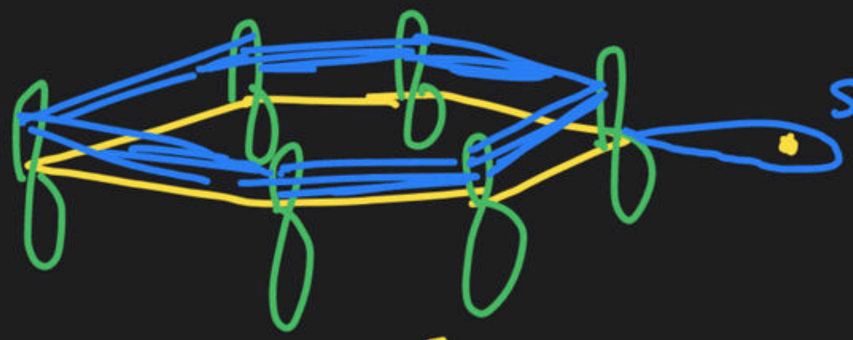
Basic Strength, Heat of Combustion and Heat of Hydrogenation

Course on General Organic Chemistry for Class XI

SURENDRA K MISHRA • Lesson 19 • Sept 7, 2021

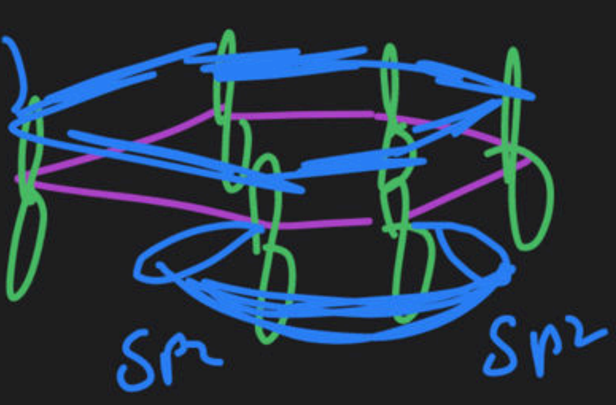
(44)



6 π e⁻s

Aromatic

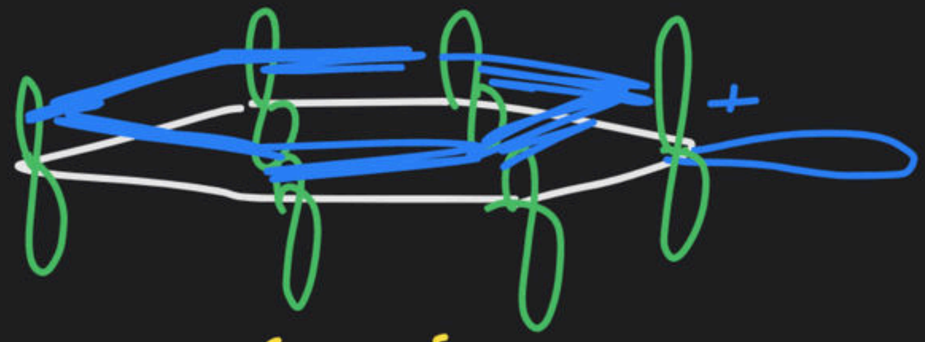
(47)



6 π e⁻s

Aromatic

(45)



6 π e⁻s

Aromatic

(40) Aromatic

(41) Aromatic

(46)

