ULTIMATE KCET

CRASH COURSE 2026

Chemistry | Lecture - 01

Haloalkanes and Haloarenes

By – Sreeja Ma'am

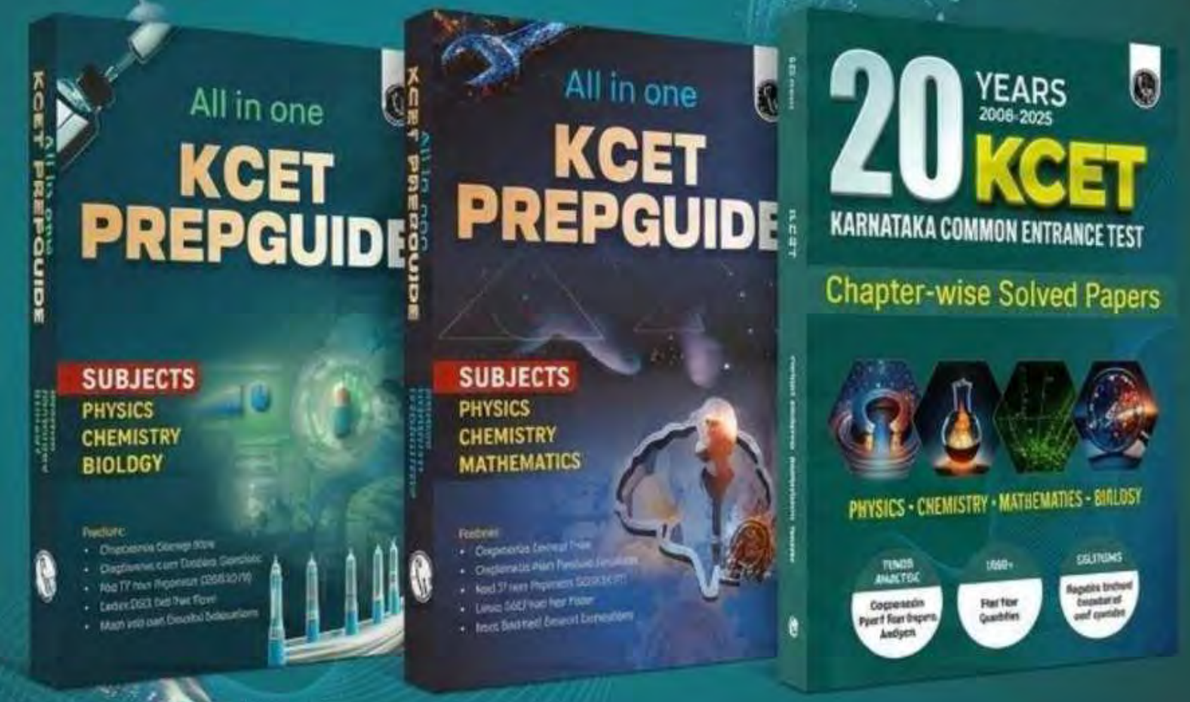
Recap *of previous lecture*

1. Alkanes, alkenes.

Topics *to be covered*

1. Alkynes and aromatic hydrocarbon
2. Haloalkanes and Haloarenes
3. MCQS, Pyqs

PHYSICS WALLAH



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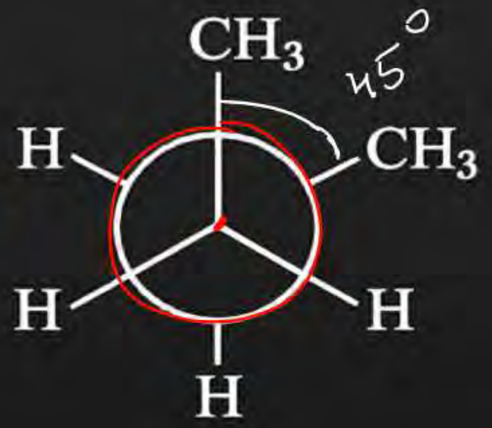
Question

In the following structures, which one is having staggered conformation with maximum dihedral angle ?

A



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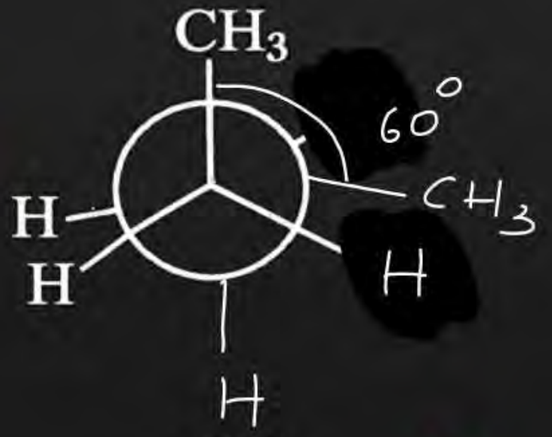
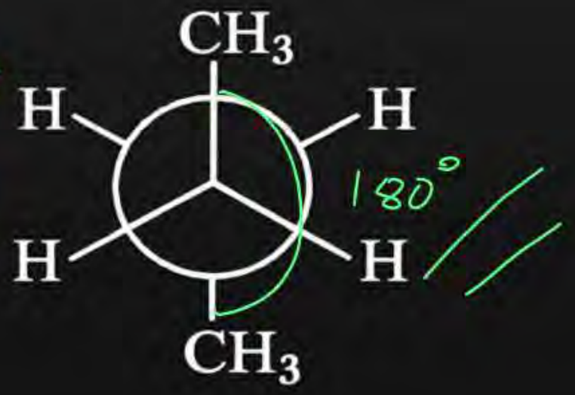
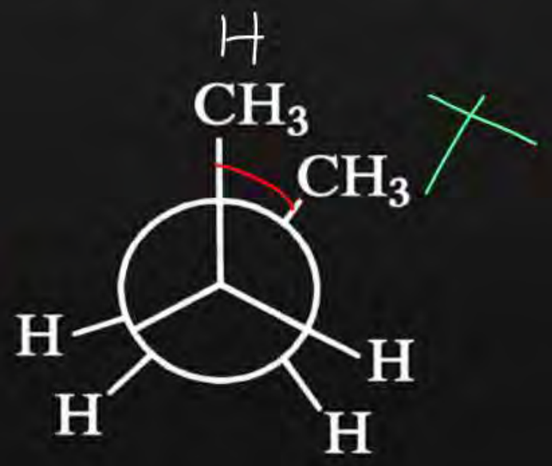


C



D



In catalytic reduction of hydrocarbons which catalyst is mostly used

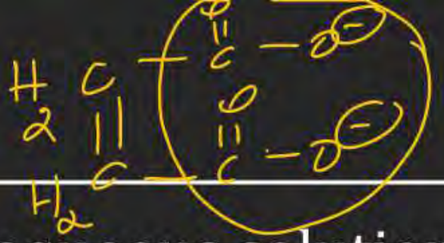
A Pt/Ni

B SiO_2

C Misch Metal

D Pd

VIMP



The compounds formed at anode in the electrolysis of an aqueous solution of potassium acetate, are

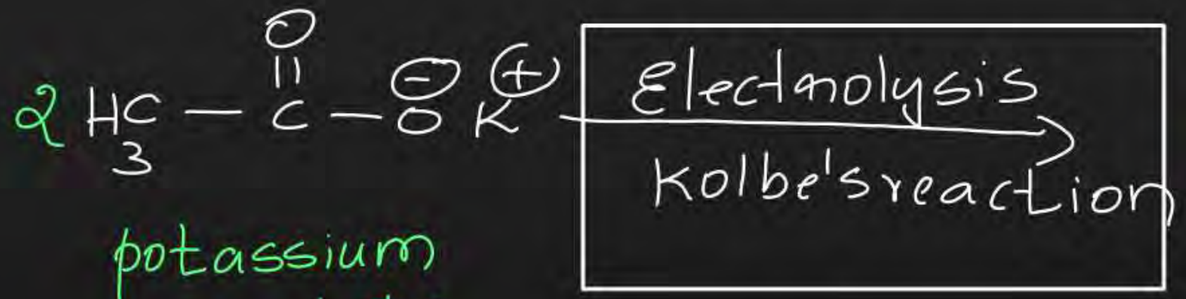
A C_2H_6 and CO_2

B CH_4 and H_2 ×

C C_2H_4 and CO_2 ×

Ethene $H_2C=CH_2$

D CH_4 and CO_2 ×



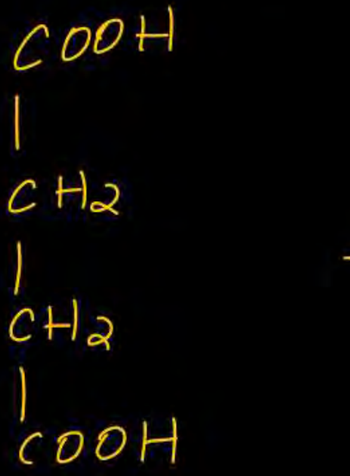
$H_3C-CH_3 + 2CO_2$

Ethane

anode

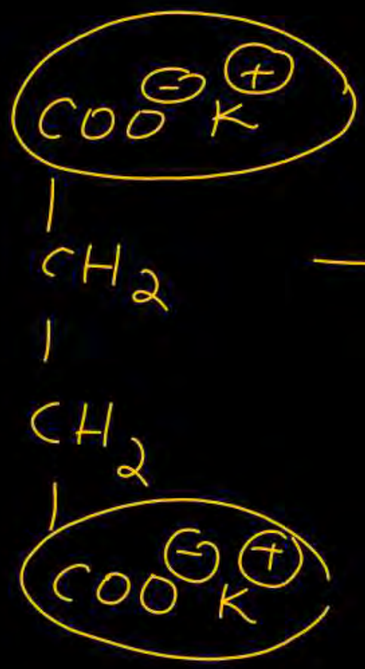
$+ H_2 + KOH$

Cathode.



→ Succinic acid.

→ potassium Succinate.



C_2H_4

Which of the following gas has the highest heat of combustion?

C-H

A Methane CH_4

B Ethane $H_3C - CH_3 + O_2 \longrightarrow CO_2 + H_2O$; $\Delta H_{combustion} = -ve$

C Ethene $H_2C = CH_2$

D Ethyne $HC \equiv CH$

pyrolysis

$C_nH_{2n} \rightarrow C_{10}H_{10\times2}$

$C_{10}H_{20}$

$C_{10}H_{22}$ +

↳ alkene

Name the reaction $C_{10}H_{22} \xrightarrow[\Delta]{900k} C_4H_8 + C_6H_{14}$

A Fractionation

B Cracking → petroleum industry

C Pyrolysis

D Alkylation

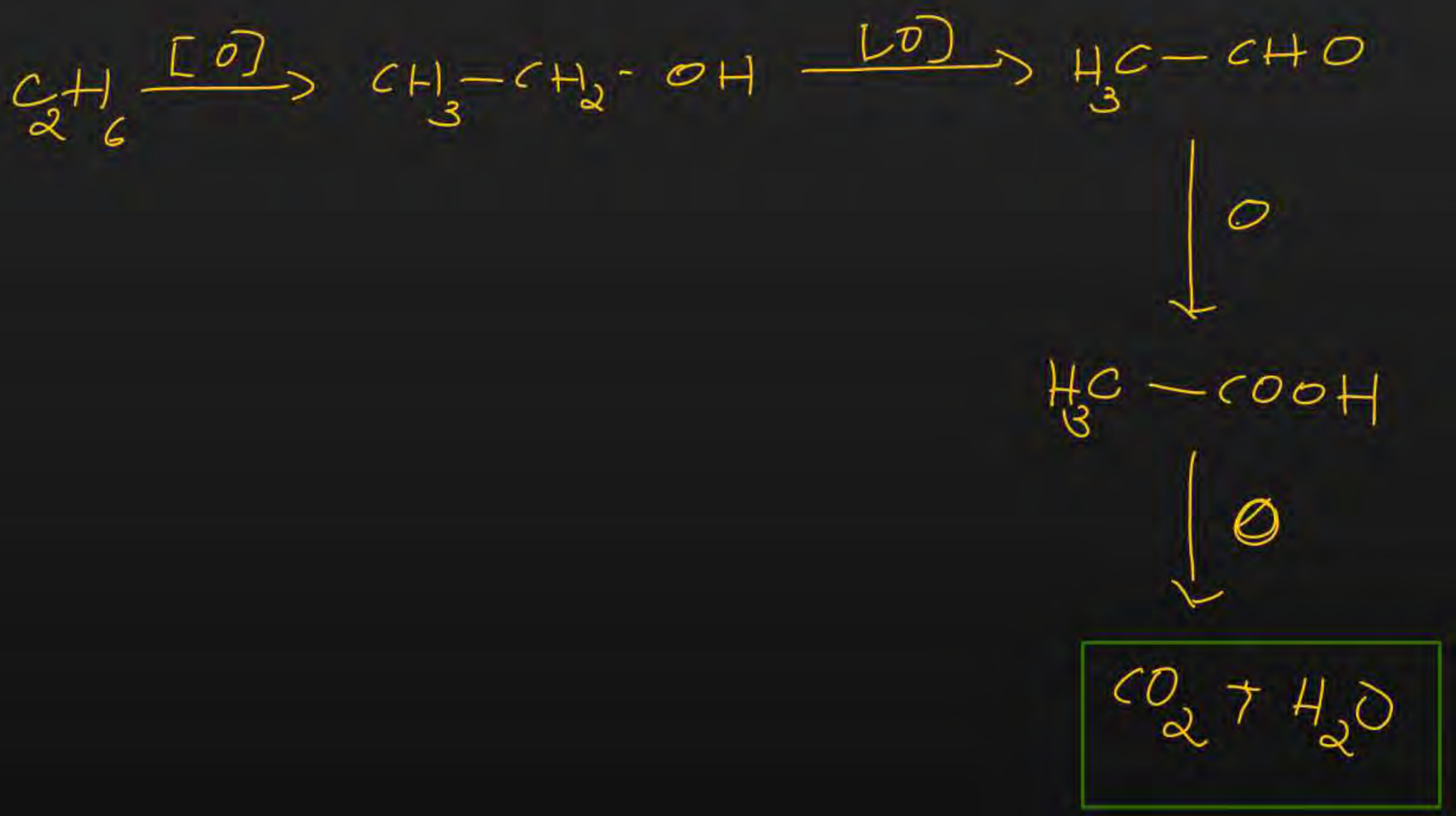
The final product of complete oxidation of hydrocarbons is

A Acid

B $H_2O + CO_2$

C Dihydric alcohol

D Aldehyde



Which of the following is not formed by the reaction of Cl_2 on CH_4 in sunlight?

