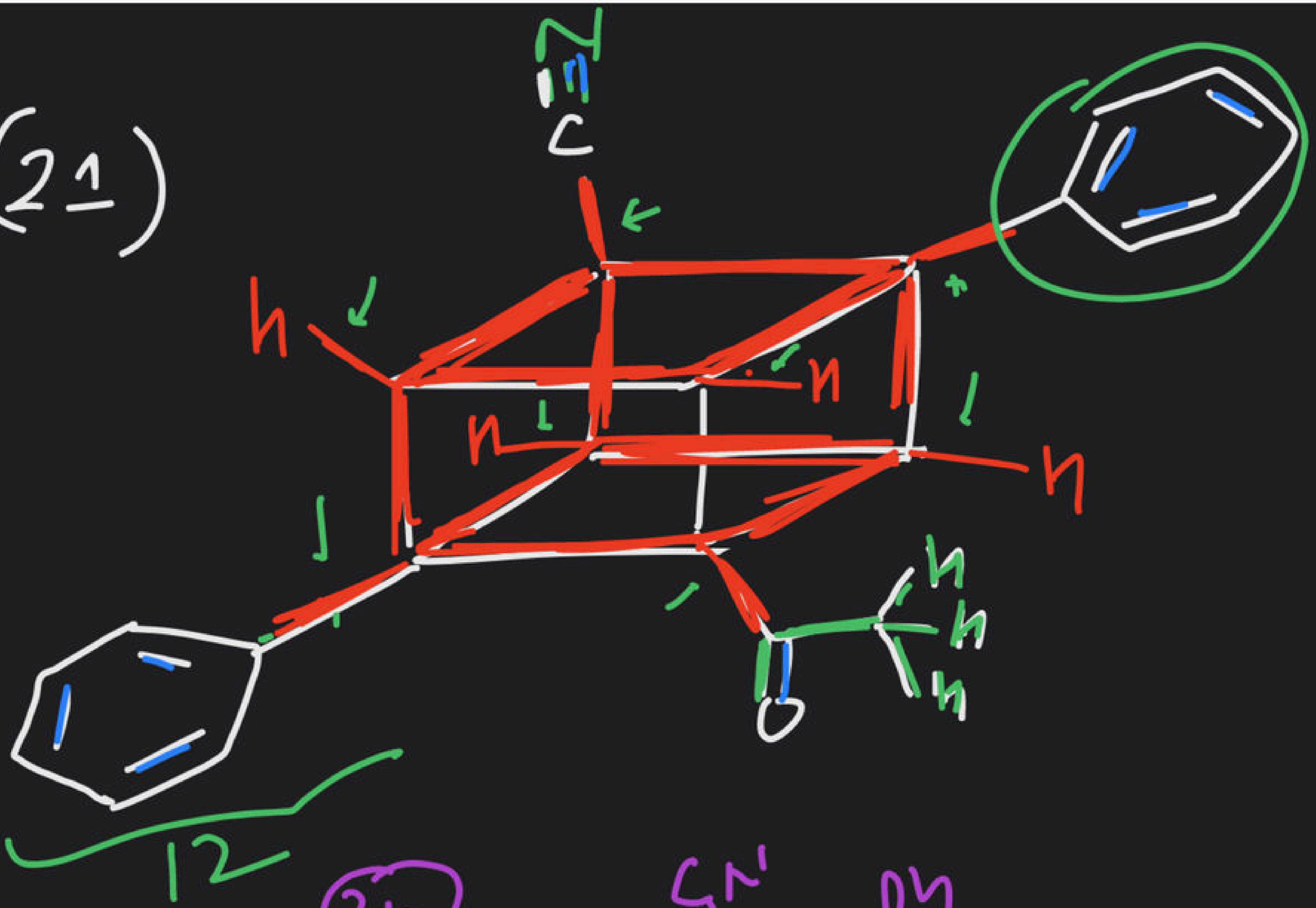
16 Ph_3CH 37σ 9π

(17) 26σ 6π

18 15σ 3π

(19) 26σ 6π

(21)



12 + 8 + 11 + 11 + 2 + 1 + 3

(Edges) (Cme)