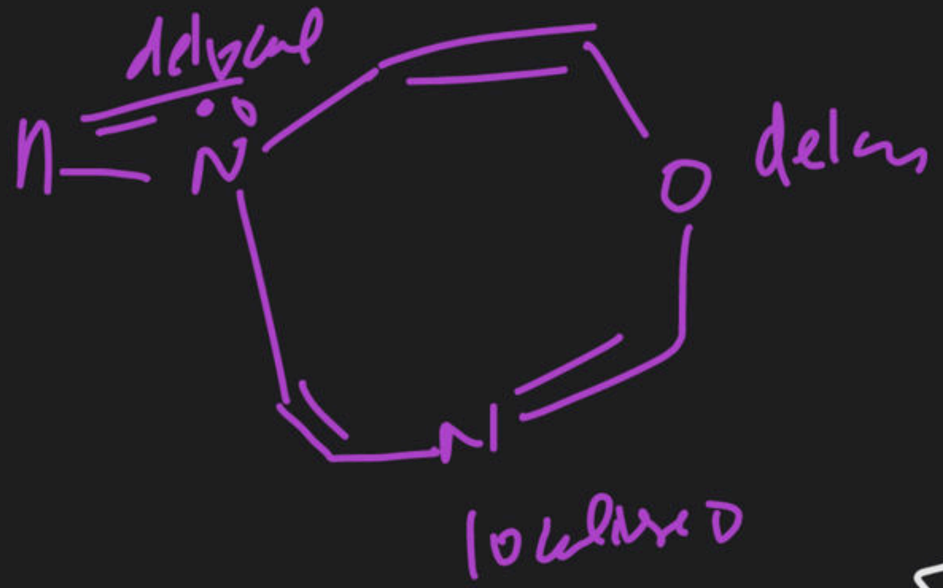
6 π e⁻s

Aromatic

(39) Aromatic

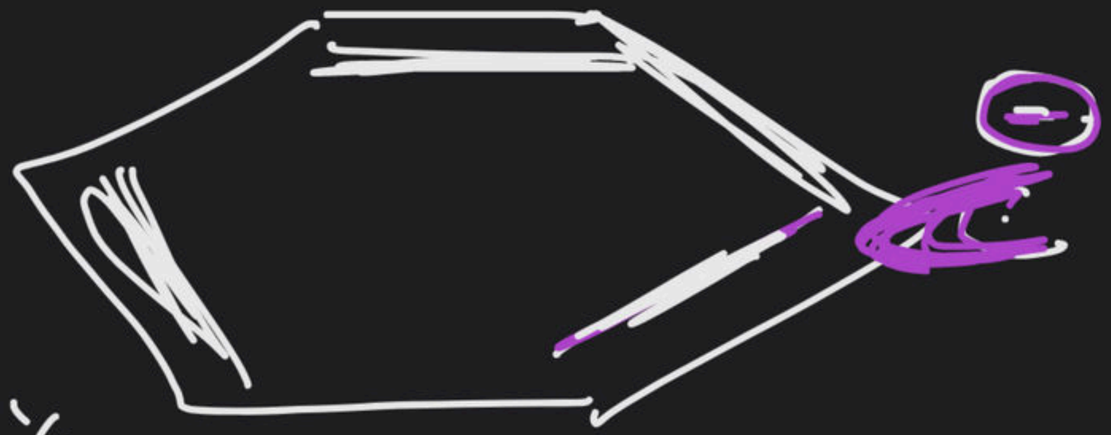
(40) Aromatic (10 π e⁻s)

(41) 10 πe^- (Aromatic)