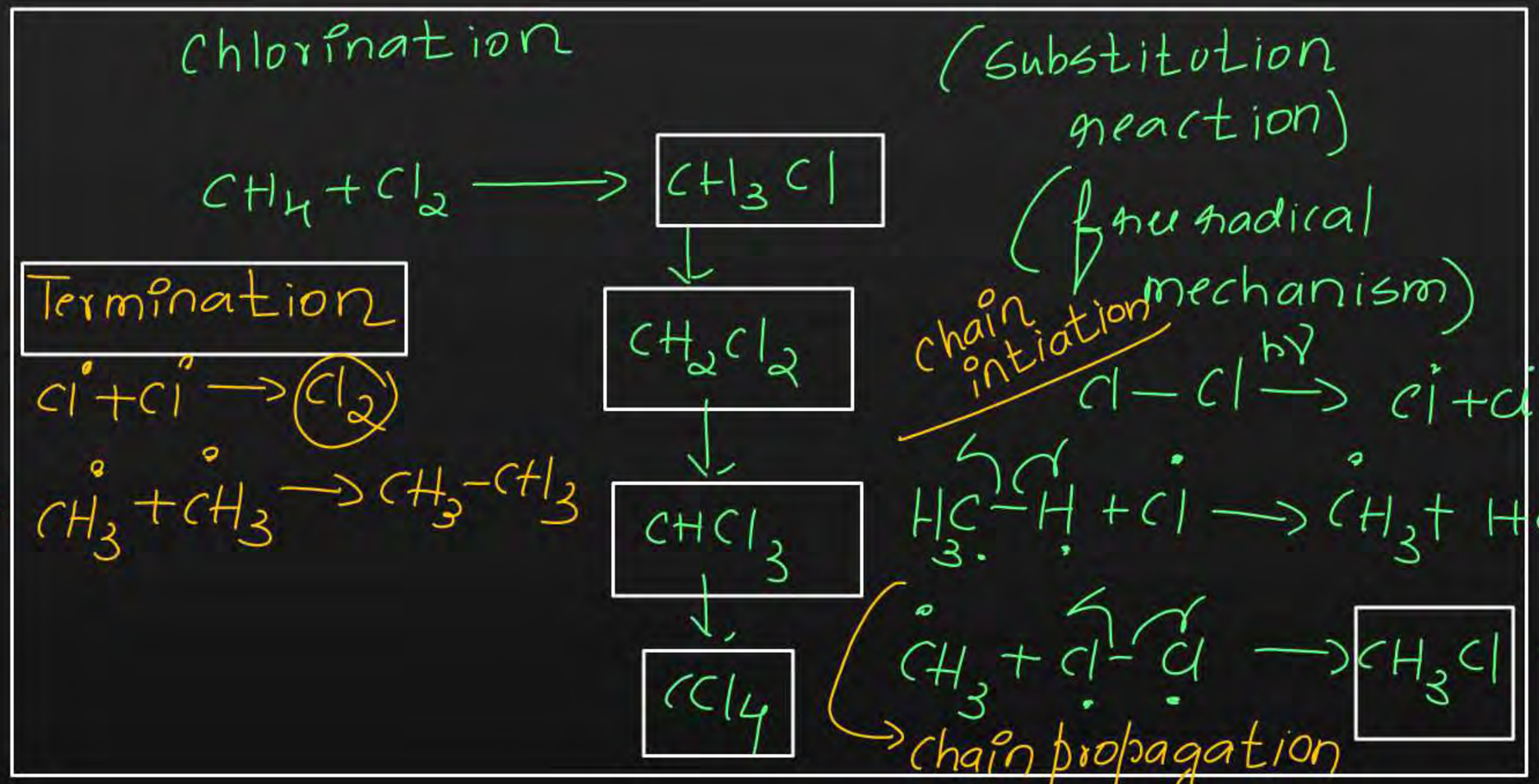
A $CHCl_3$

B CH_3CH_3

C CH_3Cl

D $CH_3CH_2CH_3$

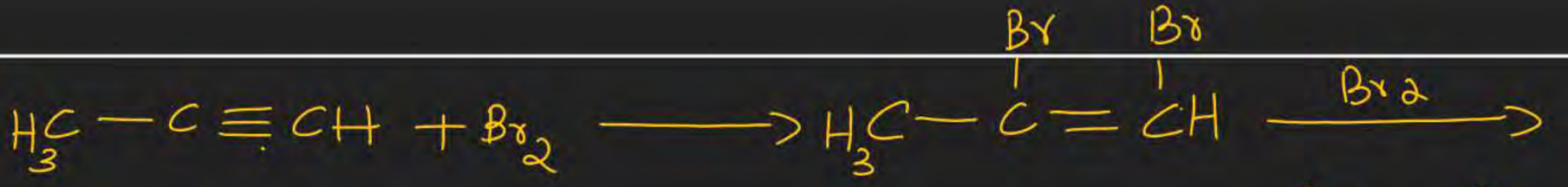
e Cl_2



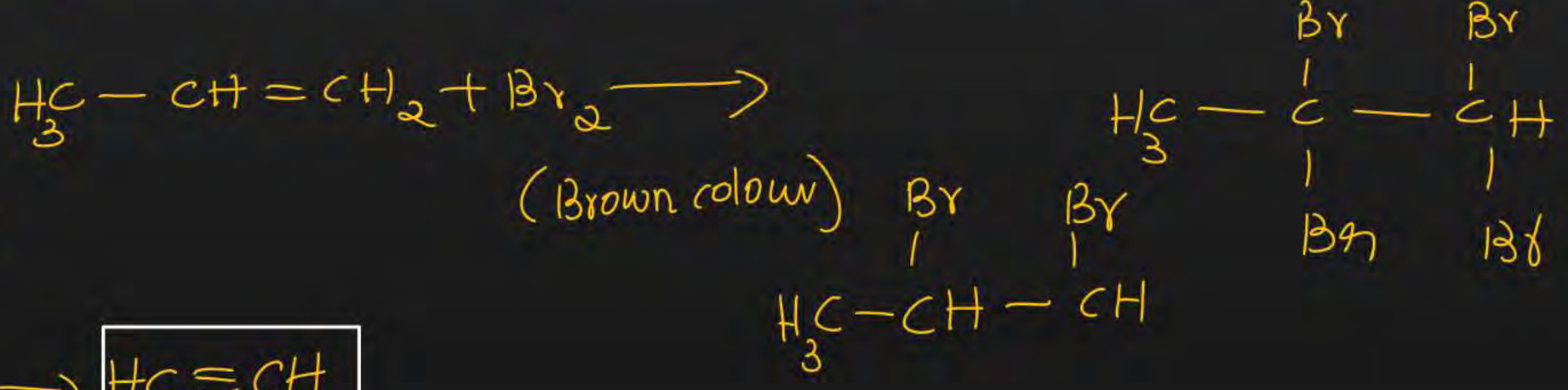
Ethene → Ethylene, Ethyne → Acetylene

Which of the following does not decolourise bromine solution in carbon disulphide?

A Propyne



B Propene



C Ethane ✗

D Acetylene → $HC \equiv CH$ → Ethyne

VVV IMP ***

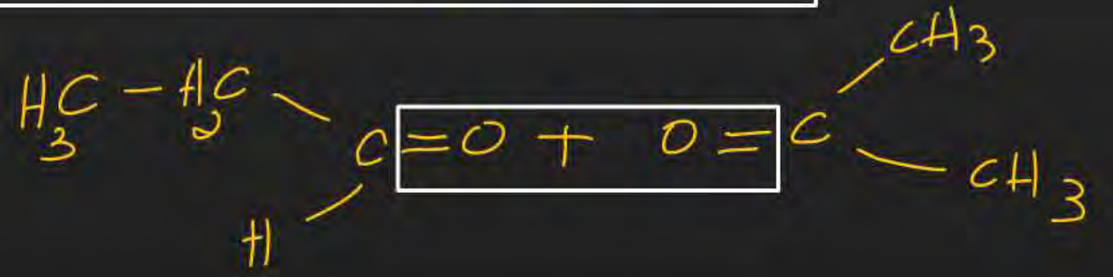
Which alkene on ozonolysis gives CH_3CH_2CHO and CH_3COCH_3?

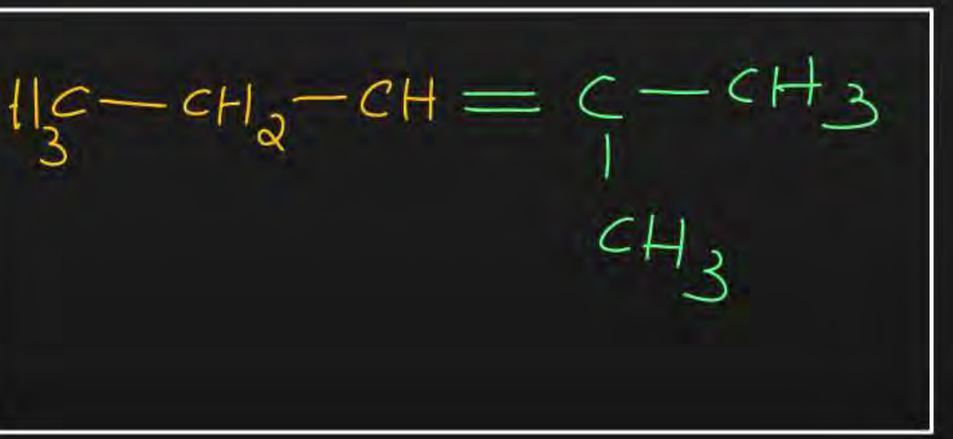
A $CH_3CH_2CH = C(CH_3)_2$

B $CH_3CH_2CH = CHCH_2CH_3$

C $CH_3CH_2CH=CHCH_3$

D $(CH_3)_2C = CHCH_3$





3-phenylpropene on reaction with HBr gives (as a major product)

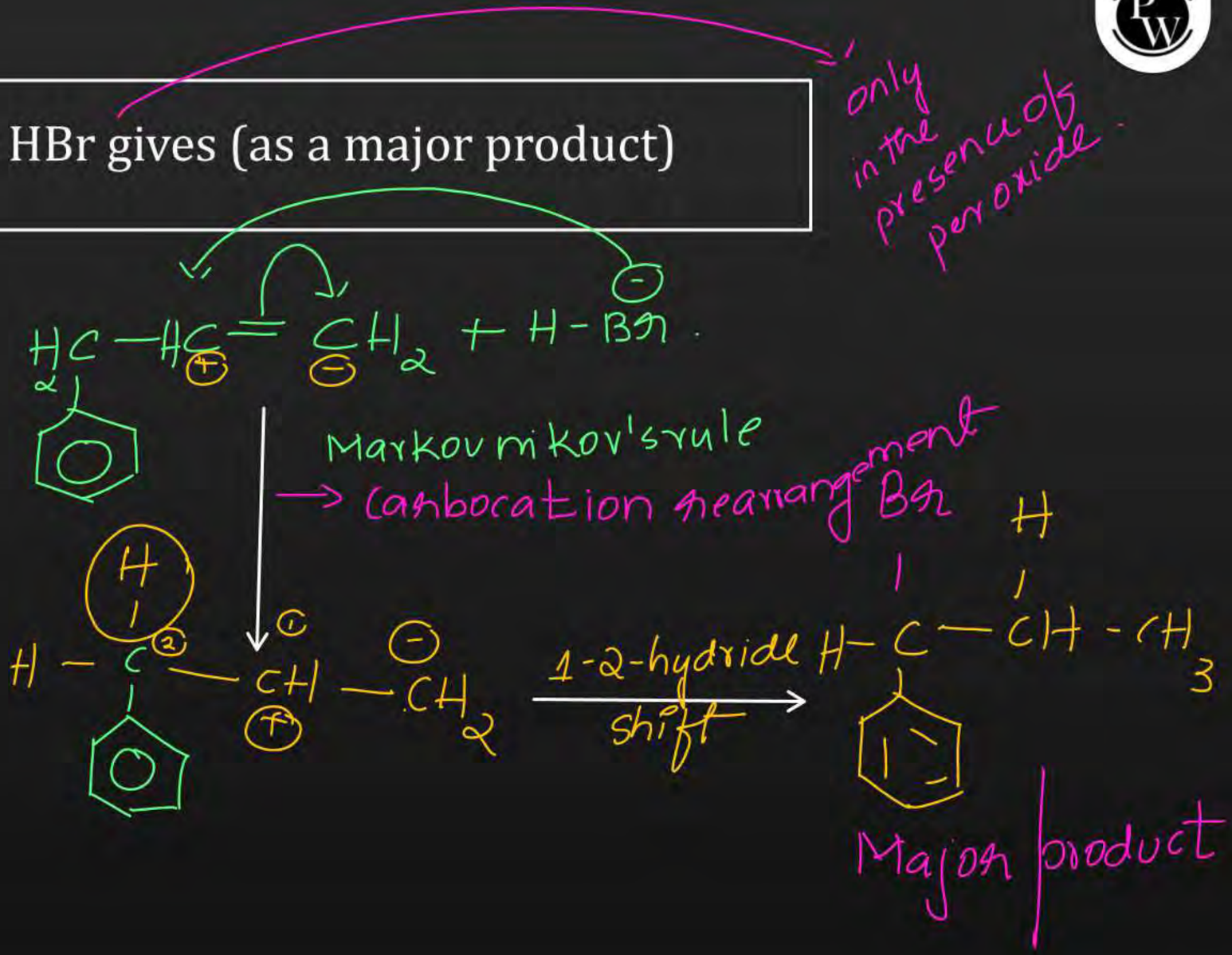
only in the presence of peroxide.

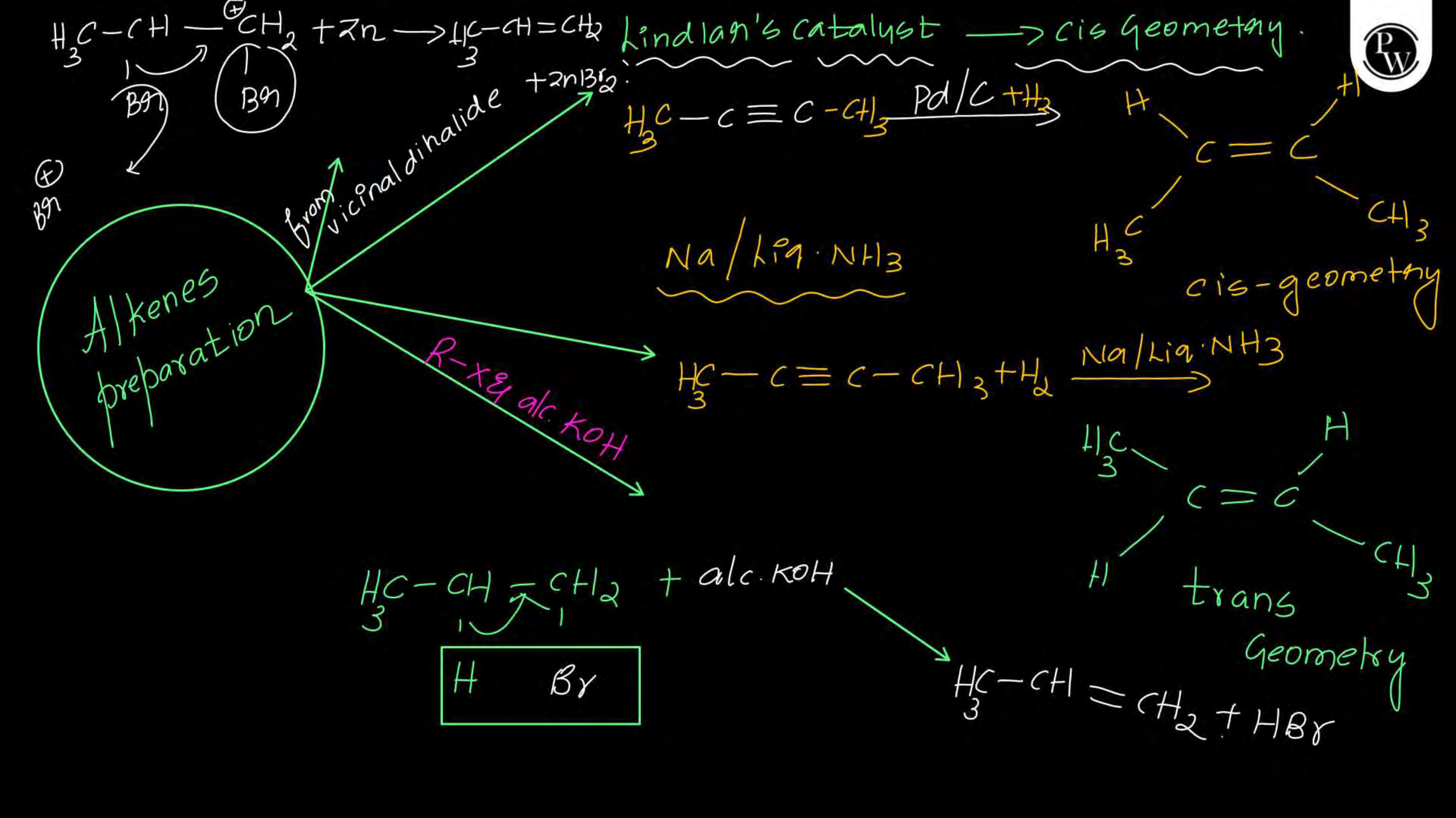
A $C_6H_5CH(Br)CH = CH_2$

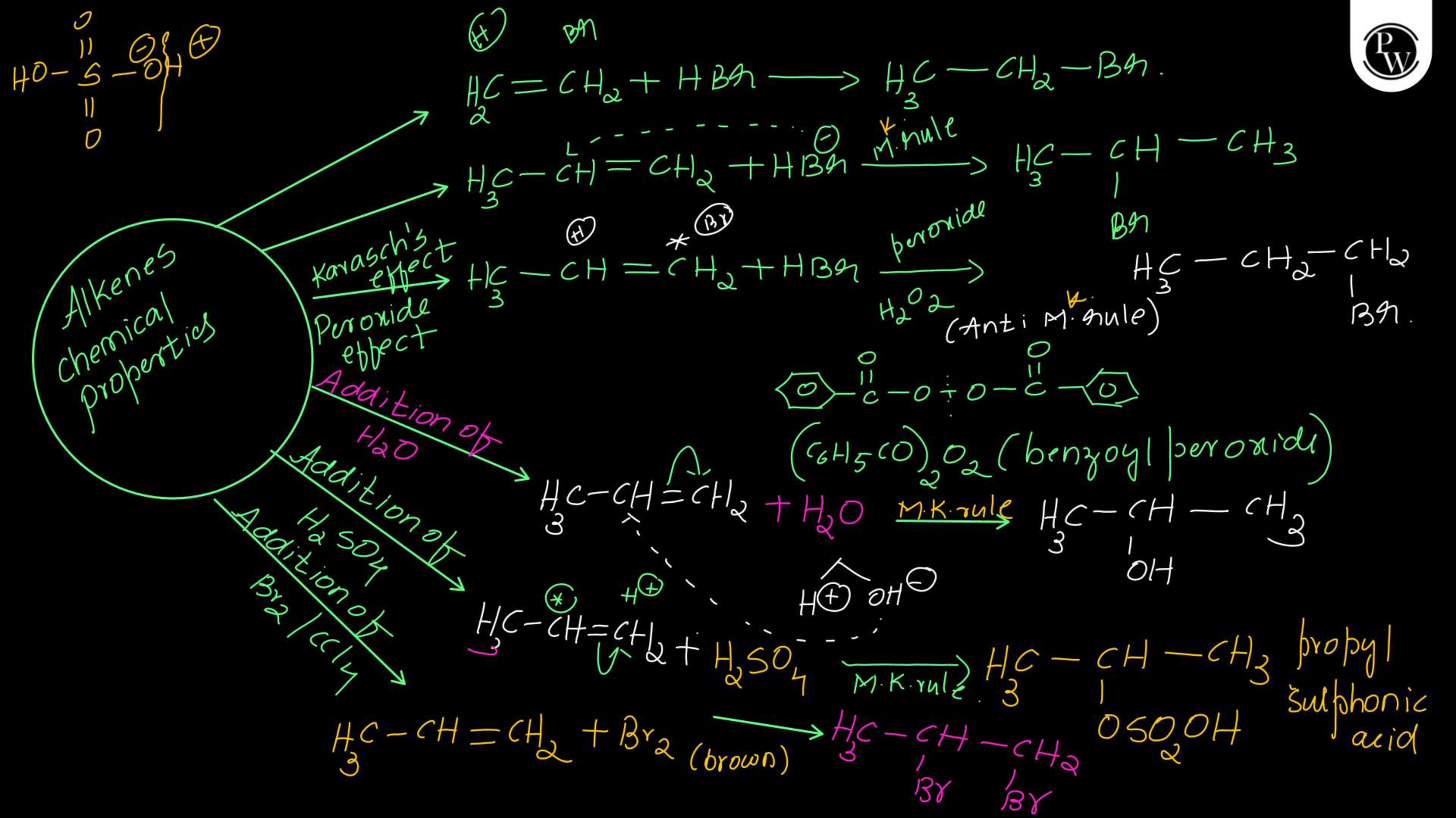
B $C_6H_5CH_2CH_2CH_2Br$

C $C_6H_5CH(Br)CH2CH_3$

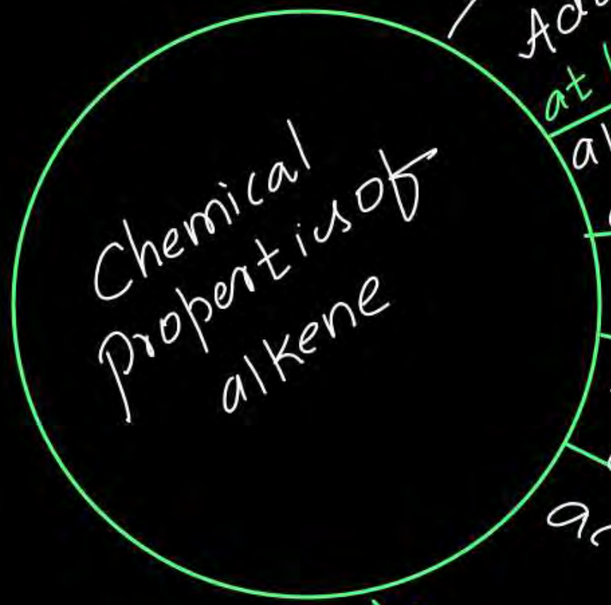
D $C_6H_5CH_2CH(Br)CH_3$




$H_3C-CH-\overset{\oplus}{C}H_2 + Zn \longrightarrow H_3C-CH=CH_2$
1
2
3
BgI
BgI
$\overset{\oplus}{BgI}$
Alkenes preparation
Bromo vicinal dihalide $+ZnBr_2$
R-X & alc. KOH
Lindlar's catalyst → cis Geometry.
$H_3C-C\equiv C-CH_3 \xrightarrow{Pd/C + H_2}$
Na / liq. NH_3
$H_3C-C\equiv C-CH_3 + H_2 \xrightarrow{Na/liq.NH_3}$
$H_3C-CH-CH_2$ + alc. KOH
H Br
$H_3C-CH=CH_2 + HBr$
cis-geometry
trans Geometry