(A) 42 7

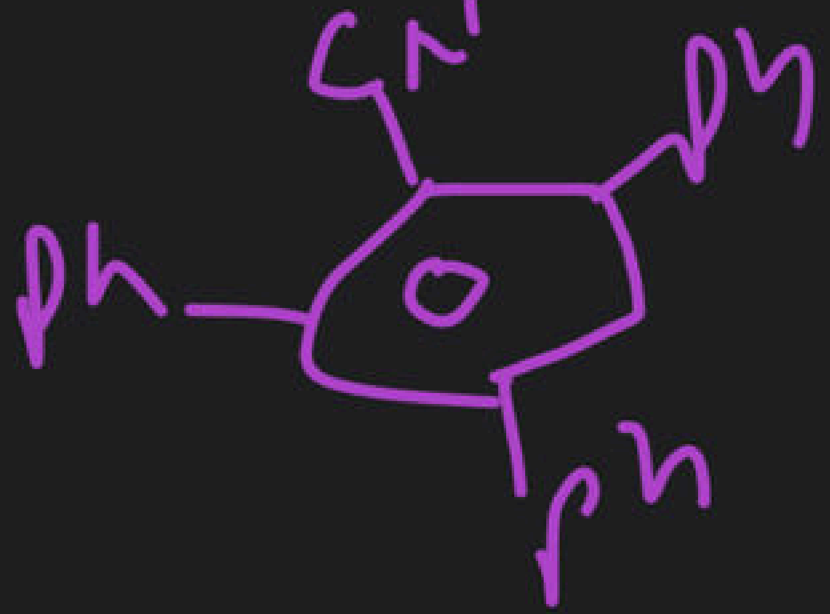
(B) 44 9

(C) 46 8

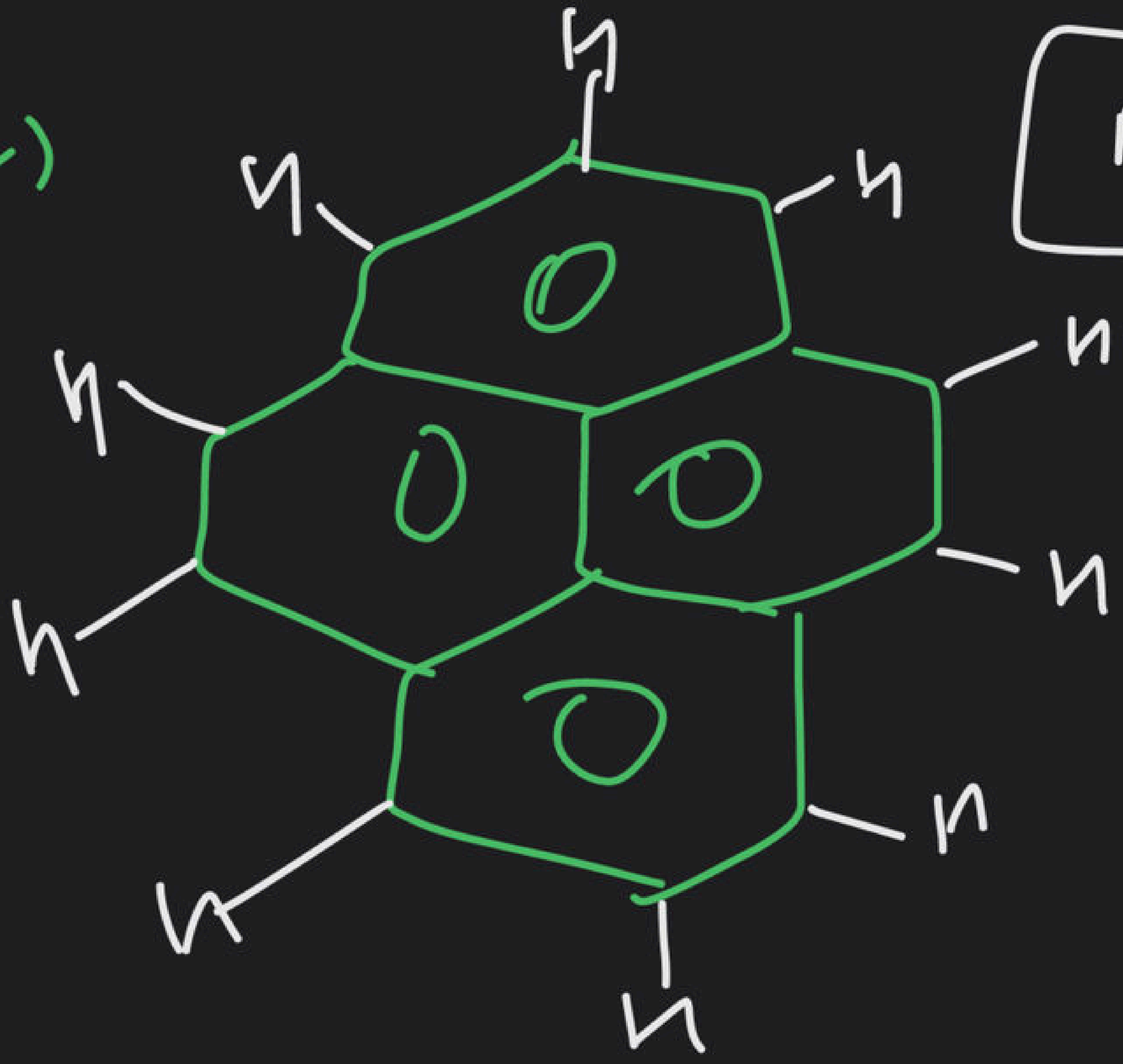
(D) 48 9

(E) N.O.T

(26)

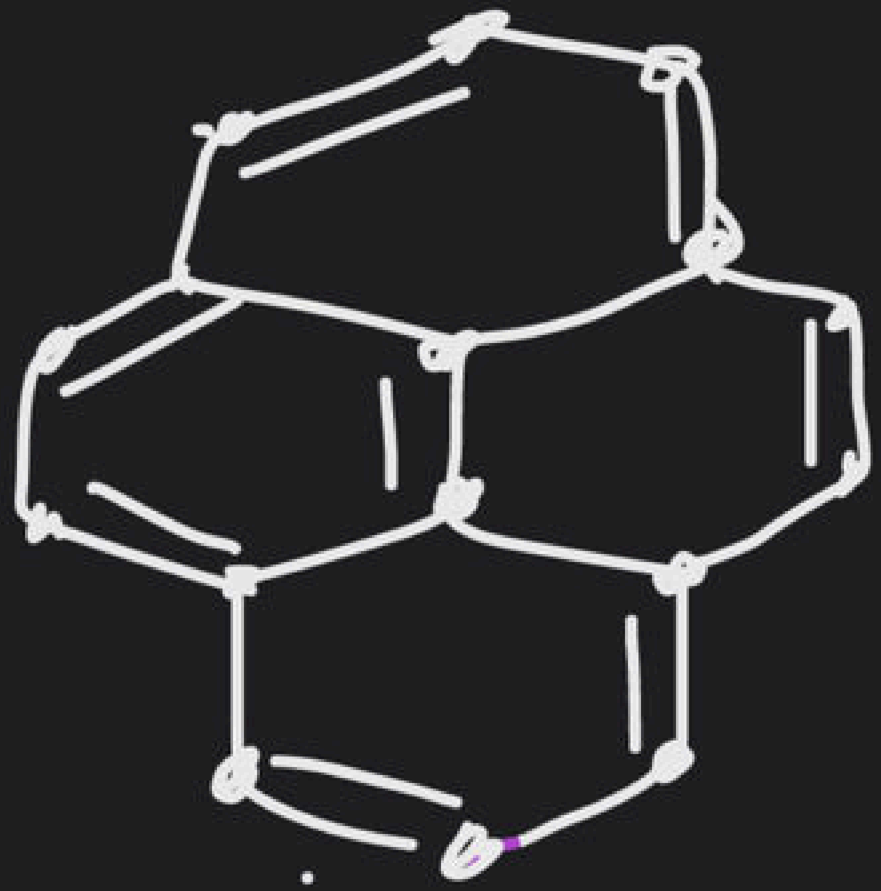


(2a)



$\boxed{\text{Method - I}}$

$\underline{\underline{29\sigma}}$ $\underline{\underline{8\pi}}$



➡ π electrons $\doteq 2 \times$ No. of π. Bond

(#) Type of C

(#) Type of H

(#) σ

(#) π

(x) Line formula

(x) Line fun ——— simple fun

Index of Hydrogen deficiency (IHD) / Double bond Equivalent (DBE) / Degree of Unsaturation (DOU)