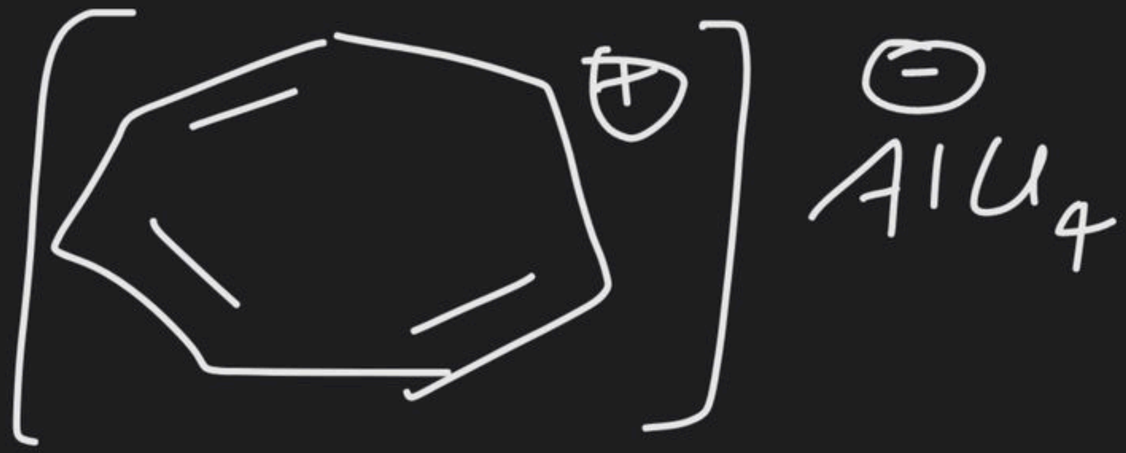


(42) ——

(43) —— Aromatic

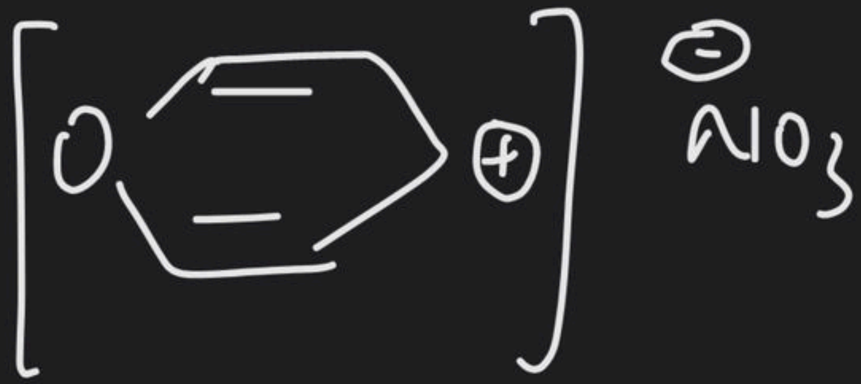


(52)



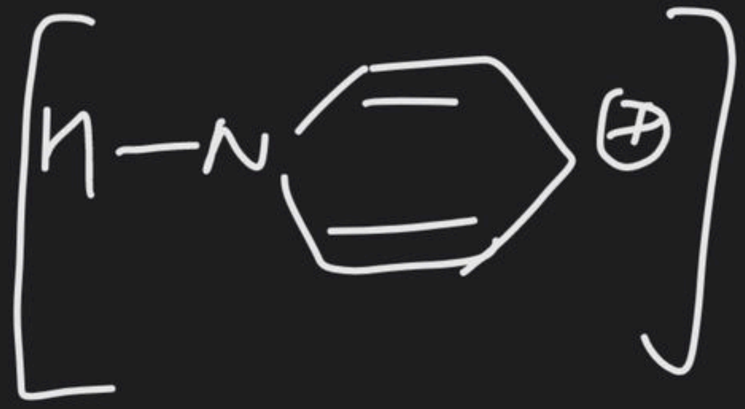
$AlCl_4^{\ominus}$

(53)