Alkenes chemical properties
Karasch's effect
Peroxide effect
Addition of H2O
Addition of H2SO4
Addition of Br2/CCl4
M.rule
peroxide
H2O2
(Anti M. rule)
(C6H5CO)2O2 (benzoyl peroxide)
M.K.rule
propyl sulphonic acid

NBS
N-bromosuccinanamide



(extra)
Addition of Br_2 at high temp or (NBS solvent)
allylic substitution $H_3C-CH=CH_2 + Br_2 \xrightarrow[\Delta]{NBS} H_2C-CH=CH_2$ (with Cl_2)

ozonolysis $H_3C-CH=CH_2 + O_3 \longrightarrow$

oxidation
Bayer's reagent $H_3C-CH=CH_2 \xrightarrow[\text{cold}]{\text{dilute } KMnO_4 (aq)}$ $H_3C-CHO + HCHO + H_2O_2$

oxidation
acidic $KMnO_4/H^+$

$H_3C-CH=CH_2 \xrightarrow{KMnO_4/H^+}$ $H_3C-CH(OH)-CH_2(OH)$

$H_3C-COOH + CO_2 + H_2O$

polymerisation

imp*

$(H_2C=CH_2)_n \longrightarrow (-CH_2-CH_2-)_n$
ethene → polyethene

$H_3C-C(CH_3)=CH_2 \xrightarrow{KMnO_4/H^+}$ $H_3C-C(=O)-CH_3 + CO_2 + H_2O$
ketone

Uses:

(1) In plastic formation.

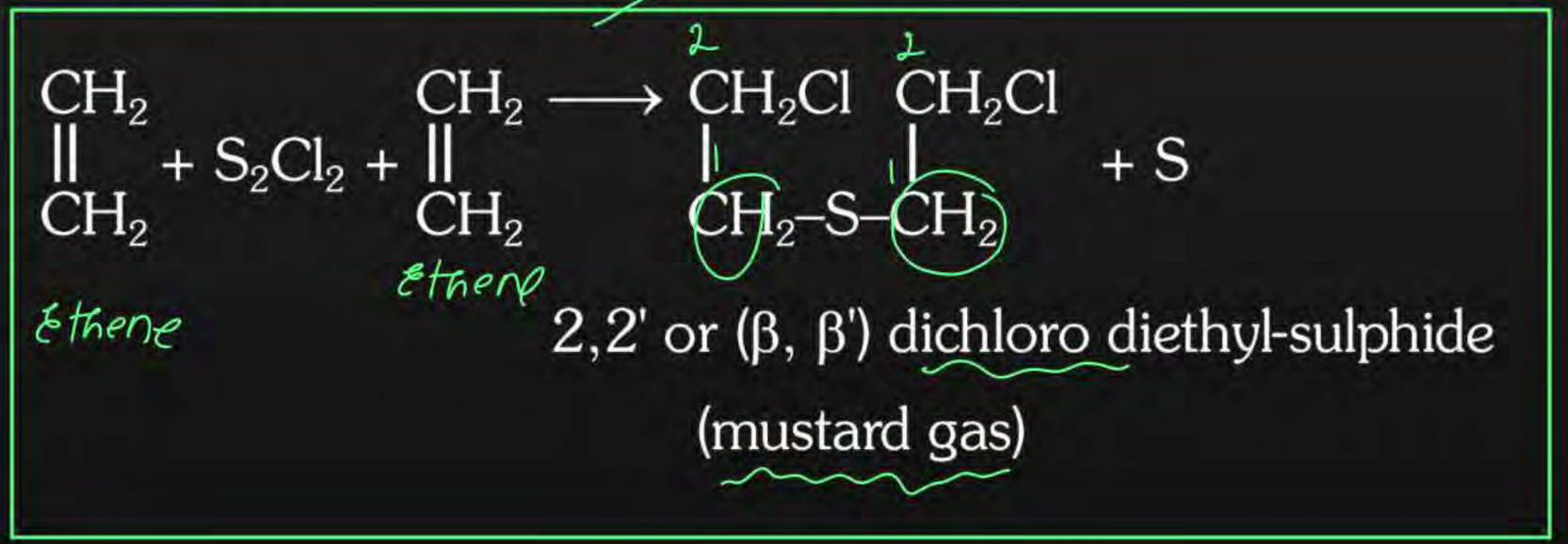
(2) In oxy ethylene welding

(3) As food preservatives and ripening fruits.

(4) As general anaesthetic (C_2H_4 with 10% O_2)

(5) In preparation of mustard gas

Enha from NCERT



ALKYNES

C_nH_{2n-2}

$CaCO_3 \longrightarrow CaO + CO_2$ ($C_n H_{2n-2}$)

$CaO + C \longrightarrow CaC_2 + CO$

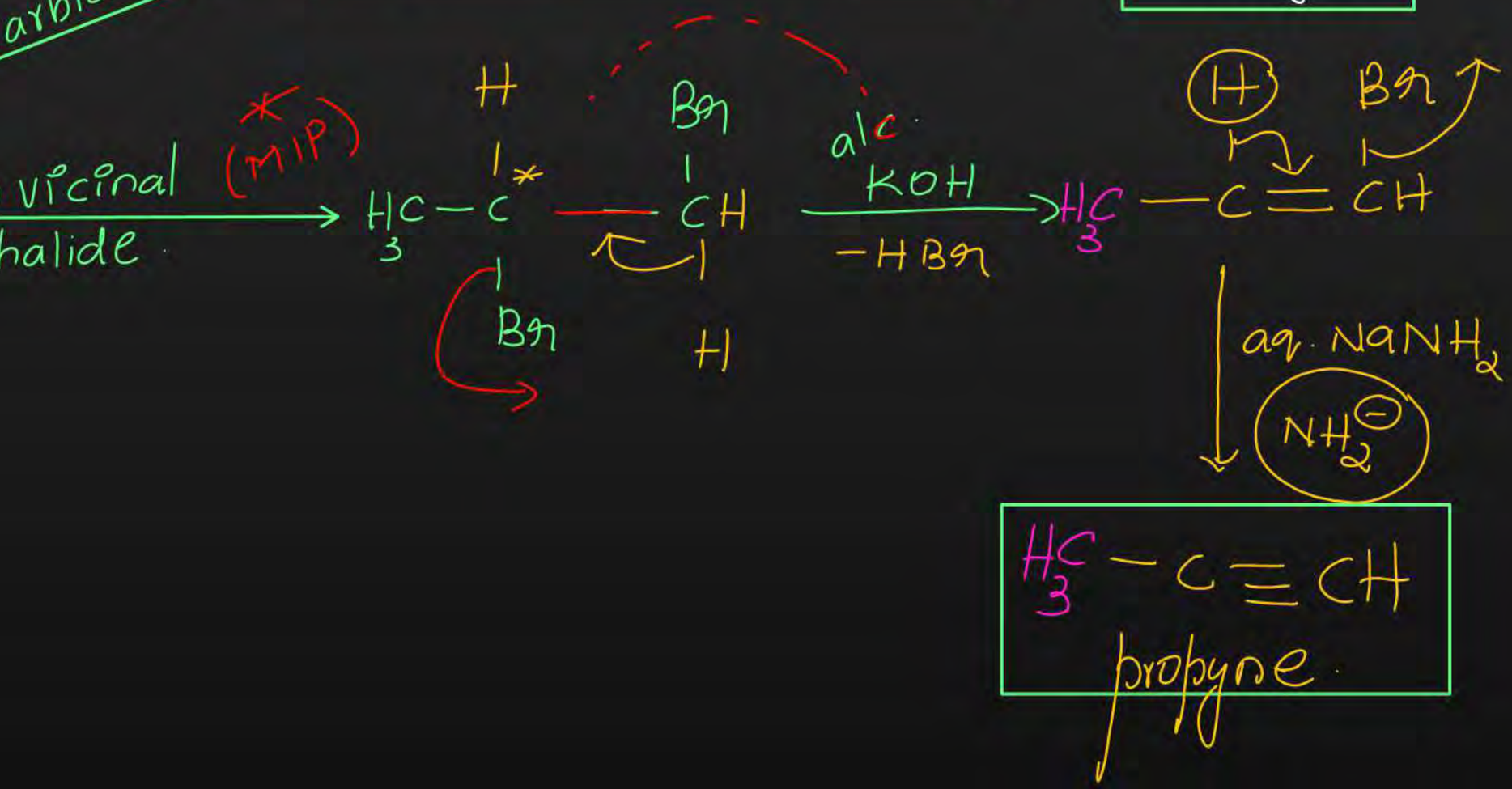
Alkyne MOP

from calcium carbide (MIP*)

$CaC_2 + H_2O \longrightarrow C_2H_2 + Ca(OH)_2$

$HC \equiv CH$ ethyne

from vicinal dihalide (MIP*)



$H_3C-C \equiv CH$

propyne

Alkene

1st member → Ethylene / Ethyne

Homologous series

$H_2C = CH_2$

2nd member

$H_3C - CH = CH_2$ (CH_2)

$C - C - C = C$ (CH_2)

$C - C - C - C = C$

Alkyne → Ethyne / Acetylene

1st member

$HC \equiv CH$

Homologous series

2nd member

$H_3C - C \equiv CH$ (CH_2)

$H_3C - HC - C \equiv CH_2$

$C - C - C - C \equiv C$

Chemical properties of alkynes

- cyclic polymerisation
- Addition of H_2 (H+)
- Addition of HBr
- Addition of H_2O
- polymerisation
- Acidity of alkynes

$$HC\equiv CH \xrightarrow{Fe,\ Red\ hot\ iron\ tube} C_6H_6$$

benzene

$$H_3C-C\equiv CH + H_2 \longrightarrow H_3C-CH=CH_2 \xrightarrow{H_2} H_3C-CH_2-CH_3$$

$$H_3C-C\equiv CH + HBr \longrightarrow H_3C-C(Br)=CH_2$$

VIMP

$$H_3C-C\equiv CH + H_2O \xrightarrow{Hg^{2+}/H^+} H_3C-C(OH)=CH_2 \xrightarrow{HBr} H_3C-C(Br)_2-CH_3$$

geminal dihalide

SP

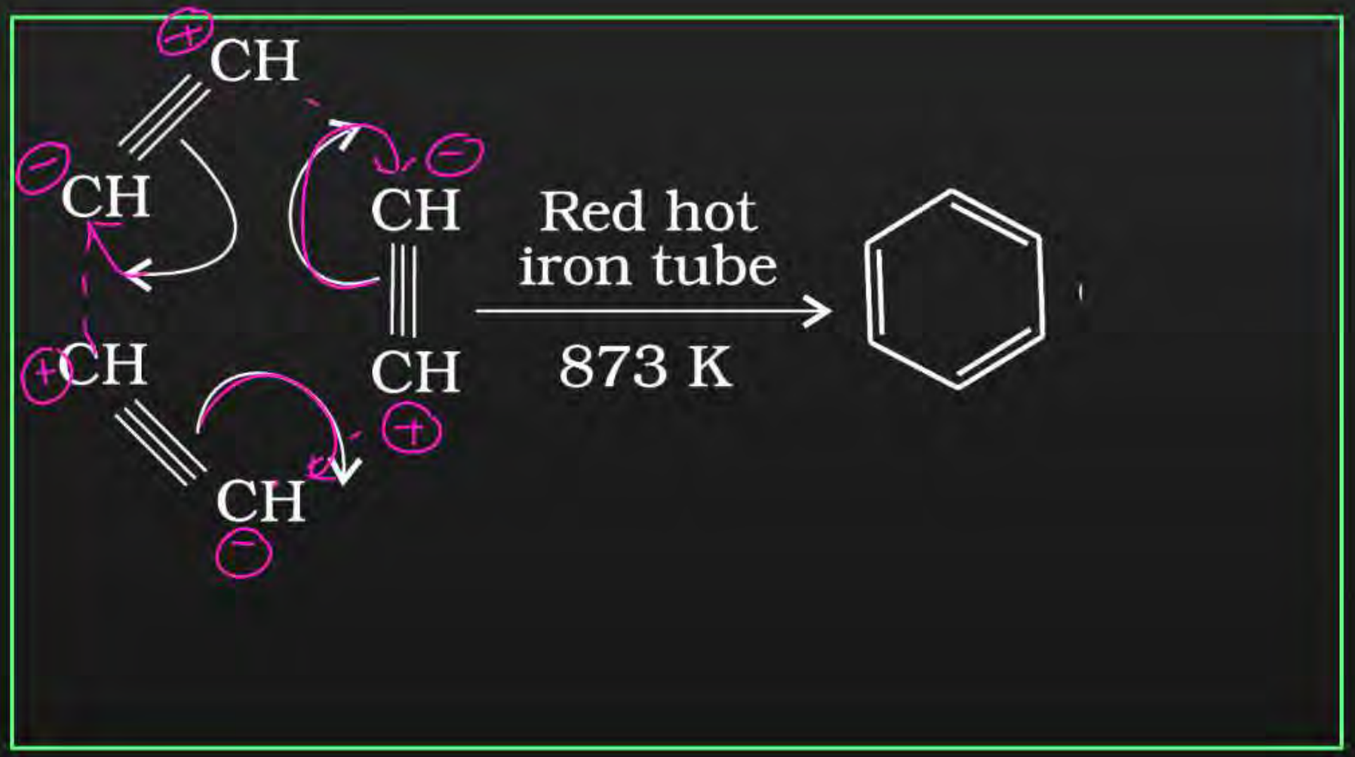
$$HC\equiv CH + Na \longrightarrow HC\equiv CNa + H_2\uparrow$$

Ethyne — Sodium ethanide

$$H_3C-C(OH)=CH_2 \rightleftharpoons H_3C-C(=O)-CH_3$$

enol form — ketoform

(b) Cyclic polymerisation: Ethyne on passing through red hot iron tube at 873K undergoes cyclic polymerization. Three molecules polymerize to form benzene.