$$\boxed{DOU = DBE = IHD = \frac{\Delta n_H}{2}}$$

⇒ Alkane

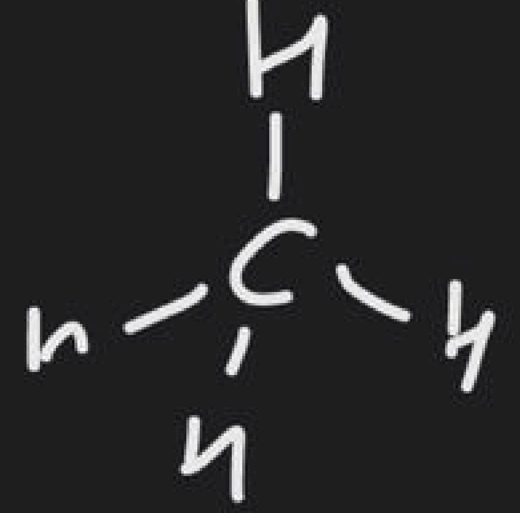
(*) GF ⇒ $C_nH_{(2n+2)}$ $(n \geq 1)$

(*) All single bonds $(C-C)$

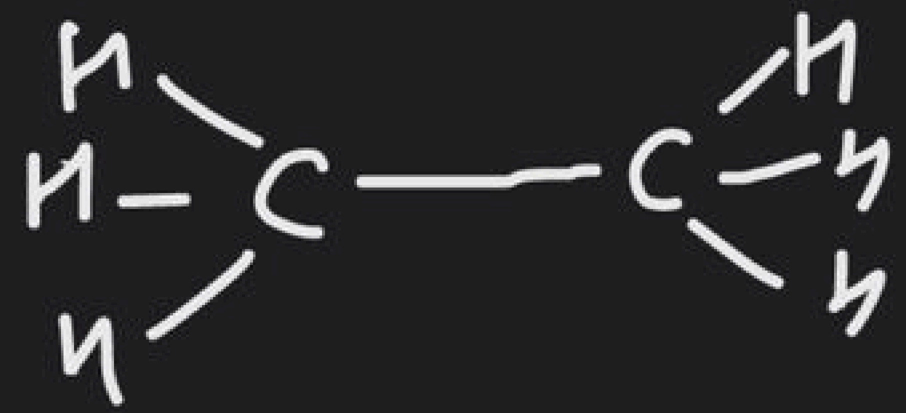
(*) $(2n+2)$ is maximum No. of H atom which n carbon atoms can have

(*) Hydrogen deficiency $(\Delta n_H) = 0$

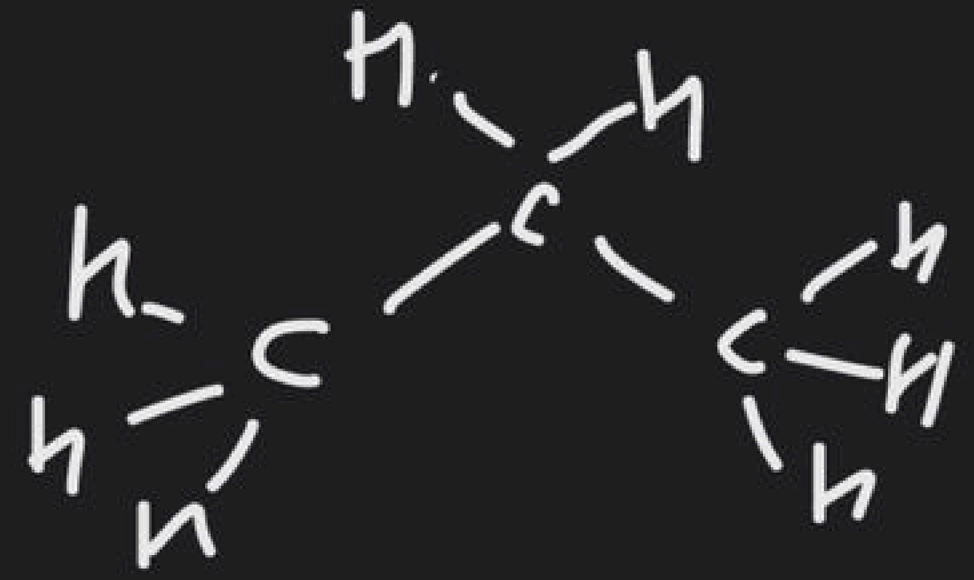
Ex-1: $n = 1$ CH_4



Ex-2: $n = 2$ C_2H_6



Ex-3: $n = 3$ C_3H_8



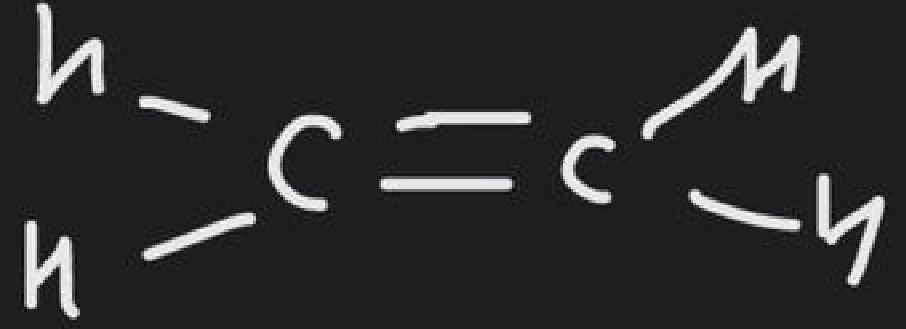
$$\boxed{IHD = 0}$$

$\boxed{2n+2}$

⇒ Alkene

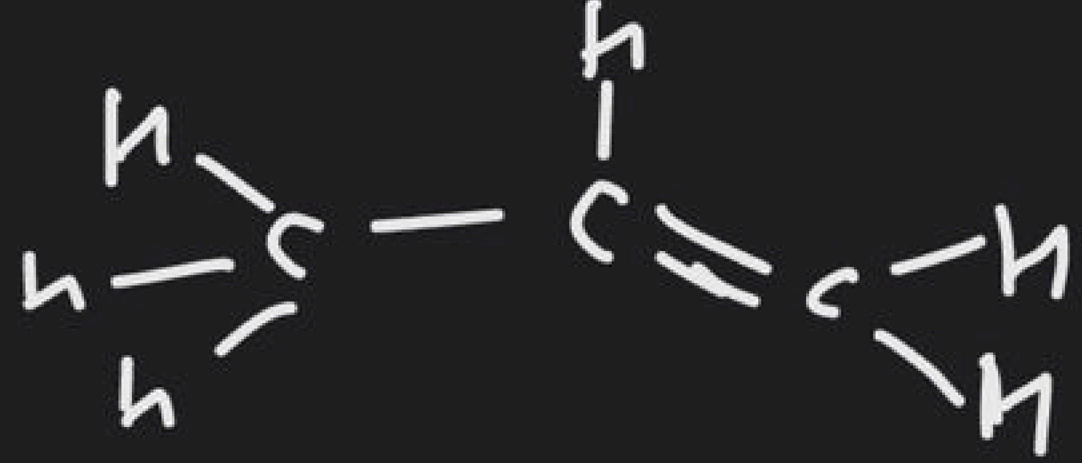
(*) C_nH_{2n} $(n \geq 2)$

Ex: C_2H_4



(*) one $(C=C)$ wd be present

Ex: C_3H_6



(Δn_H)

(*) Containg hydrogen deficiency = 2

$\boxed{IHD = 1}$

⇒ Alkyne

Ex C_2H_2 $\quad H-C\equiv C-H$

(*) C_nH_{2n-2} $(n \geq 2)$

(*) One $(C\equiv C)$ wd be present

(Δn_H)