Aromaticity

Benzene

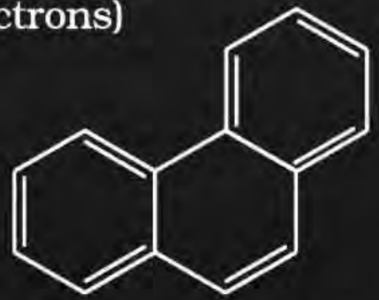
Cyclopentadienyl anion

Cycloheptatrienyl cation

(n=1, 6π electrons)

Naphthalene
(n = 2, 10 π electrons)

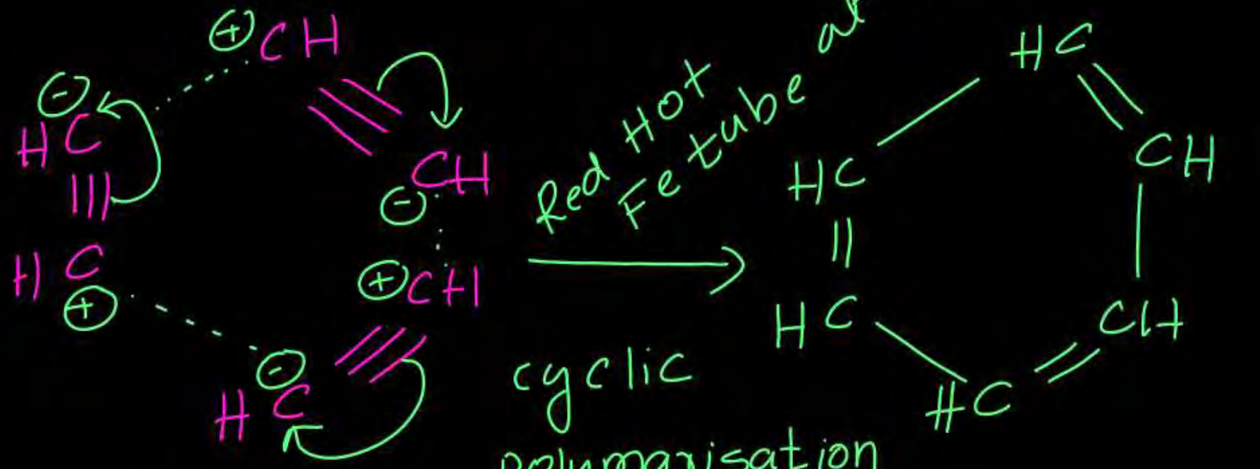
Anthracene



Phenanthrene

(n =3, 14 π electrons)

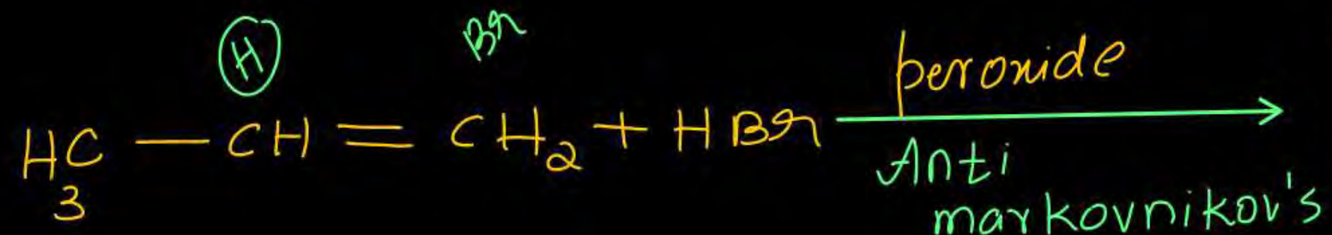
Doubt solving

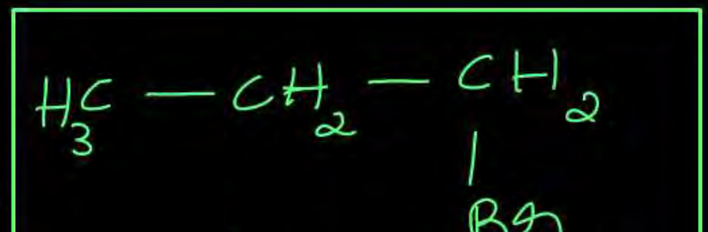


alkyne

Benzene

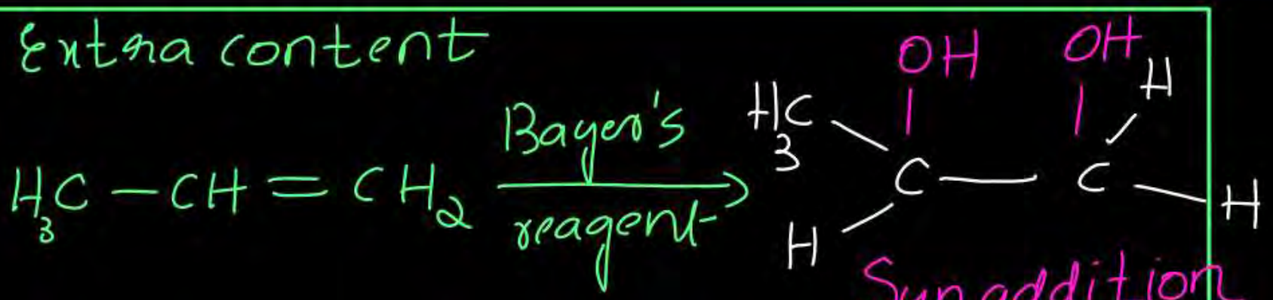
addition of HBr in the presence of peroxide → free radical addition mechanism

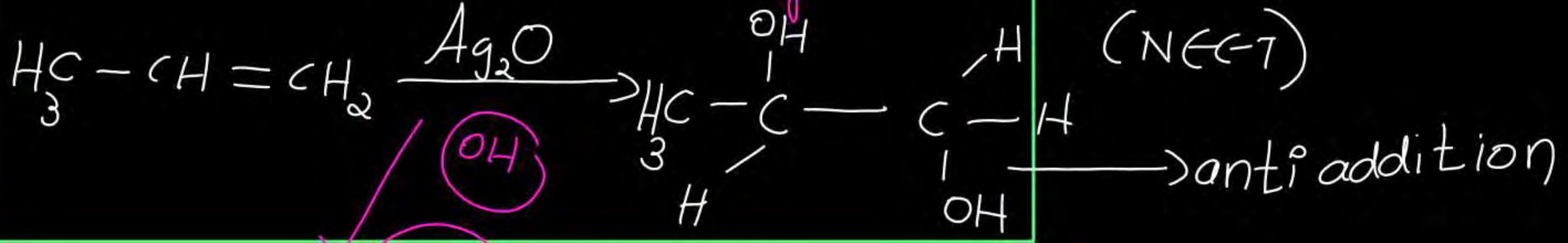




1-Bromopropane

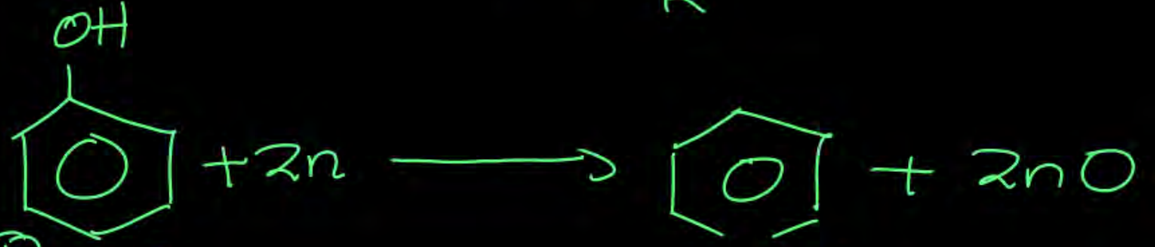
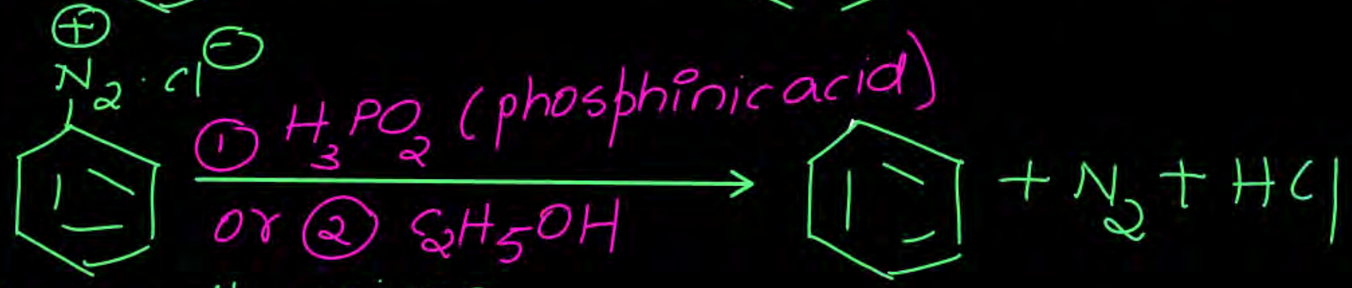
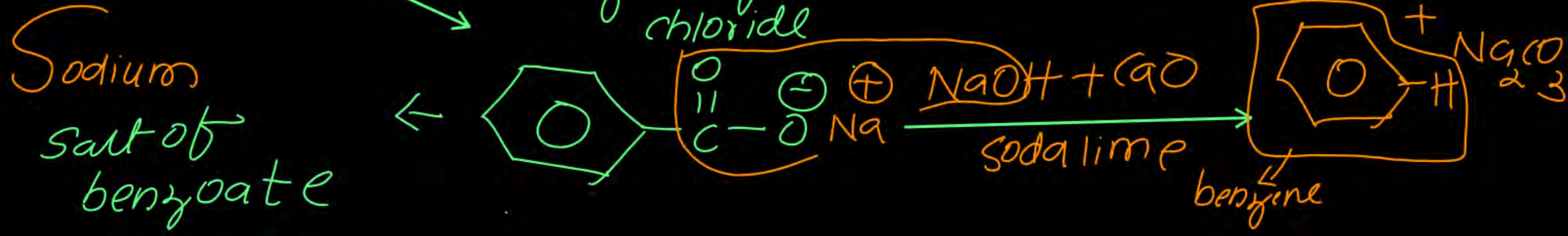
Extra content

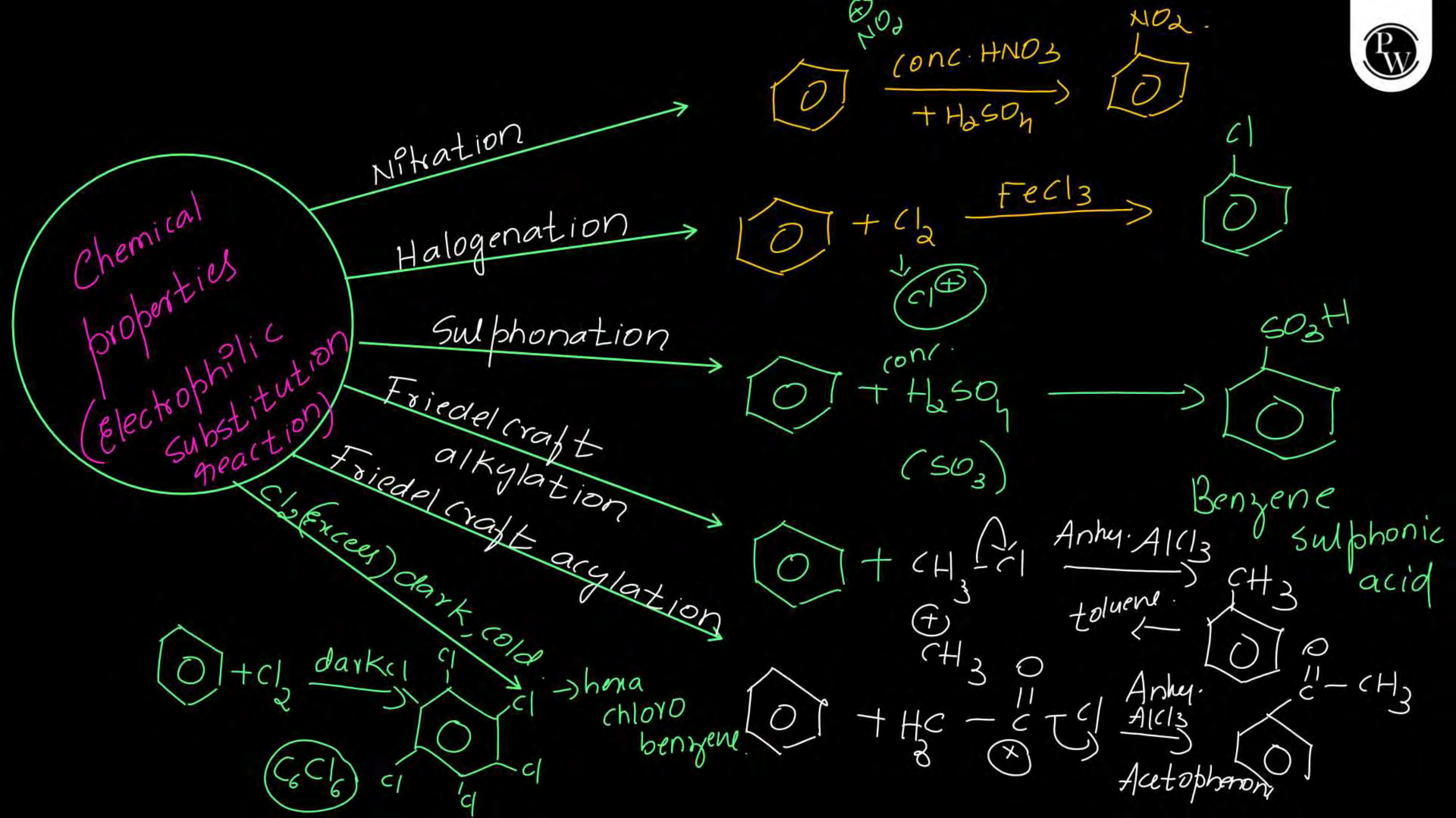




Aromatic hydrocarbons

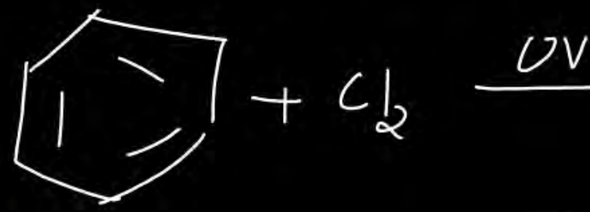
Benzene preparation

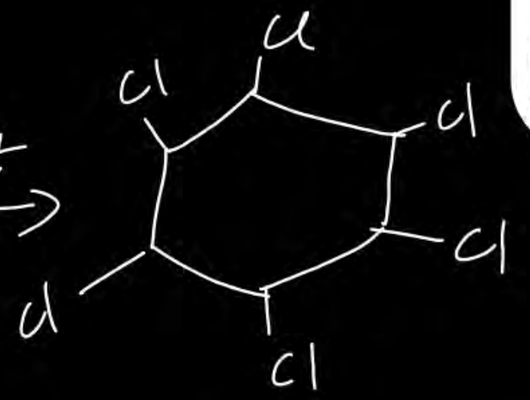
- cyclic polymarisation: $3\,CH\equiv CH \xrightarrow[\text{tube at 873 K}]{\text{Hot red Fe}}$ 
- phenol + zinc dust: 
- diazonium salt + water: 
- decarboxylation: 


Chemical properties
(Electrophilic substitution reaction)
Nitration
Halogenation
Sulphonation
Friedel craft alkylation
Friedel craft acylation
Cl_2 (excess) dark, cold
NO_2^+
conc. HNO_3
$+ H_2SO_4$
NO_2
$FeCl_3$
Cl^+
conc.
SO_3
SO_3H
Benzene sulphonic acid
Anhy. $AlCl_3$
toluene
dark
C_6Cl_6
hexa chloro benzene
Anhy. $AlCl_3$
Acetophenone

Addition reaction of benzene

Cl_2, hν/uv





IUPAC name

1,2,3,4,5,6 hexachloro cyclohexane

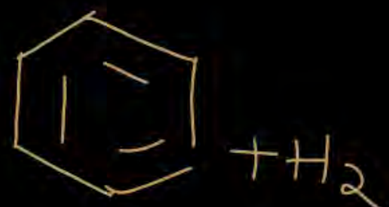
or

Gammaxene

BHC (common name)

Benzene hexa chloride

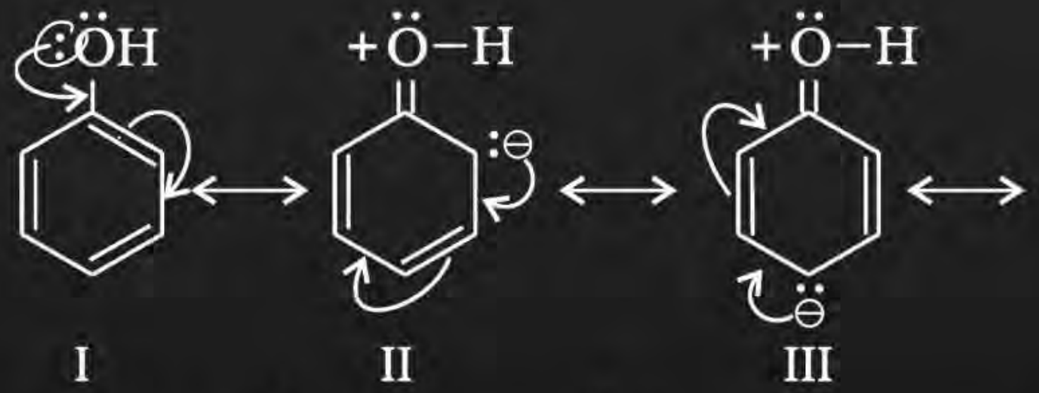
H_2, Δ Ni



benzene

cyclohexane

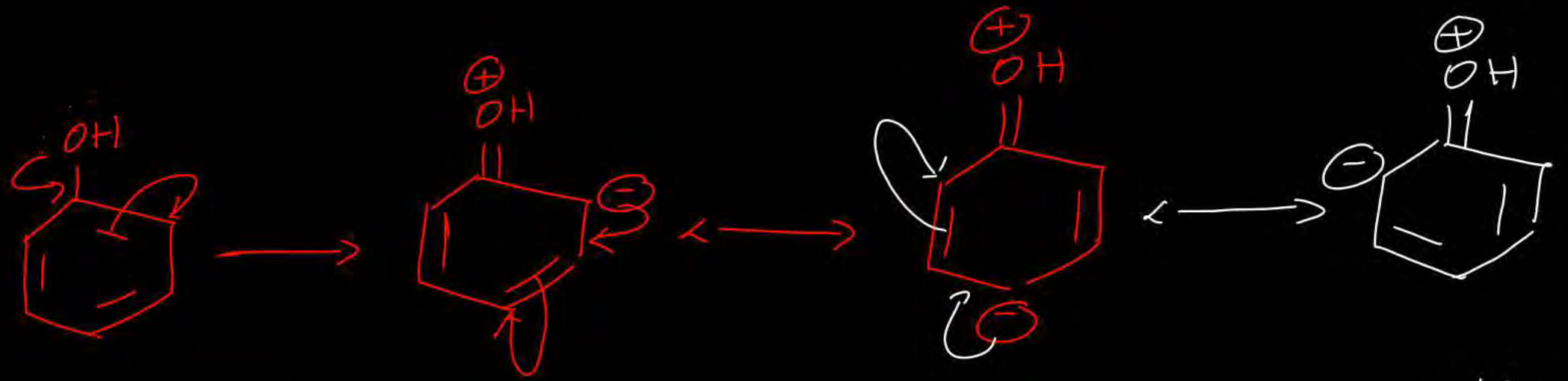
Directive influence of a functional group in monosubstituted benzene



→ ortho / para

Other examples of activating groups are $-NH_2$, $-NHR$, $-NHCOCH_3$, $-OCH_3$, $-CH_3$, $-C_2H_5$, etc.

EDG ←



ortho para ortho

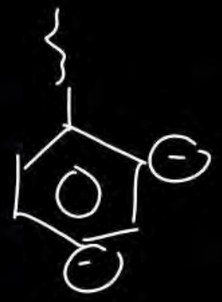
EDG → o/p directing Groups

OH NH_2

OCH_3 NH-R

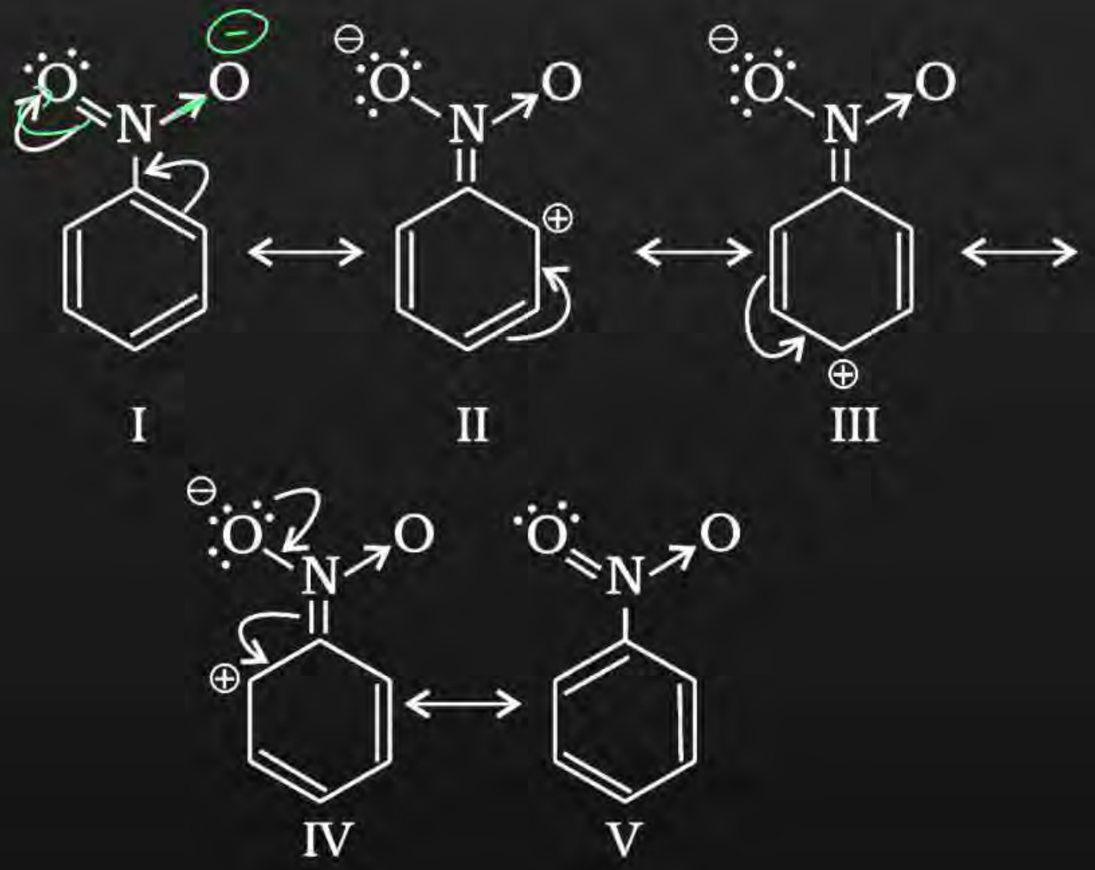
CH_3 $NH-\overset{\overset{O}{\|}}{C}-NH_2$

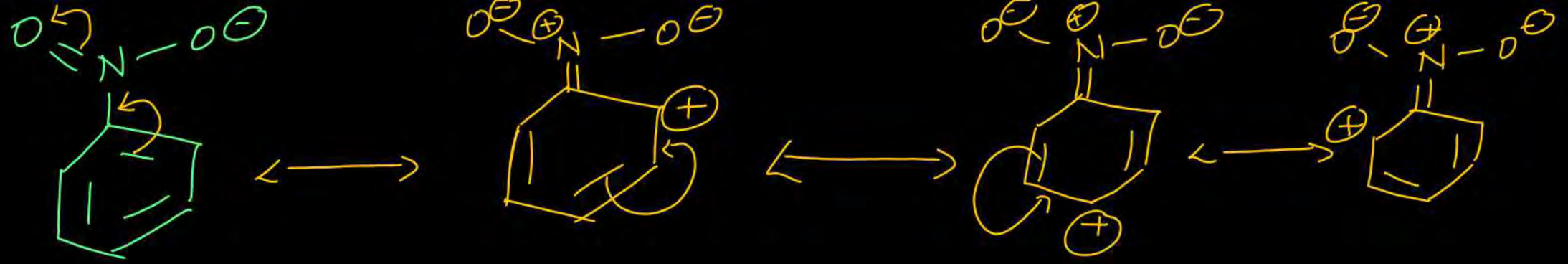
C_2H_5-



Meta directing group:

The groups which direct the incoming group to meta position are called meta directing groups. Some examples of meta directing groups are $-NO_2$, –CN, –CHO,–COR, –COOH, –COOR, $-SO_3H$, etc.





Meta directing

NO_2

CN

CHO

COOH

SO_3H

CO

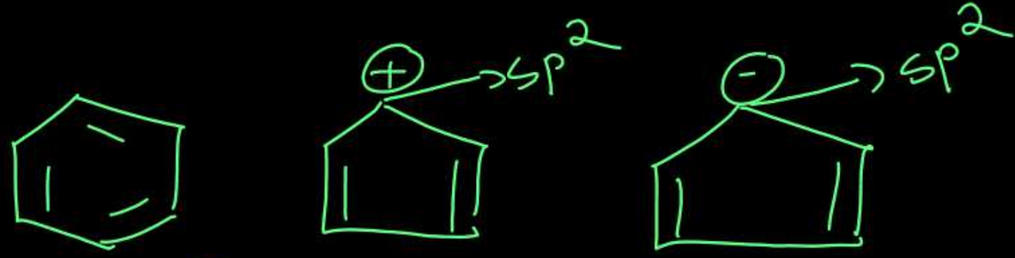
$Cl^{\oplus}$

$CH_3^{\oplus}$

$NO_2^{\oplus}$

Aromaticity

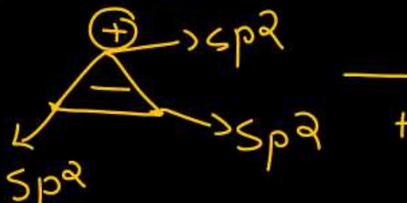
- cyclic
- Conjugation (alternative double & single bond)
- C → sp^2 hybridized



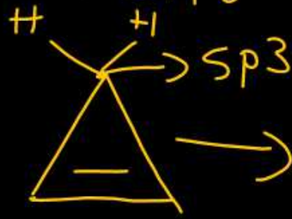
- planar
- $(4n+2)\pi e^{\ominus}$ (Huckle's rule)

$n = 0, 1, 2, 3, 4 \cdots \infty$

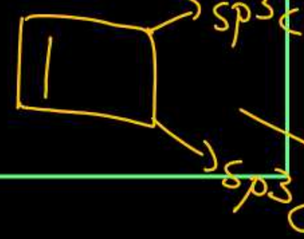
$(4n+2)\pi e^{\ominus} = (4(0)+2)\pi e^{\ominus} = 2\pi e^{\ominus}$



$\longrightarrow 2\pi e^{\ominus}$ → Aromatic



$\longrightarrow 2\pi e^{\ominus}$ → Non aromatic



$2\pi e^{\ominus}$ → Nonaromatic

$6\pi e^{\ominus}$
$10\pi e^{\ominus}$
$14\pi e^{\ominus}$
$18\pi e^{\ominus}$
$22\pi e^{\ominus}$
$26\pi e^{\ominus}$

Aromatic

$(4n+2)\ \pi e^{\ominus}$

→ $2\pi e^{\ominus}$

→ $6\pi e^{\ominus}$

→ $10\pi e^{\ominus}$

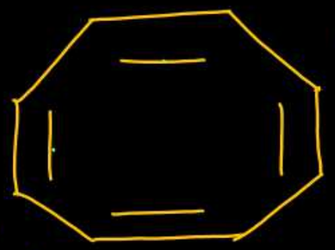
→ $14\pi e^{\ominus}$

→ $18\pi e^{\ominus}$

→ $22\pi e^{\ominus}$

Aromatic

Nonaromatic

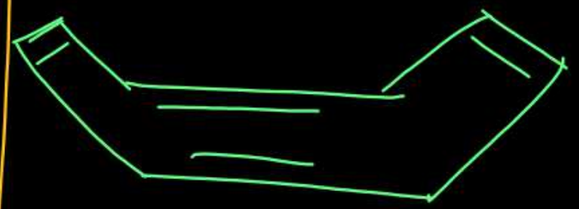


→ cyclo octa tetra ene.

Nonaromatic

↓

Nonplanar sp^3C



Tubeshaped Nonplanar

Antiaromatic

$4n\ \pi e^{\ominus}$

$4\pi e^{\ominus}$

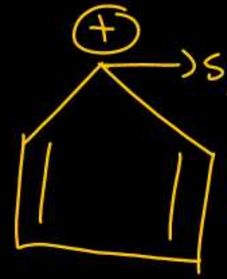
$8\pi e^{\ominus}$

$12\pi e^{\ominus}$

$16\pi e^{\ominus}$

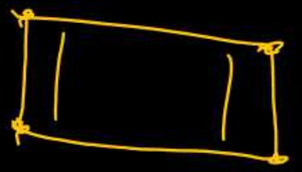
$20\pi e^{\ominus}$

$24\pi e^{\ominus}$



cyclic planar conjugation

c → sp^2



$4\pi e^{\ominus}$

→ Antiaromatic

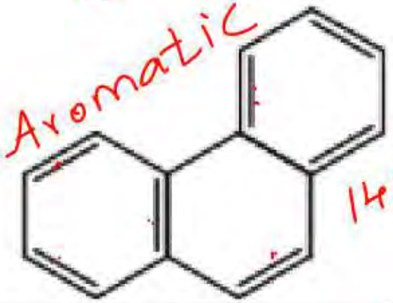
19. Which of the following is not an aromatic compound

(a) 

4π e⊖ Anti Aromatic

(b) 

6π e⊖ Aromatic

(c) 

Aromatic

14π e⊖

(d) 

6π e⊖ aromatic

C=C > C≡C

20. The IUPAC name of the given organic compound is

$HC \equiv C - CH = CH - CH = CH_2$

1 + 3 + 5 = 9

(a) Hexa - 1 - yn - 3,5 - diene

(b) Hexa - 5 - yn - 1,3 - diene

(c) Hexa -1,3 - dien - 5 - yne

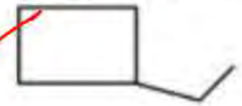
(d) Hexa - 3,5 - dien - 1 - yne

1 + 3 + 5 = 9

21. Among the following, identify the compound that is not an isomer of hexane

(a) $CH_3-CH_2-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_2-CH_3$

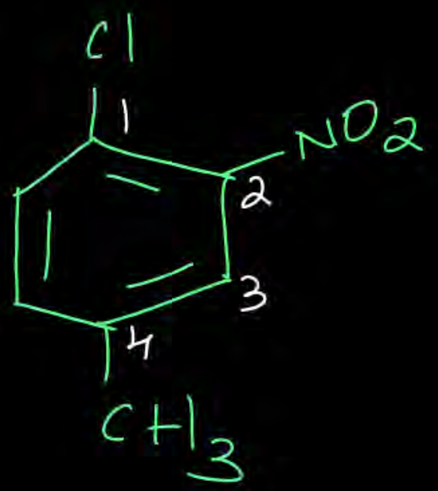
(b) $CH_3-CH_2-CH_2-CH_2-CH_2-CH_3$

(c) 

(d) $CH_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_2-CH_2-CH_3$

Hex-1,3-dien-5-yne

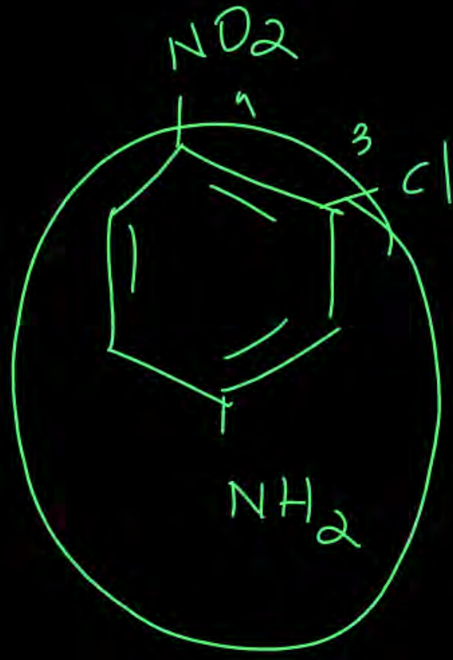
[2025]



→ Lowest set of locant rule ✓

→ alphabetical order

1-chloro-4-Methyl-2-Nitro benzene.



3-chloro-4-Nitro aniline.

8. Sodium ethanoate on heating with soda lime gives 'X'. Electrolysis of aqueous solution of sodium ethanoate gives 'Y'. 'X' and 'Y' respectively are

(A) Methane and Ethane

(B) Methane and Methane

(C) Ethane and Methane

(D) Ethane and Ethane

Ans. A

Sol. $CH_3COONa + NaOH \xrightarrow[\Delta]{CaO} \underset{X}{CH_4} + Na_2CO_3$

$2CH_3COONa + 2H_2O \xrightarrow{\Delta} \underset{Y}{C_2H_6} + 2NaOH + 2CO_2 + H_2$

$X = CH_4$

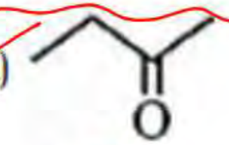
$Y = C_2H_6$

$C-C-\overset{2}{C}\equiv\overset{1}{C} + H_2O \xrightarrow{Hg^{2+}/H^{\oplus}}$

$C-C-C(OH)=CH_2$ enol form

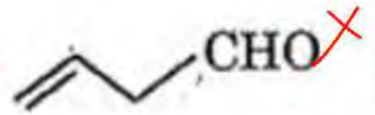
$C-C-\underset{\underset{O}{\|}}{C}-CH_3$

9. But-1-yne on reaction with dil.H_2SO_4 in presence of Hg^{2+} ions at 333K gives

(A) 

(B) 

(C) 

(D) 

Ans. A

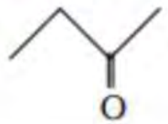
Sol.