$\boxed{IHD = 2}$

(*) Containg Hydrogen deficiency = 4

Ex-1: C_3H_8 / C_3H_8 ($\Delta n_H = 0$) (IHD = 0) C_nH_{2n+2}

Ex-2: $\boxed{C_4H_8}$ / C_4H_{10} / $\Delta n_H = 2$ (C_nH_{2n+2})

(IHD = 1)

$H_2C=CH-CH_2-CH_3$

double bond = 1

IHD = 1

(X) Cyclic Compound (GF = C_nH_{2n})

$CH_2-CH_2-CH_2-CH_2$ (ring)

(double bond = 0)

IHD = 1

Note (i) 1 double bond = 1 IHD = No. of π Bond

(ii) 1 Triple bond = 2 IHD = No. of π Bond

(iii) 1 Ring = 1 IHD

(iv) Total No. of IHD = Total No. of π Bond + Total no of Ring

$$\boxed{2 = x + y}$$

Ex-1: A Compound Contains IHD = 2, Then Correct Statement regarding compound is

~~(A) It must have 2 double bond.~~

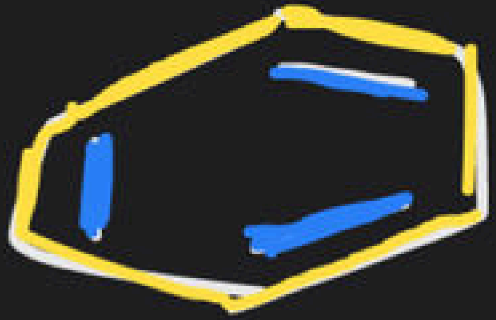
~~(B) It must have 2 Rings~~

(C) It may have 1 π Bond & 1 Ring

~~(D) It must be HydroCarbon~~

~~(E) It must have Triple Bond.~~

(2)



IHD = 3 + 1

= 4

(A) 2

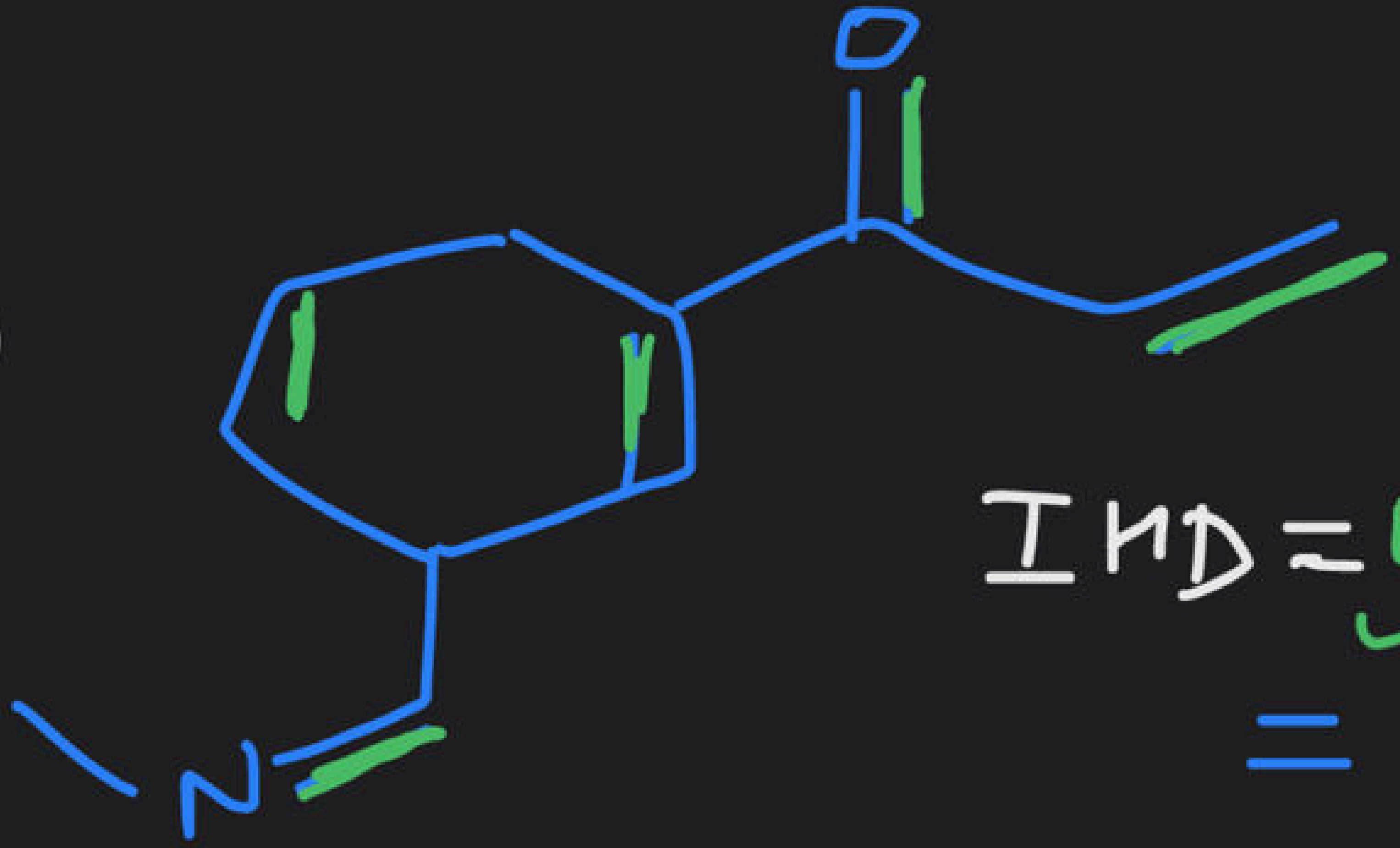
(B) 3

(C) 4

(D) 5

(E) 6

(3)



IHD = 5 + 1

= 6

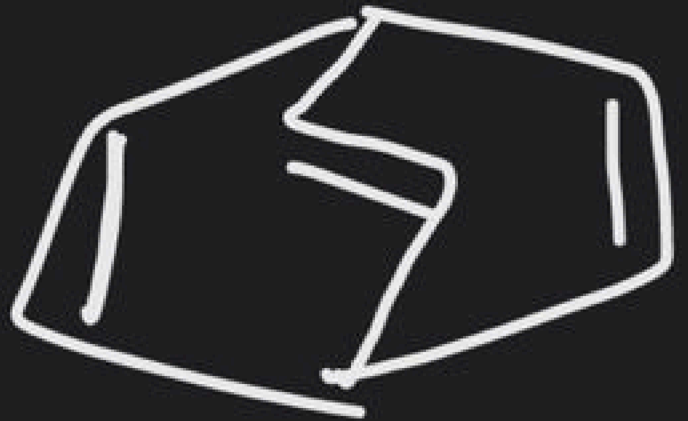
(A) 5

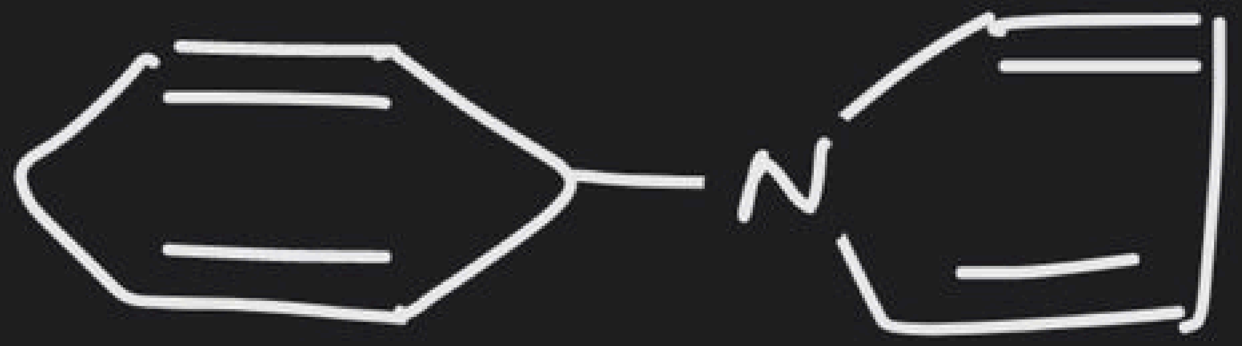
(B) 6

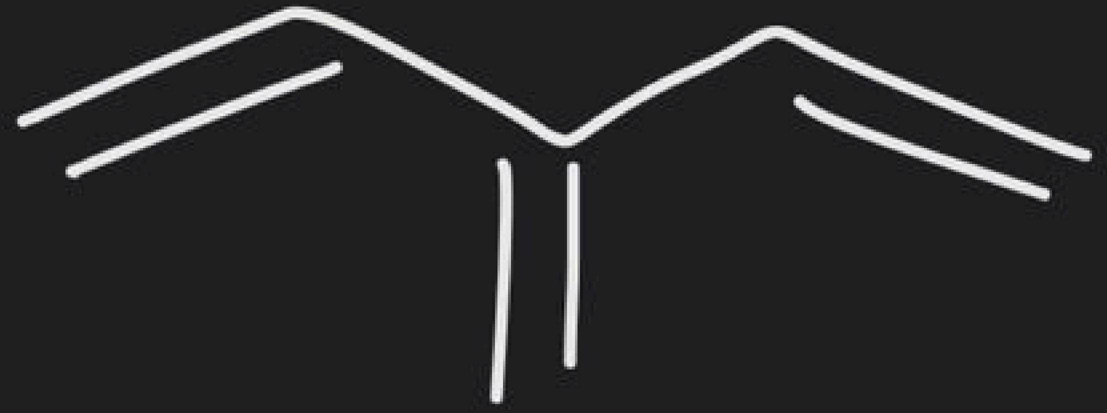
(C) 7

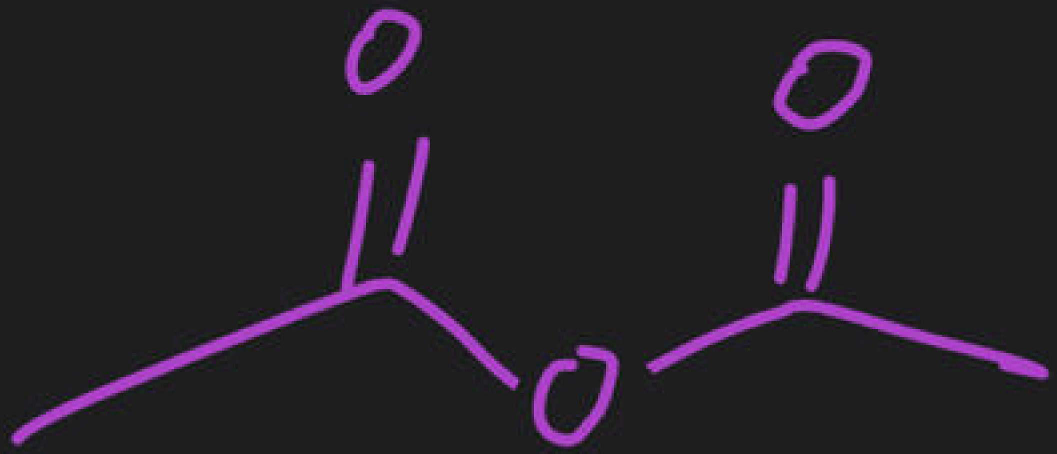
(D) 4

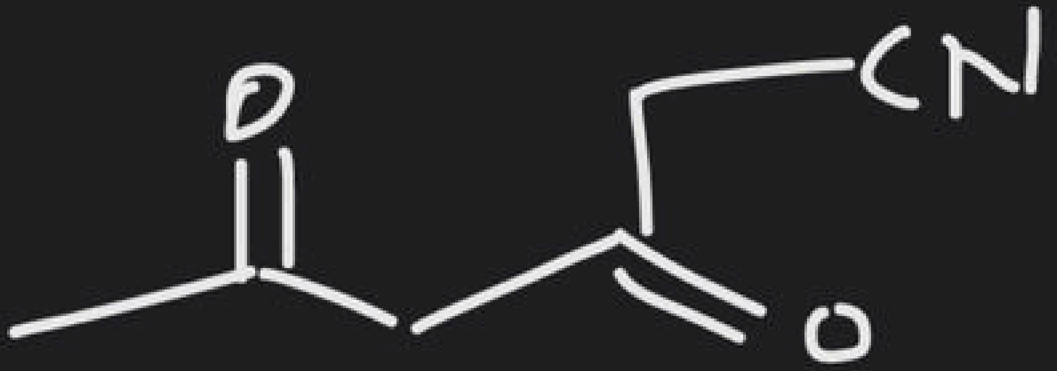
(4)