$CH_3-CH_2-C\equiv CH + H_2O \xrightarrow[H_2SO_4]{Hg^{+2}} CH_3-CH_2-C(OH)=CH_2$

Tautamerises

$CH_3-CH_2-\underset{\underset{O}{\|}}{C}-CH_3$

(or)



QUESTION

IUPAC name of the compound is [2023]

A 2, 3-dimethylbut-2-one

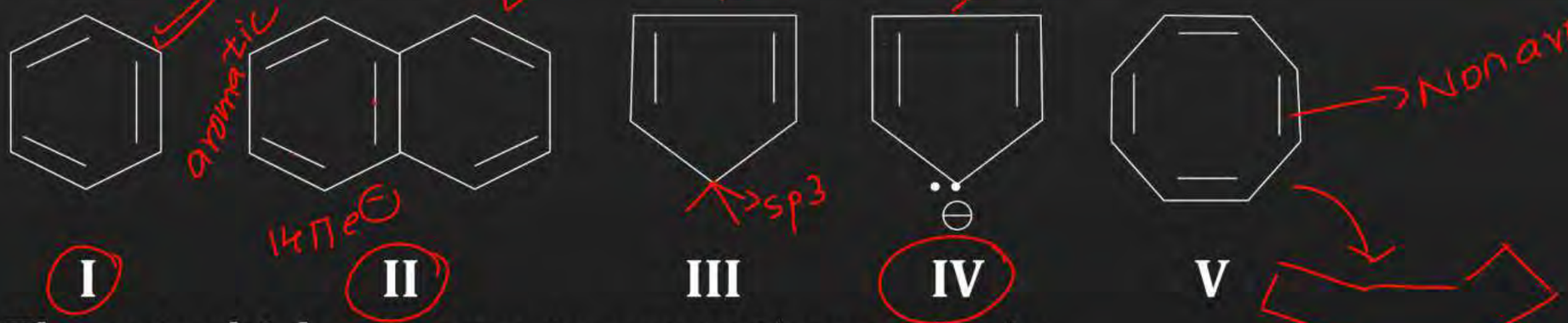
B 2, 3-dimethyl bulyne

C 1, 1, 2, 2-vetra methy ethene

D 2, 3-dimethyl butene

QUESTION

Among the following



The set which represents aromatic species is [2023]

A I, II and III

B III, IV and V

C II and III

D I, II and IV

QUESTION

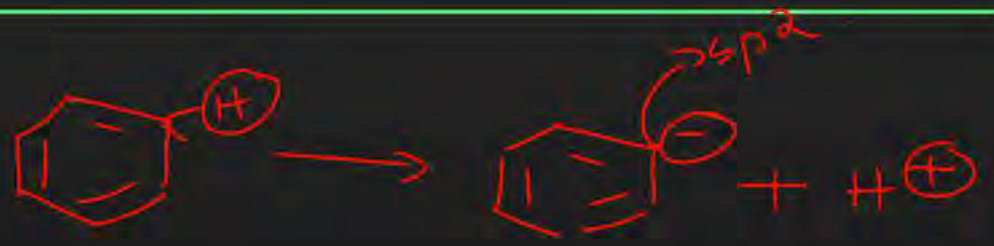
Arrange benzene, *n*-hexane and ethyne in decreasing order of their acidic behaviour. [2021]

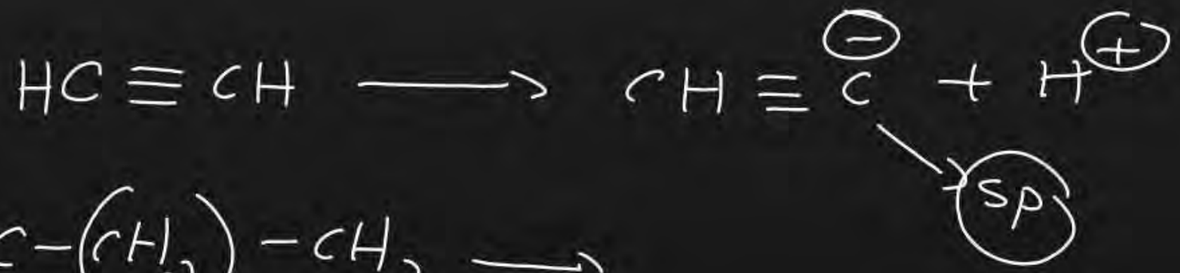
A Benzene > thexane > Ethyne

B *n* hexane > Berzene > Ethyne

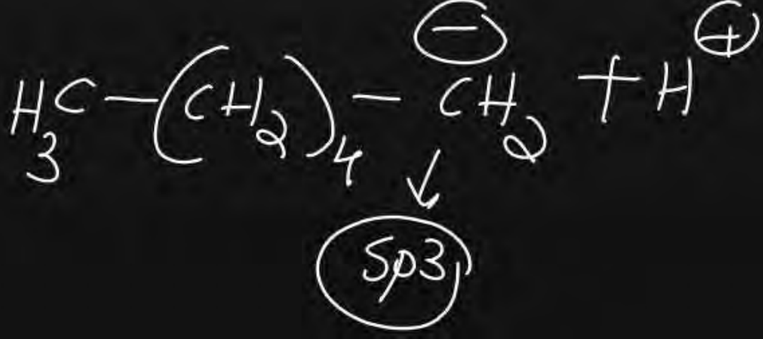
C Ethyne > nhexane > Benzente

D Ethyne > Benzene > Nhexane





→ weakest acid.



QUESTION

In the reaction, $\text{MgBr} + CH_3NH_2 \xrightarrow{\text{Dry ether}} X$

The number of possible isomers for the organic compound X is

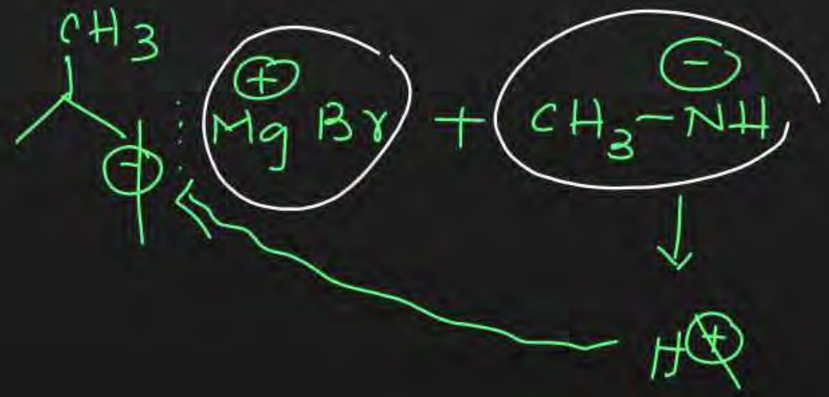
[2020]

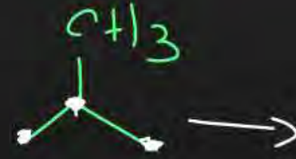
A 4

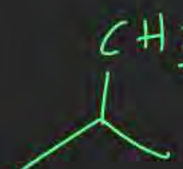
B 5

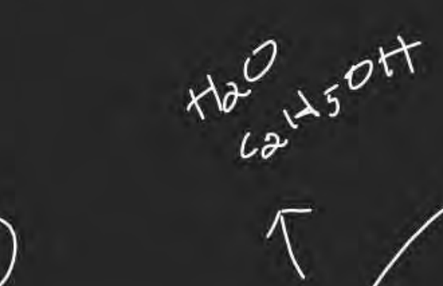
C 3

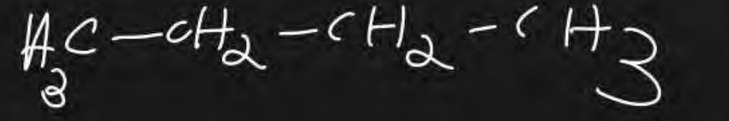
D 2











$Mg(CH_3NH)Br$

Side product

QUESTION

2-butyne is reduced to trans-but-2-ene using

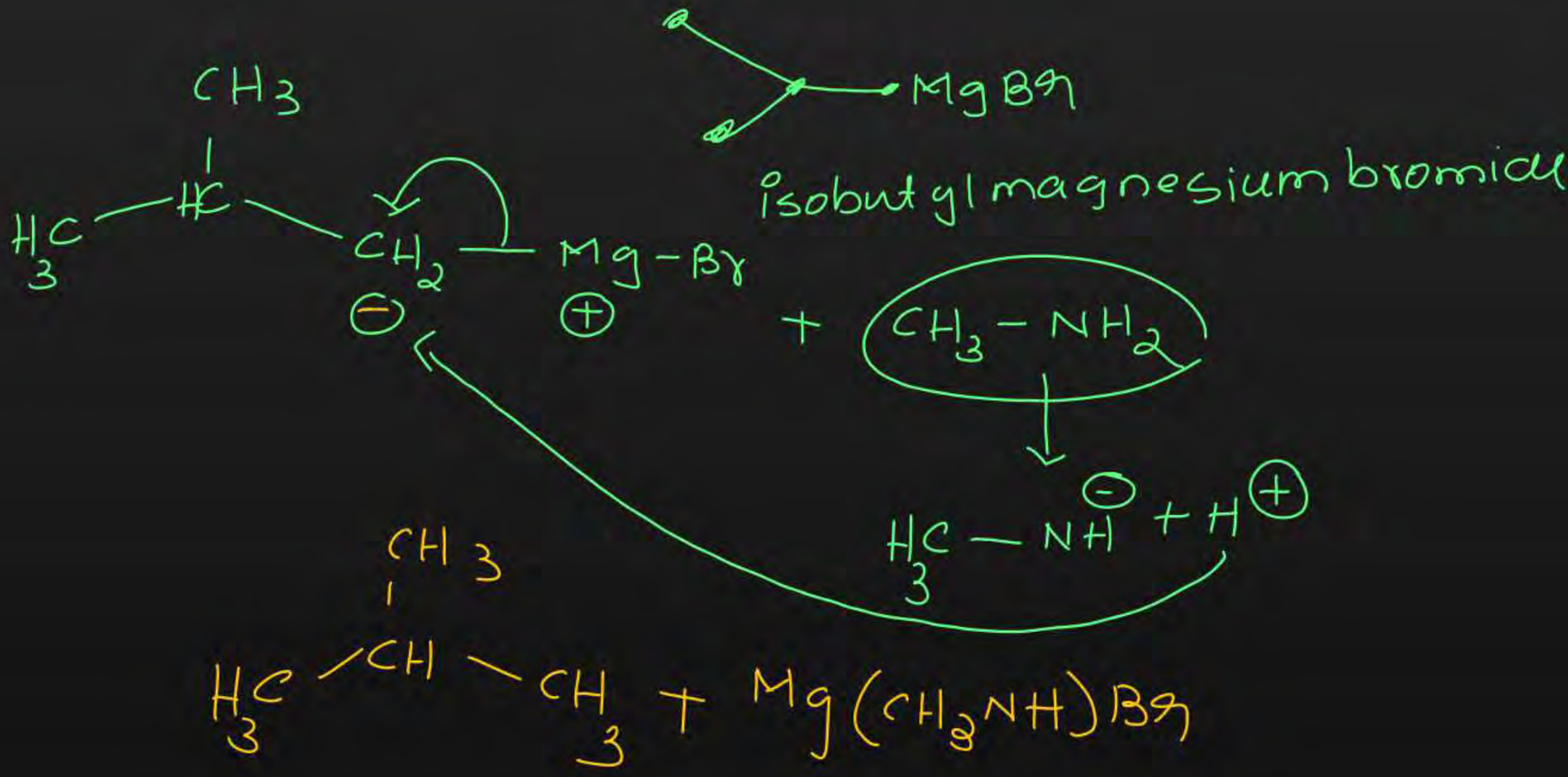
[2019]

A H_2/N

B Na in liq NH_3

C $H_2/Pd - C$

D Zn in dil. HCl



QUESTION

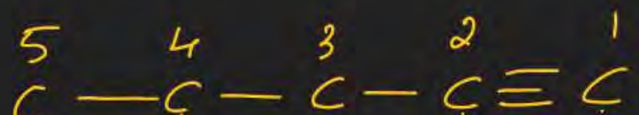
Number of possible alkynes with formula C_5H_8 is [2015]

A 2

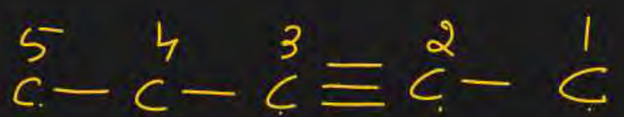
B 3

C 4

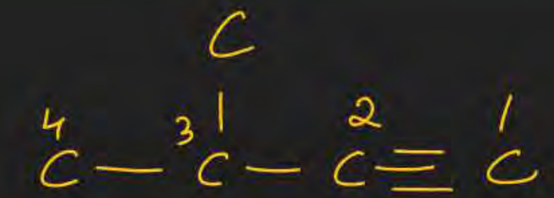
D 5



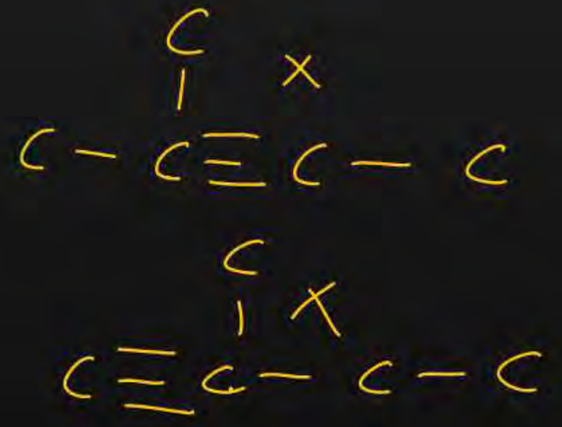
1- pentyne



2-pentyne.



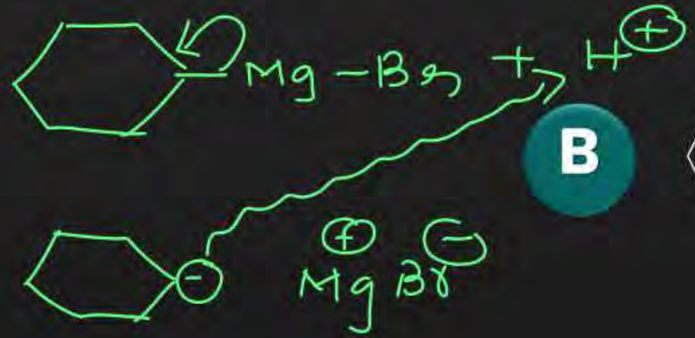
3-Methyl butyne.



QUESTION

The product B is [2015]

A 



B 

C 

D 

Question No.-18

Four structures are given in options (i) to (iv). Examine them and select the aromatic structures.

A 

B 

C 

D 

Question No.–20

Match the hydrocarbons in Column I with the boiling points given in Column II:

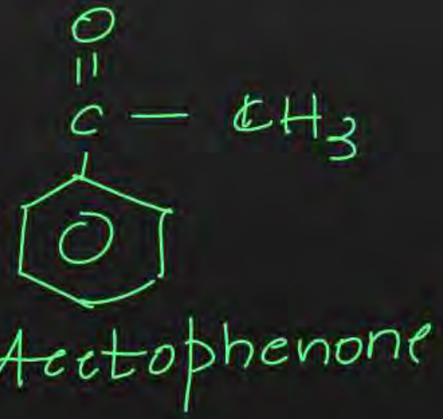
Column-I		Column-II	
(i)	n-Pentane	(a)	282.5 K
(ii)	iso-Pentane	(b)	309 K
(iii)	neo-Pentane	(c)	301 K

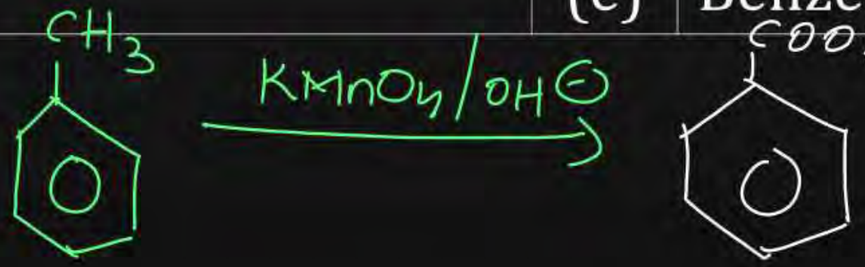
Question No.–21

Match the following reactants in Column I with the corresponding reaction products in Column II:

d, c, b, a .

Column-I		Column-II	
(i) d	Benzene + Cl_2 $\xrightarrow{AlCl_3}$	(a)	Benzoic acid
(ii) c	Benzene + CH_3Cl $\xrightarrow[F.C.A]{AlCl_3}$ Toluene	(b)	Methyl phenyl ketone
(iii) b	Benzene + CH_3COCl $\xrightarrow{AlCl_3}$	(c)	Toluene
(iv) a	Toluene $\xrightarrow{KMnO_4/NaOH}$	(d)	Chlorobenzene
		(e)	Benzene hexachloride





Question No.-22

Homework

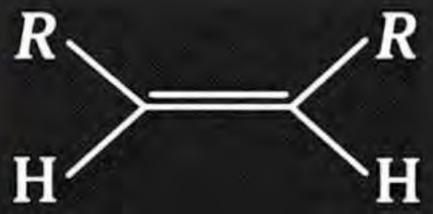
Match the reactions given in Column I with the reaction types in Column II:

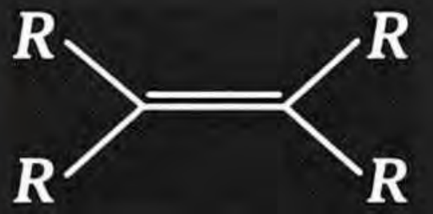
Column-I		Column-II	
(i)	$CH_2 = CH_2 + H_2O \xrightarrow{H^+} CH_3CH_2OH$	(a)	Hydrogenation
(ii)	$CH_2 = CH_2 + H_2 \xrightarrow{Pd} CH_3 - CH_3$	(b)	Halogenation
(iii)	$CH_2 = CH_2 + Cl_2 \longrightarrow Cl - CH_2 - CH_2 - Cl$	(c)	Polymerisation
(iv)	$3CH \equiv CH \xrightarrow[Heat]{Cu\ tube} C_6H6$	(d)	Hydration
		(e)	Condensation

Question

Homework

Which one of the following alkenes will react fastest with H_2 under catalytic hydrogenation condition ?

A 

B 

C 

D 

Question

Total number of aromatic compounds among the following compounds is .....

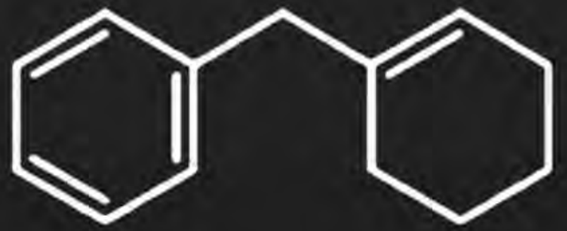
Homework

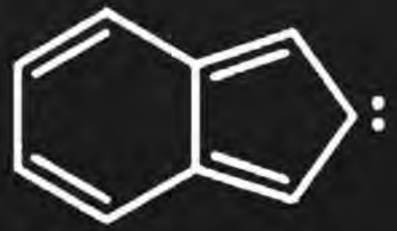
Question

Among the given organic compounds, the total number of aromatic compounds is .....