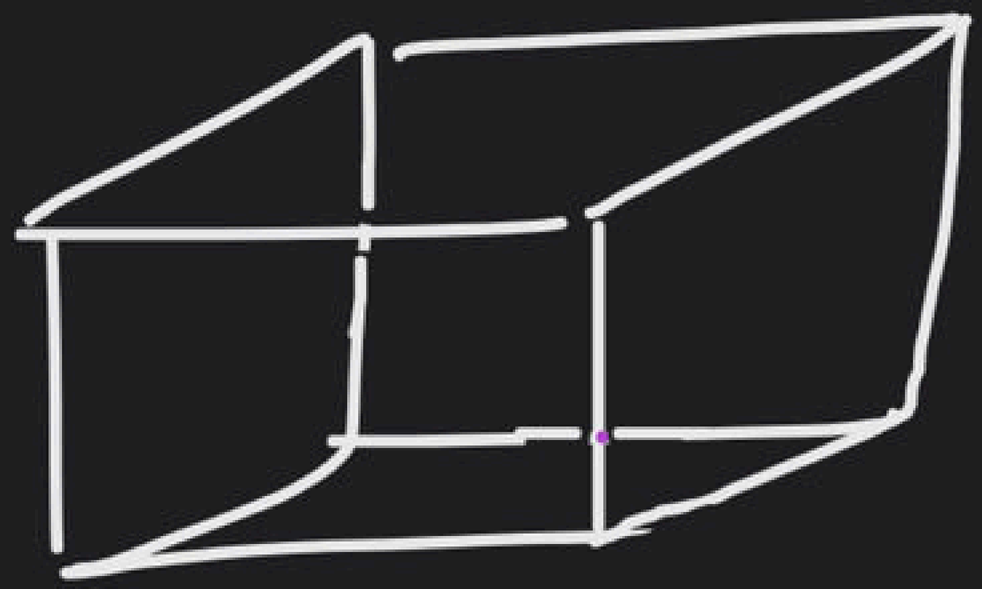
(5) 

(6) 

(7) 

(8) 

Imp (9)



IHD = No. of π Bond + No of Ring

= 0 + 5

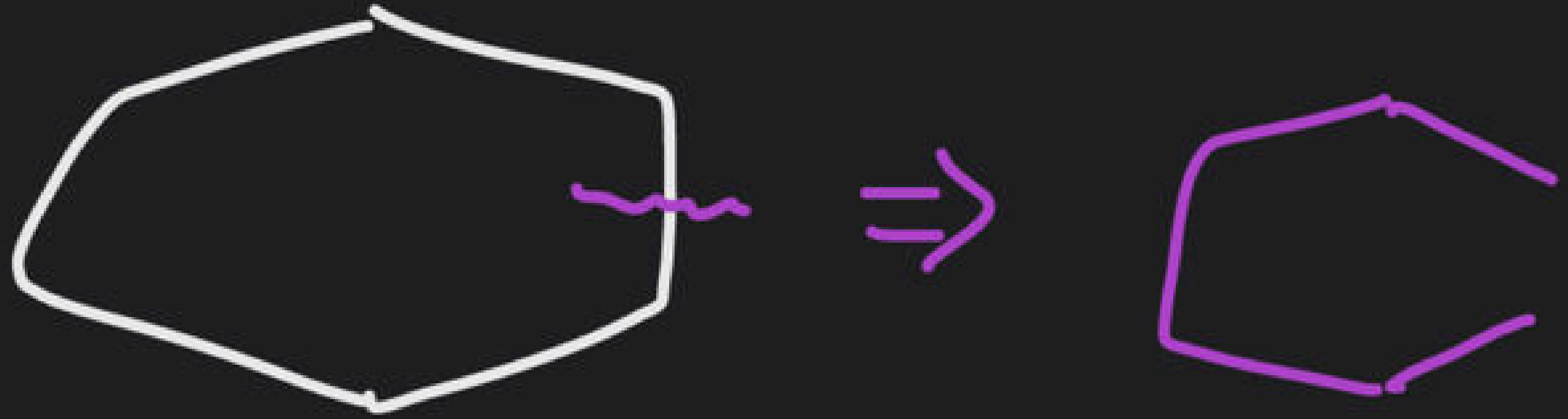
= 5

(*) No. of faces = 6

No. of Ring = 5

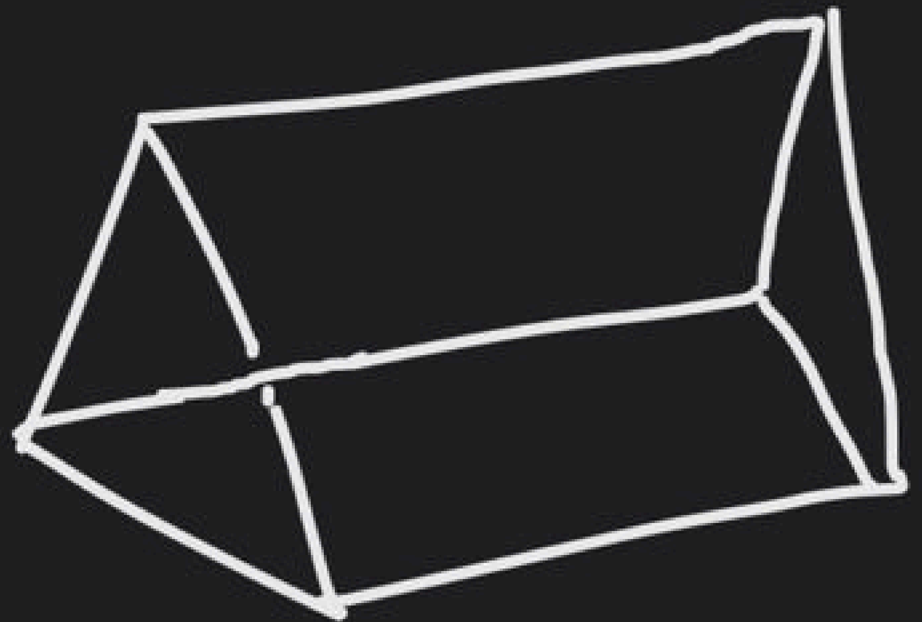
No. of Rings = minimum No of Bonds by breaking of which we get open chain compound

(10)

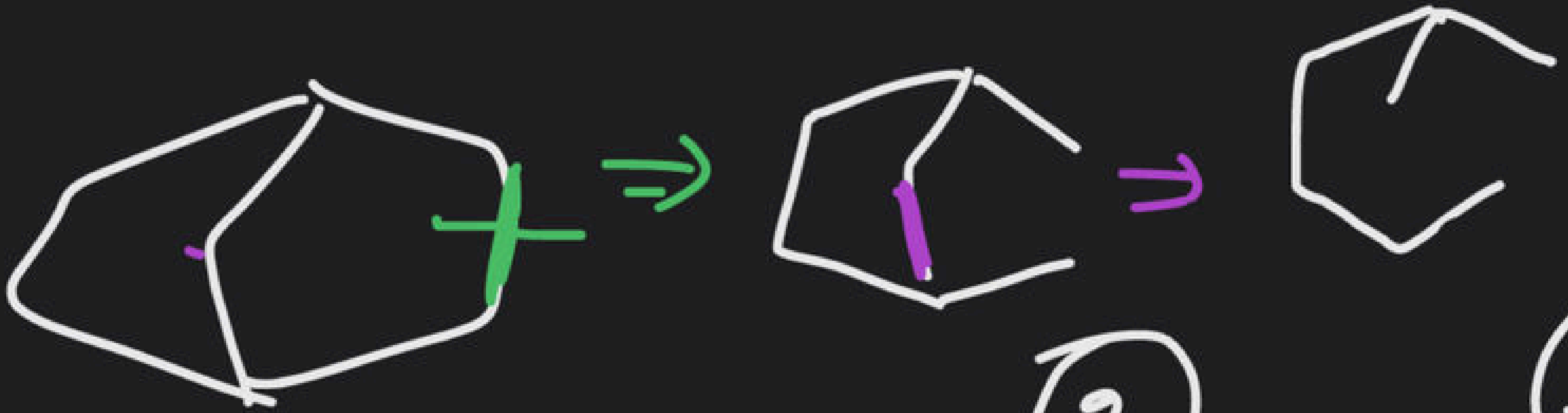


1

(13)