Homework

(1) 

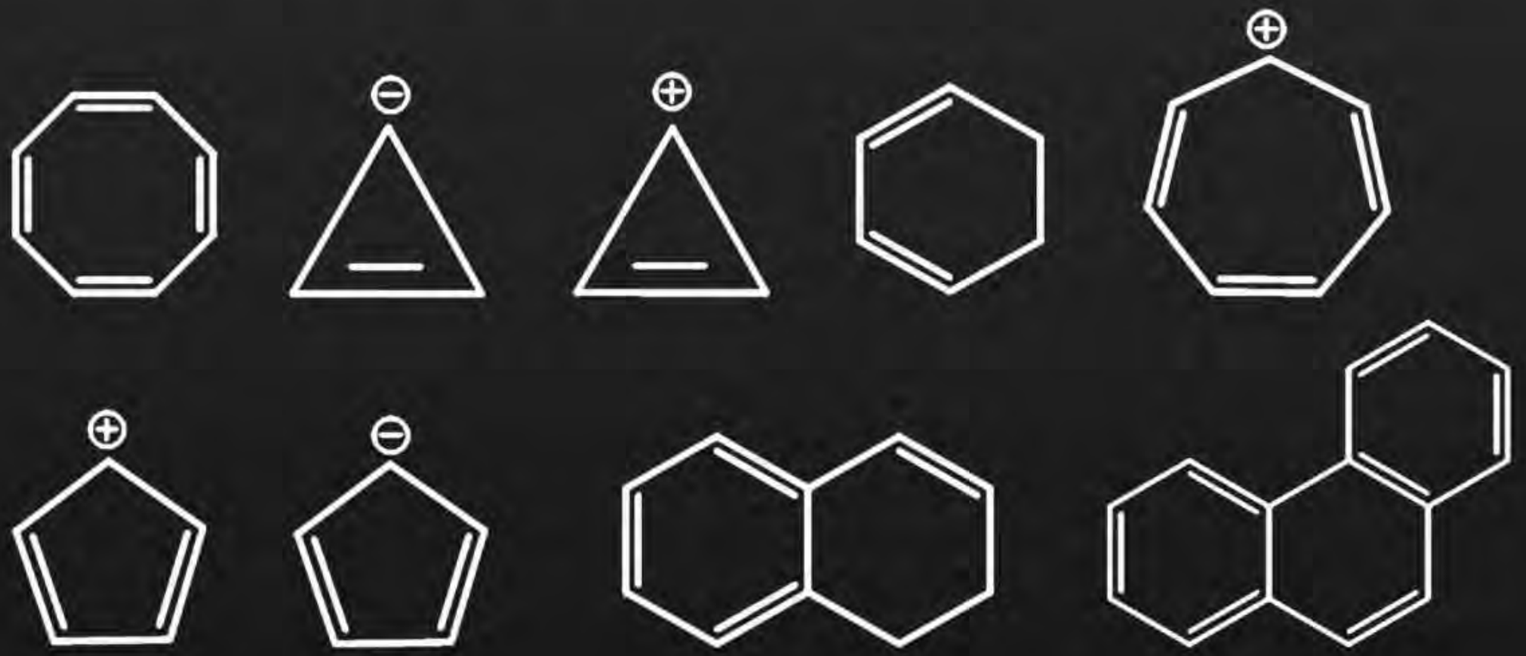
(2) 

(3) 

(4) 

Question

Among the following, the number of aromatic compound(s) is



Homework

Haloalkanes and Haloarenes

→ 2-4 Question
↓
linked
Questions

Synopsis

R–X

Ar–X

Methods of preparation of Haloalkanes & Haloarenes

- ROH + lucas reagent → $R-OH + HCl \xrightarrow{ZnCl_2} R-Cl + H_2O$ (conc) *
  - 3° > 2° > 1°
- ROH + Haloacids (HX) → $R-OH + HBr \longrightarrow R-Br + H_2O$ (48%)
  - HBr, HI
  - $ROH + NaI \xrightarrow[\text{Ortho phosphoric acid (95\%)}]{H_3PO_4} RI$
- $ROH + SOCl_2 \xrightarrow[\text{pyridine}]{} R-Cl + SO_2 + HCl$ *
  - Darzen's reaction
- $3ROH + PCl_3 \longrightarrow 3R-Cl + H_3PO_3$ *
- $ROH + PCl_5 \longrightarrow R-Cl + POCl_3 + HCl$ *
- ROH + Red P / X_2 (Br_2 / Cl_2) → R–Br or R–Cl

Note:

$R-OH + NaBr + H_2SO_4 \longrightarrow R-Br + H_2O + NaHSO_4$

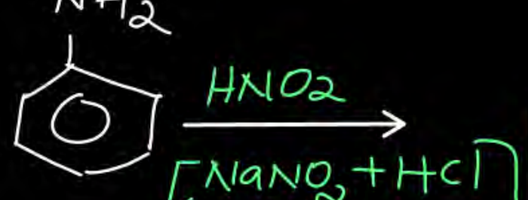
M.O.P of Haloalkanes & Haloarenes.

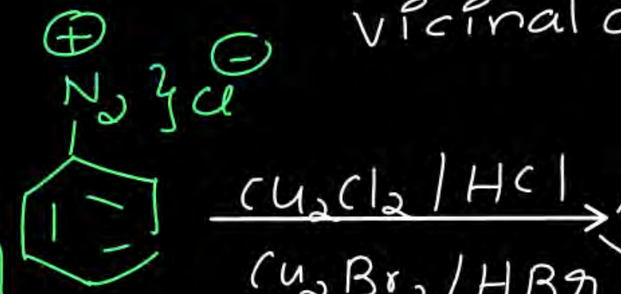
CH_4 + alkane + Cl_2 sunlight → $CH_3Cl + HCl$

alkene + HBr or HCl → $H_2C=CH_2 + HBr \longrightarrow CH_3-CH_2-Br$.

alkene + Br_2 * → $H_2C=CH_2 + Br_2 \xrightarrow{CCl_4}$ CH_2Br-CH_2Br (vicinal dihalide)

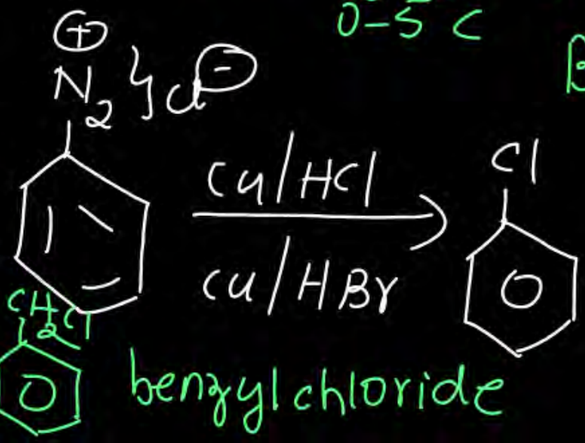
* Sandmeyer's reaction



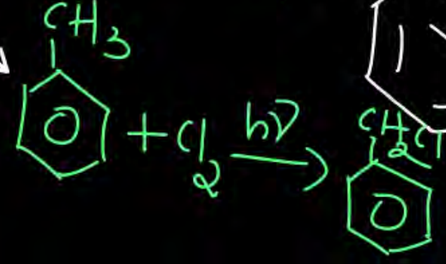


Benzenediazonium chloride salt

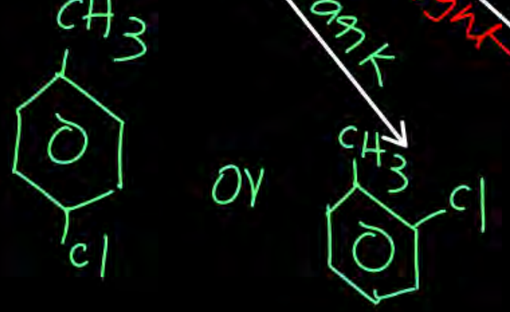
* Gattermann reaction



* Cl_2, hν, sunlight



* Cl_2, dark



Swarts reaction

$R-X + AgF \longrightarrow R-F + AgBr/AgCl$

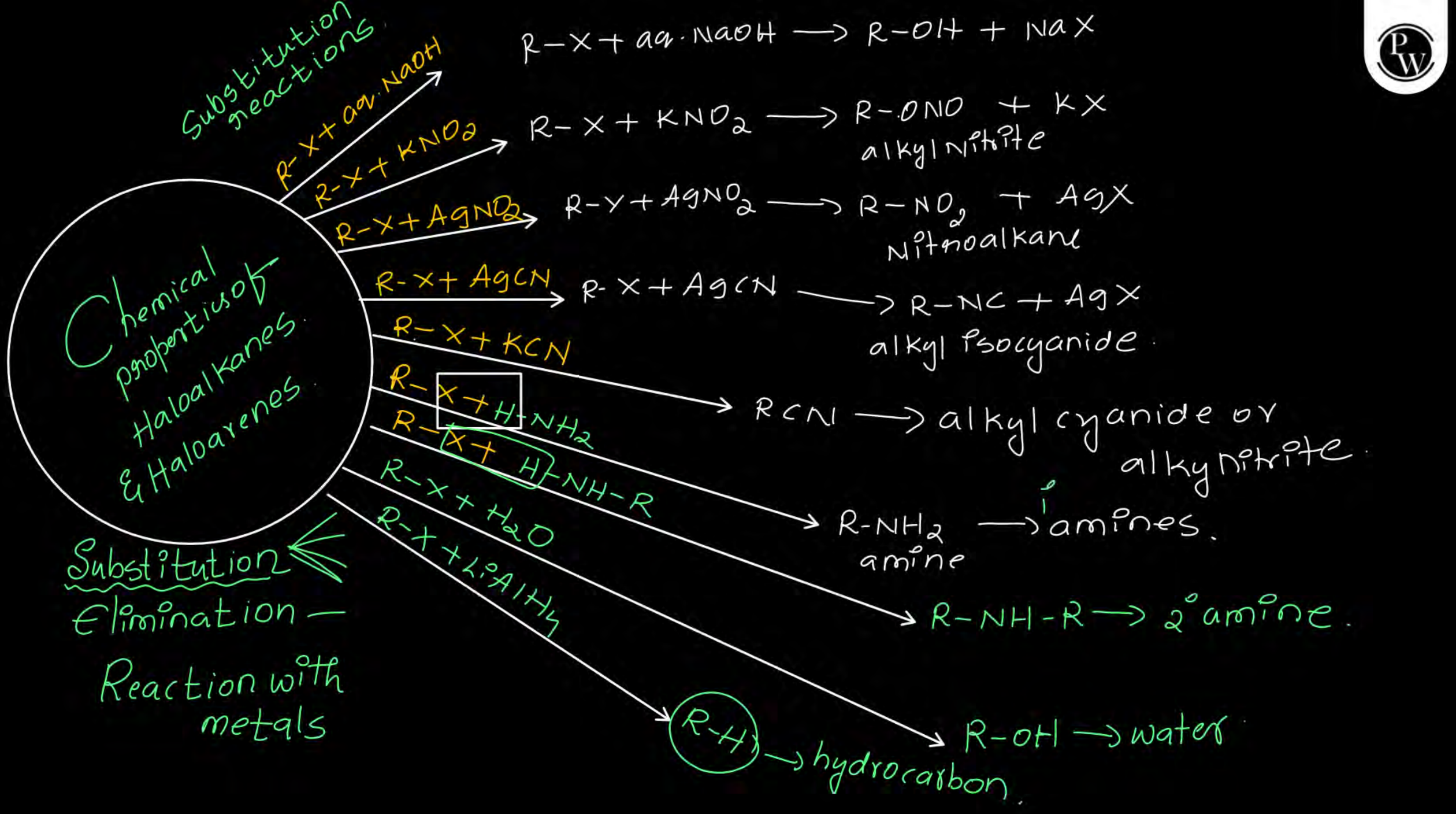
(R-Br, R-Cl)

Finkelstein reaction

$R-X + Na-I \xrightarrow{\text{dryacetone}} R-I + NaBr/NaCl$

R-Cl, R-Br

CoF_2, Hg_2F_2, SbF_3, AsF_3


Chemical properties of Haloalkanes & Haloarenes
Substitution reactions
R-X + aq. NaOH
R-X + KNO2
R-X + AgNO2
R-X + AgCN
R-X + KCN
R-X + H-NH2
R-X + H-NH-R
R-X + H2O
R-X + Li°AlH4
Substitution
Elimination —
Reaction with metals
R-X + aq. NaOH ⟶ R-OH + NaX
R-X + KNO2 ⟶ R-ONO + KX
alkyl Nitrite
R-Y + AgNO2 ⟶ R-NO2 + AgX
Nitroalkane
R-X + AgCN ⟶ R-NC + AgX
alkyl Isocyanide
RCN ⟶ alkyl cyanide or alkyl nitrite
R-NH2 amine ⟶ 1° amines
R-NH-R ⟶ 2° amine
R-OH ⟶ water
R-H ⟶ hydrocarbon

Chemical Properties of Haloalkanes & Haloarenes

Reaction with metals

Grignard reagent: $R-X + Mg \xrightarrow{\text{dry ether}} R-MgX$ (Grignard reagent)

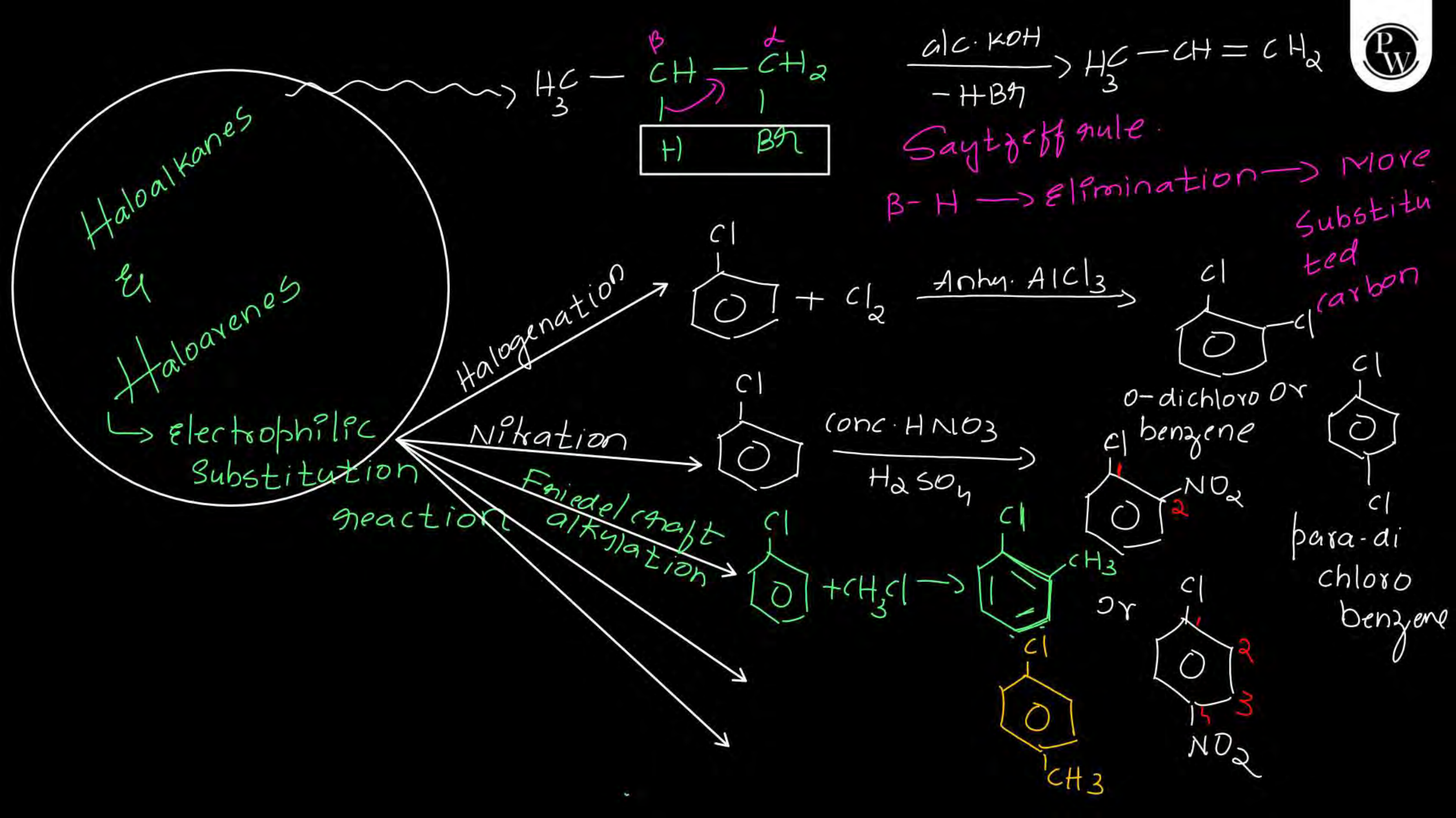
Wurtz reaction: $R-X + 2Na + X-R \xrightarrow{\text{dry ether}} R-R + 2NaX$

Wurtz-fittig reaction: $R-X + 2Na + X-C_6H_5 \xrightarrow{\text{dry ether}} R-C_6H_5$

Fittig reaction: $C_6H_5-Cl + 2Na + Cl-C_6H_5 \rightarrow$ diphenyl compound

Ullmann reaction (extra): $C_6H_5-I + 2Na + I-C_6H_5 \rightarrow$ diphenyl compound

iodobenzene


Haloalkanes
&
Haloarenes
↳ electrophilic Substitution reaction
$H_3C-\overset{\beta}{C}H-\overset{\alpha}{C}H_2$
1 1
H Br
alc. KOH
−HBr
$H_3C-CH=CH_2$
Saytzeff rule.
β-H → elimination → More Substituted carbon
Halogenation
Cl
+ Cl_2
Anhy. $AlCl_3$
o-dichloro benzene
or
para-dichloro benzene
Nitration
conc. HNO_3
H_2SO_4
NO_2
Friedel Craft alkylation
+CH_3Cl
CH_3
or
NO_2

Question

An alkyl iodide on standing darkens, due to

$4\pi e^{\ominus}$ → Anti aromatic

A Hydrolysis

B Conversion into ether

C Liberation of iodine

D Formation of alkanes.

C – F

C – Cl

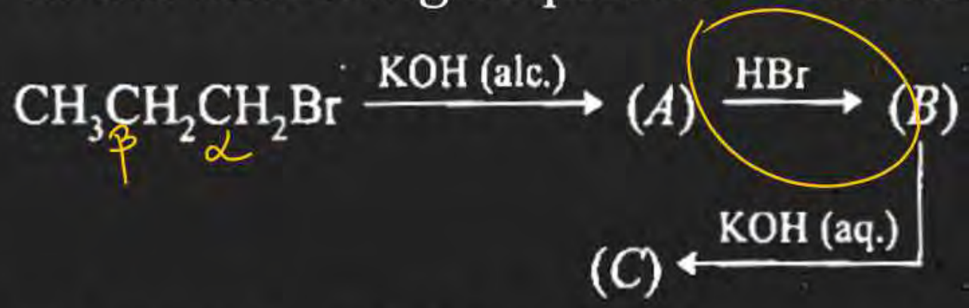
C – Br

C – I

$I + I \rightarrow I_2$

Question

In the following sequence of reactions



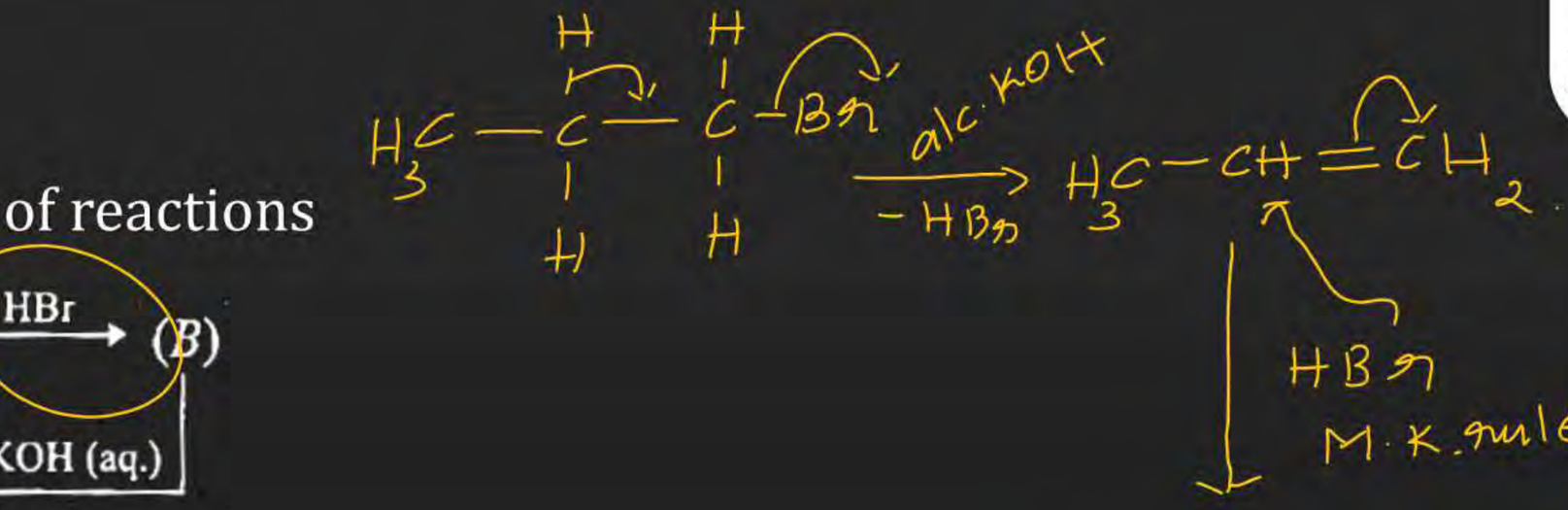
The product (C) is

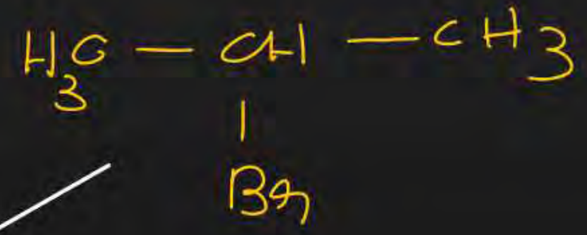
A Propene

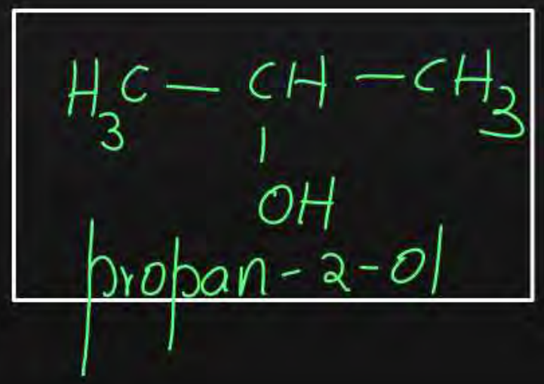
B Propyne

C Propan-1-ol

D Propan-2-ol.







Question

In the following sequence of reactions,

$$CH_3CH_2CH_2I \xrightarrow{KOH\ (alc.)} (A) \xrightarrow{Br_2} (B) \xrightarrow{NaNH_2/NH_3} (C)$$

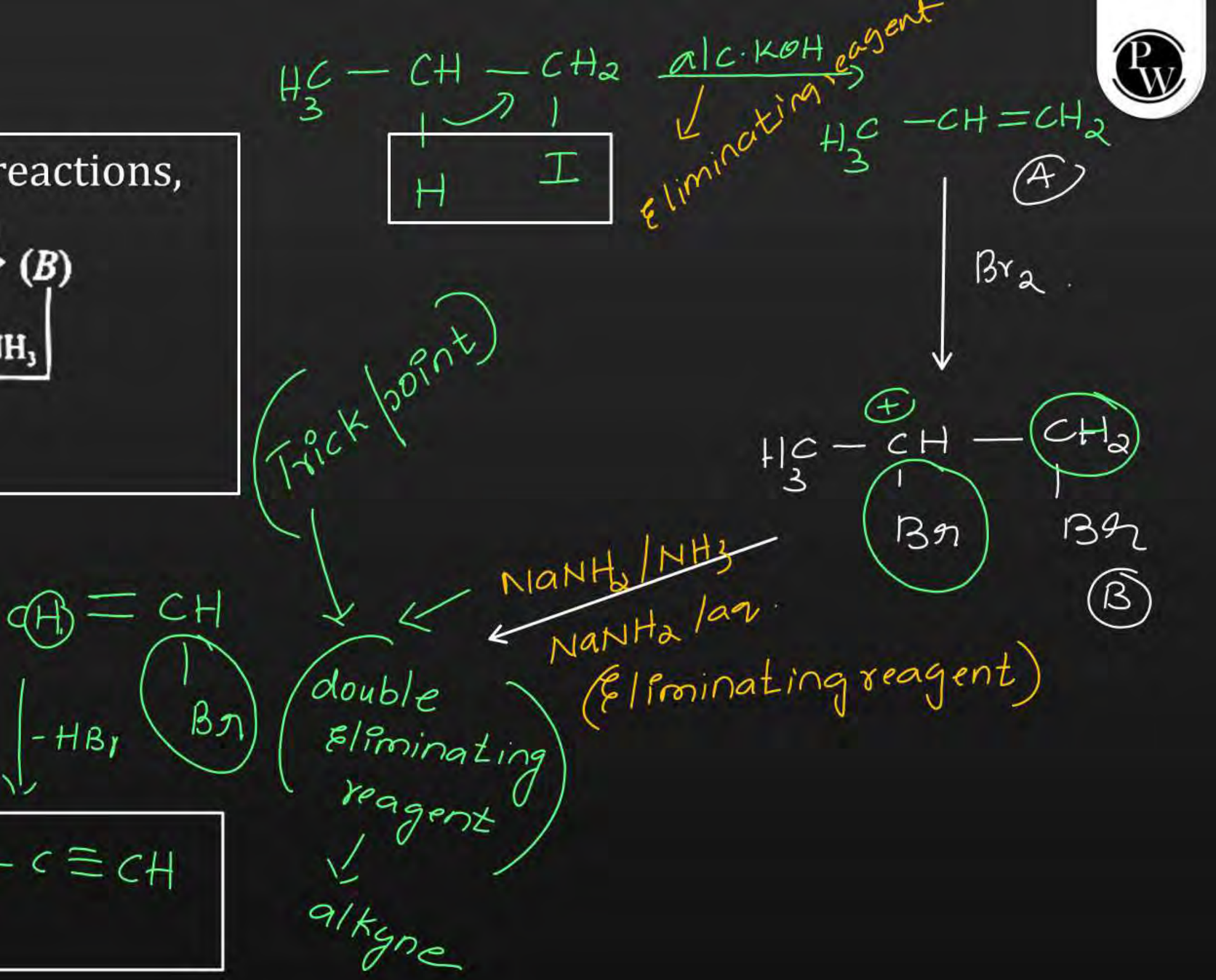
The end product (C) is

(A) Alkene

(B) Alkanol

(C) Alkyne

(D) Alkyl amine.



Question

The order of polarity of CHI, CH_3 Brand CH_3Cl molecules follows the order

A $CH_3Br > CH_3Cl > CH_3I$

B $CH_3I > CH_3Br > CH_3Cl$

C $CH_3Cl > CH_3Br > CH_3I$

D $CH_3Cl > CH_3I > CH_3Br$

H_3C-F

H_3C-Cl

H_3C-Br

H_3C-I

$F > Cl > Br > I$

Dipole moment

$H_3C-Cl > CH_3-F > CH_3-Br > CH_3-I$

Question

The correct order of melting and boiling points of the primary (1°) secondary (2°) , and tertiary (3°) alkyl halides is

A. $1° > 2° > 3°$

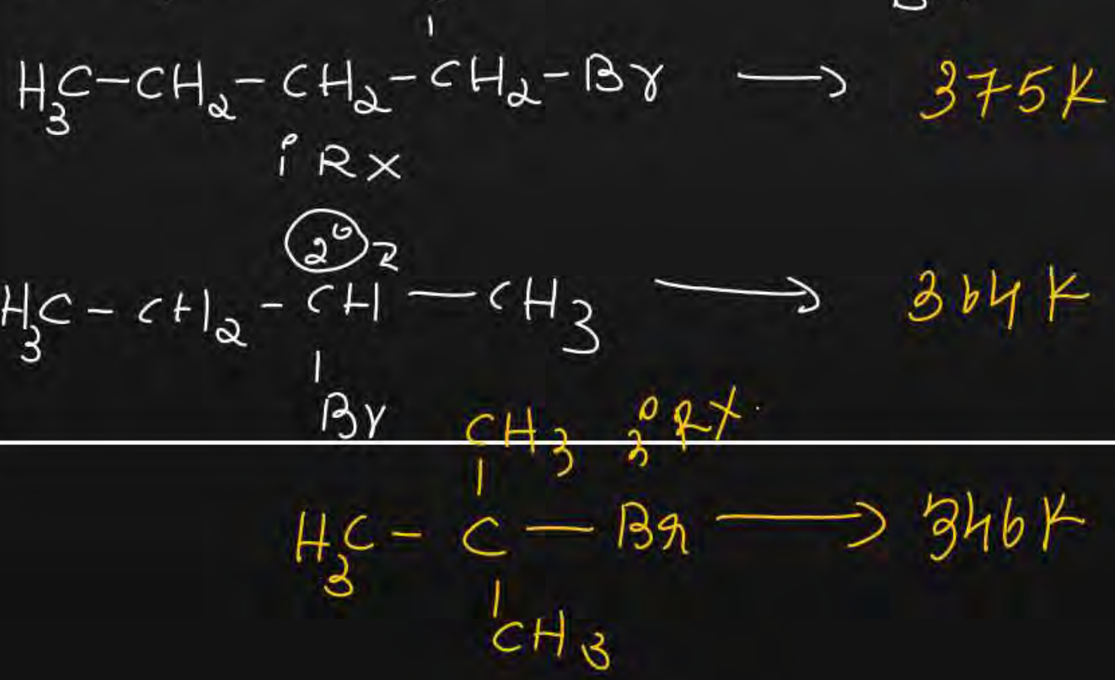
B. $3° > 2° > 1°$

C. $2° > 3° > 1°$

D. $3° > 1° > 2°$

Synopsis

Example



Question

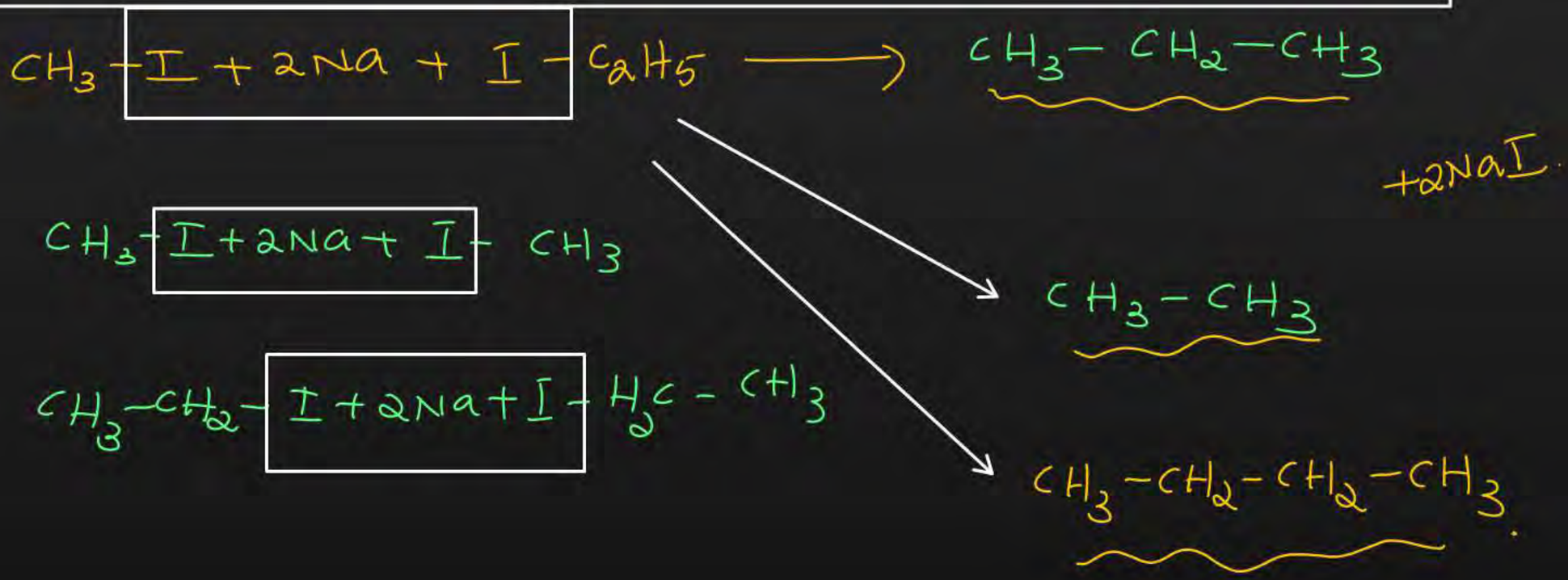
If methyl iodide and ethyl iodide are mixed in equal proportions and the mixture is treated with metallic sodium in presence of dry ether, the number of possible products formed is

A 2

B 3

C 1

D 4



Question

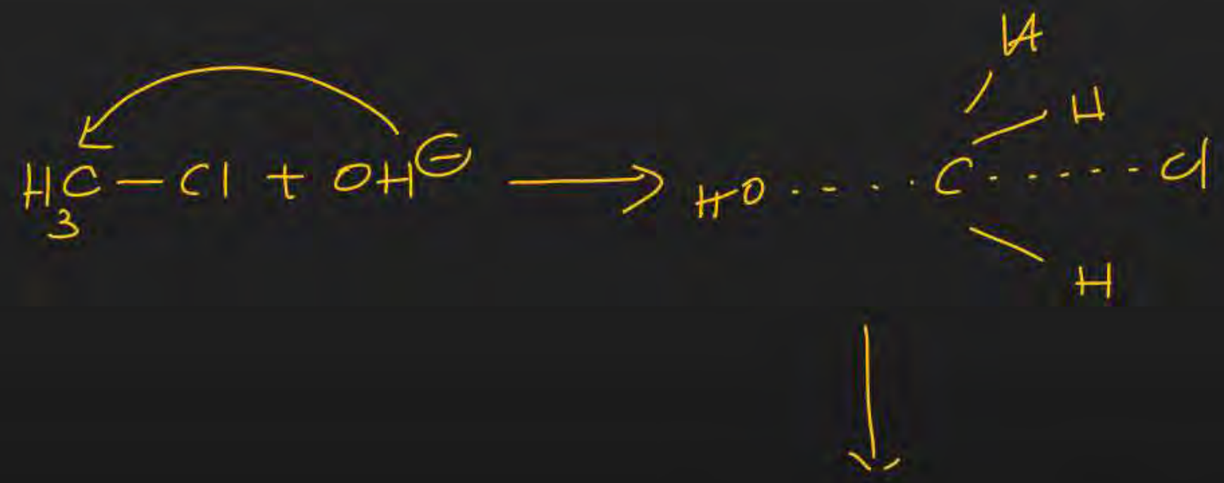
S_N2 mechanism proceeds through the formation of

A. Carbonium ion
Carbocation

B. Transition state

C. Free radical

D. Carbanion.



$HO-CH_3$

Question

The reactivity order of halides for dehydrohalogenation is

A. $R - F > R - Cl > R - Br > R - I$

B. $R - I > R - Br > R - Cl > R - F$

C. $R - I > R - Cl > R - Br > R - F$

D. $R - F > R - I - R - Br > R - Cl$

→ Size of Halogens

C – F

C – Cl

C – Br

C – I →

Size

I > Br > Cl > F

Thank You