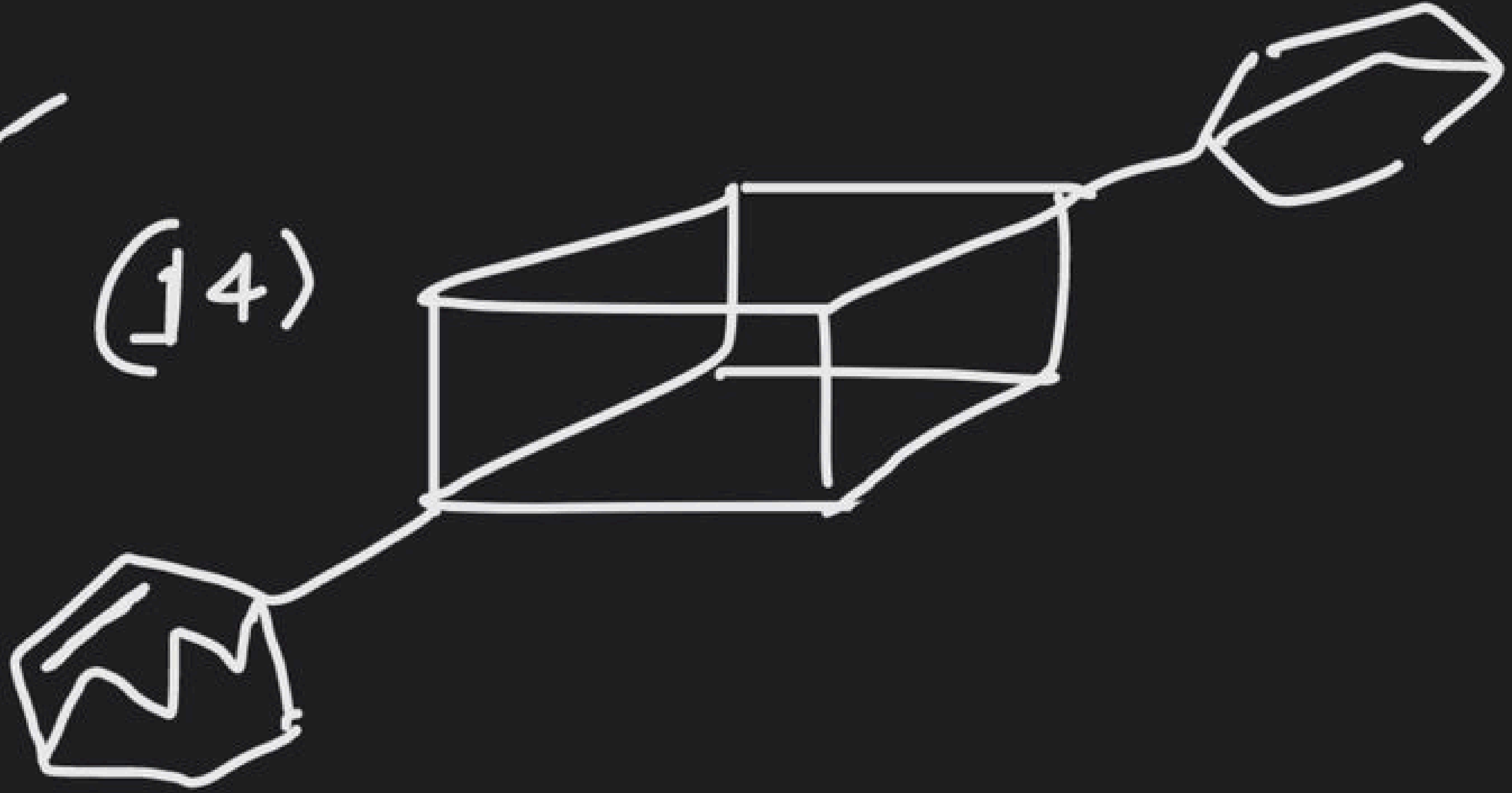


(11)



2

(14)



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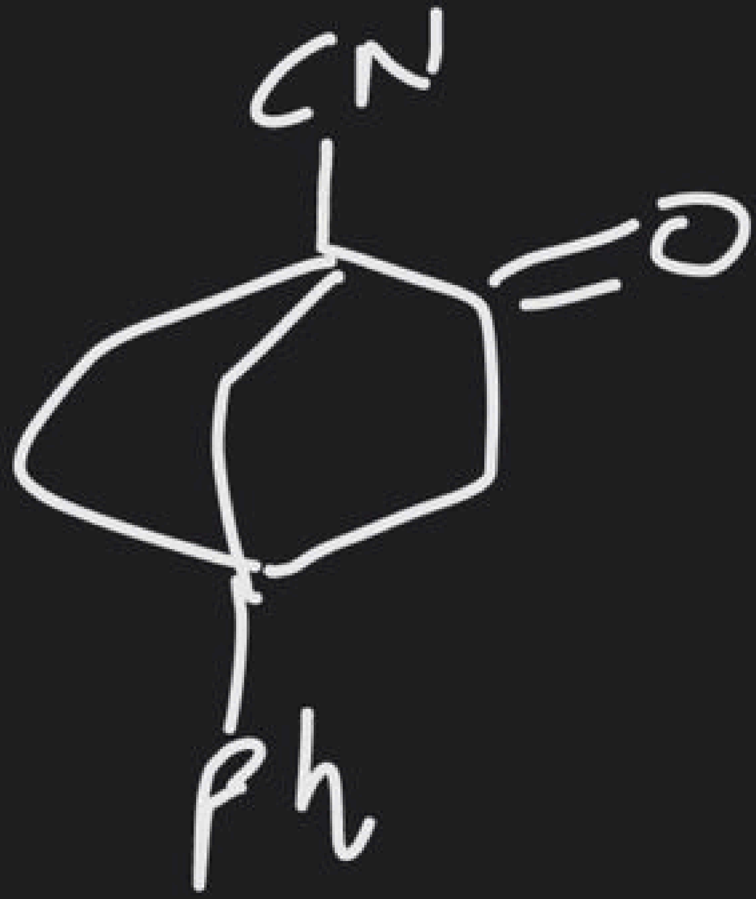
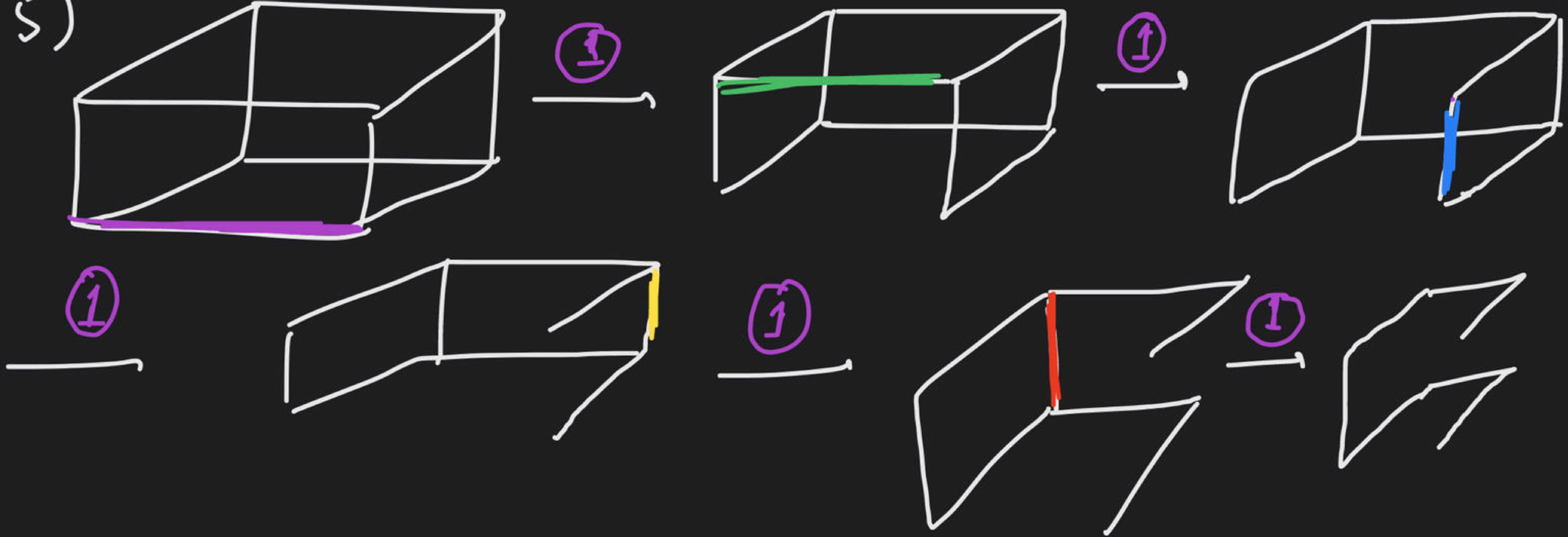
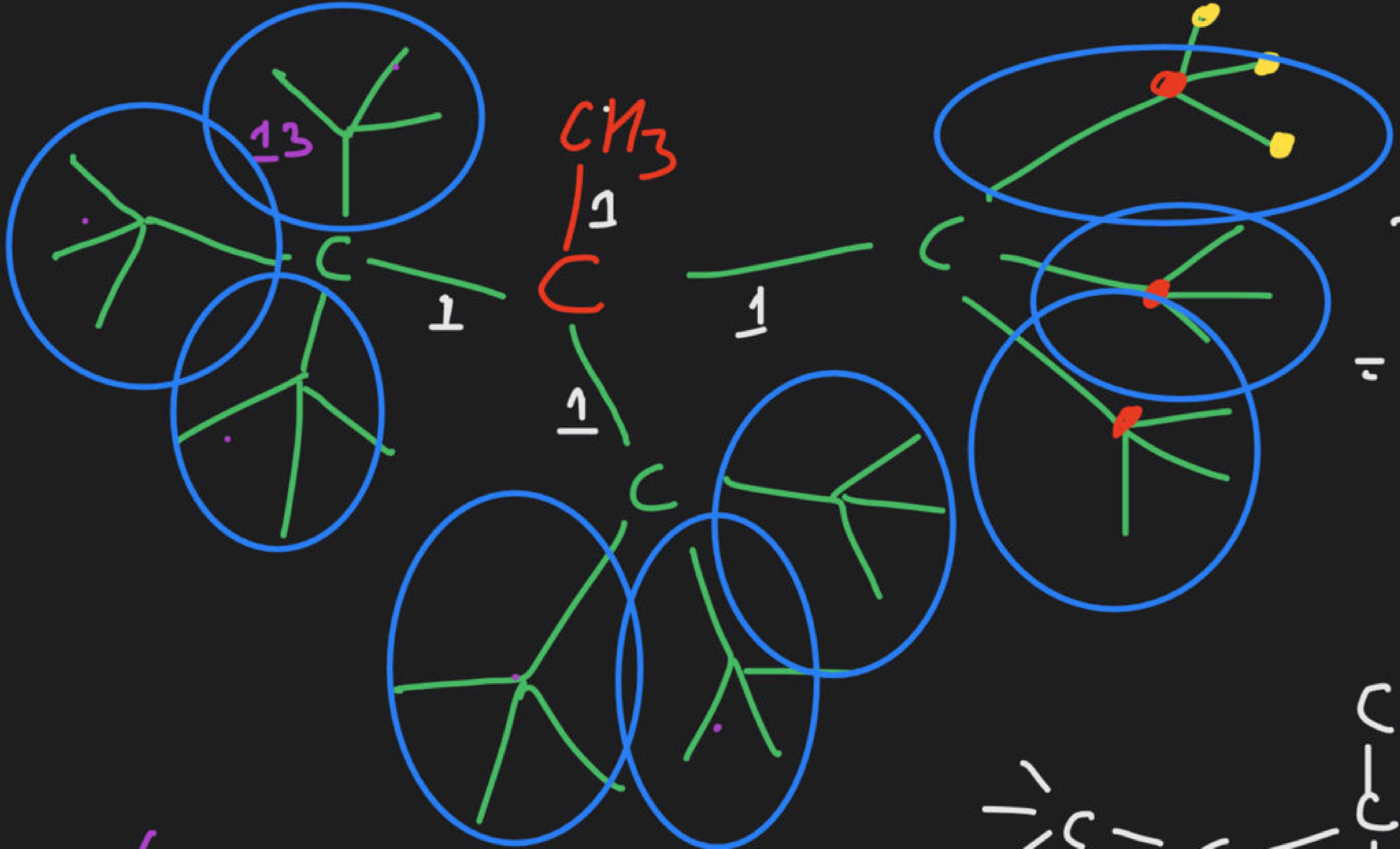


(15)



HW:

(6)



$7 + 13 \times 9$

$= 124\ r$ 02

$(((CH_3)_3C)_3C)_3C\,CH_3$