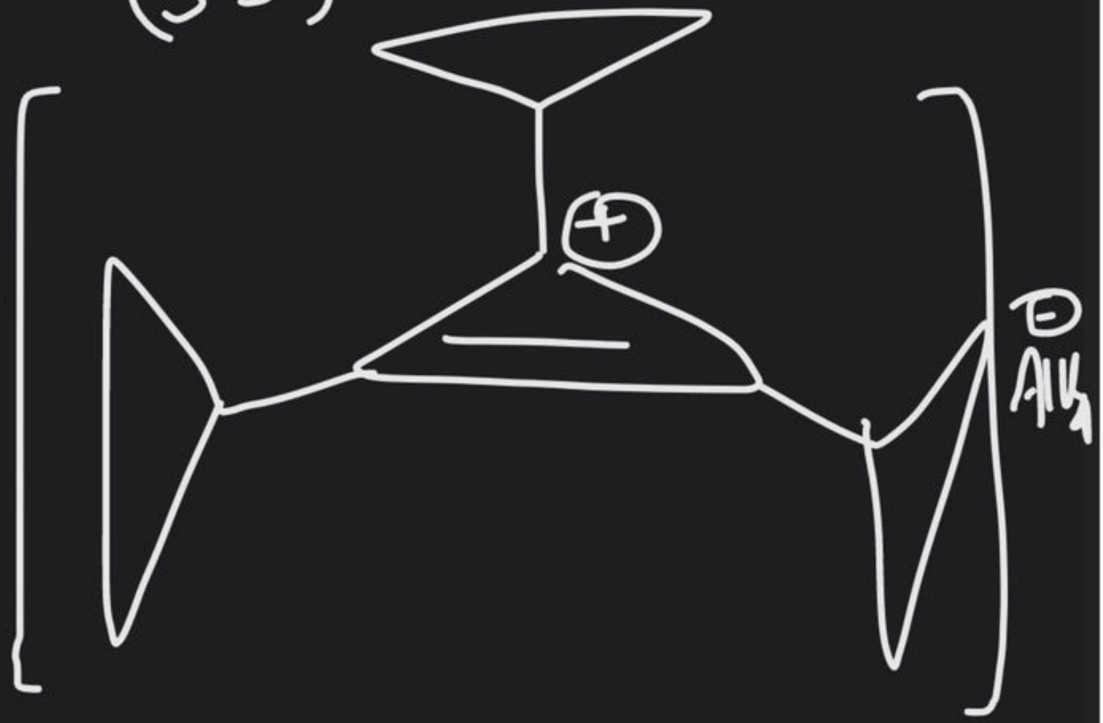
$NO_3^{\ominus}$

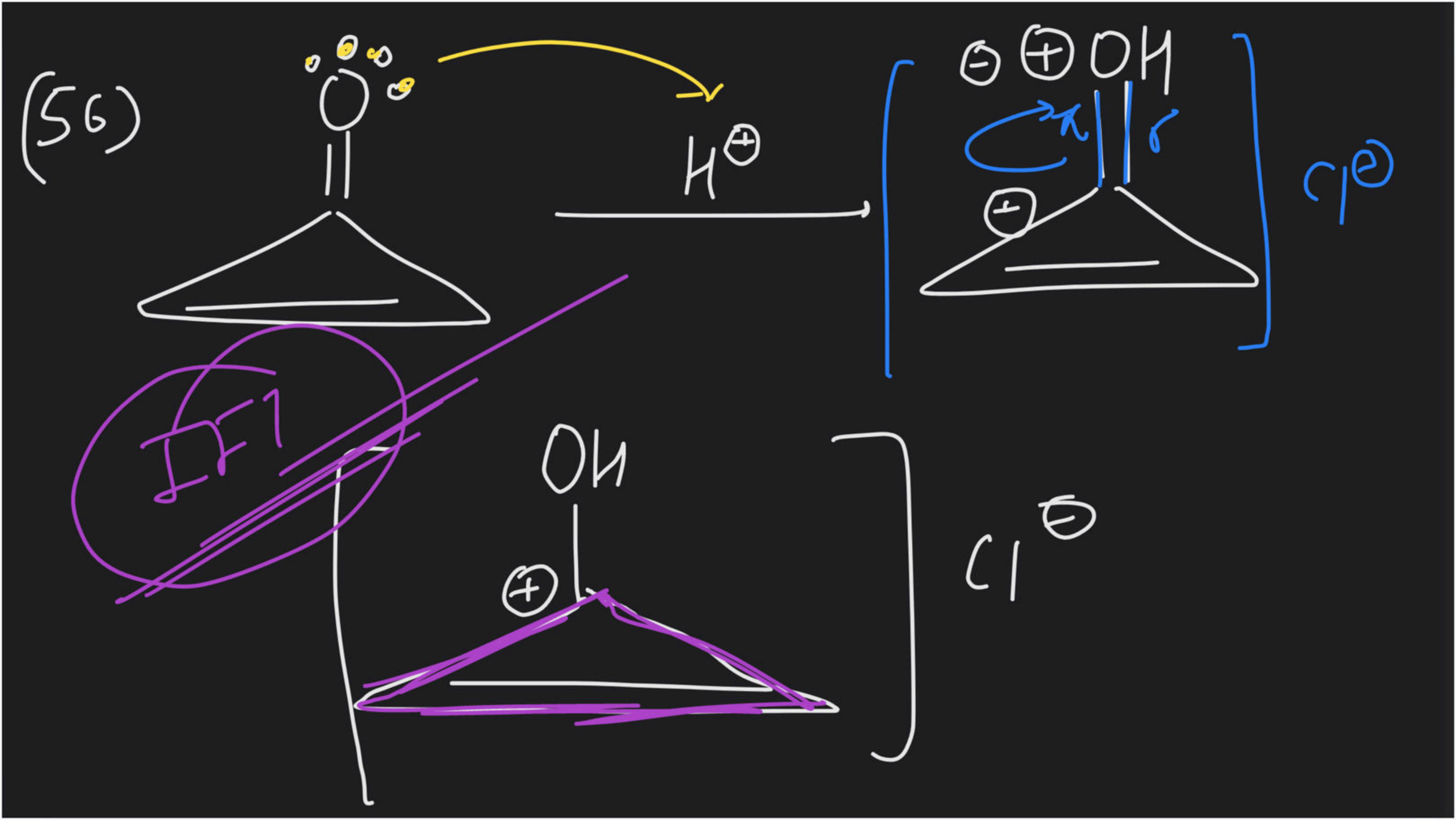
(54)



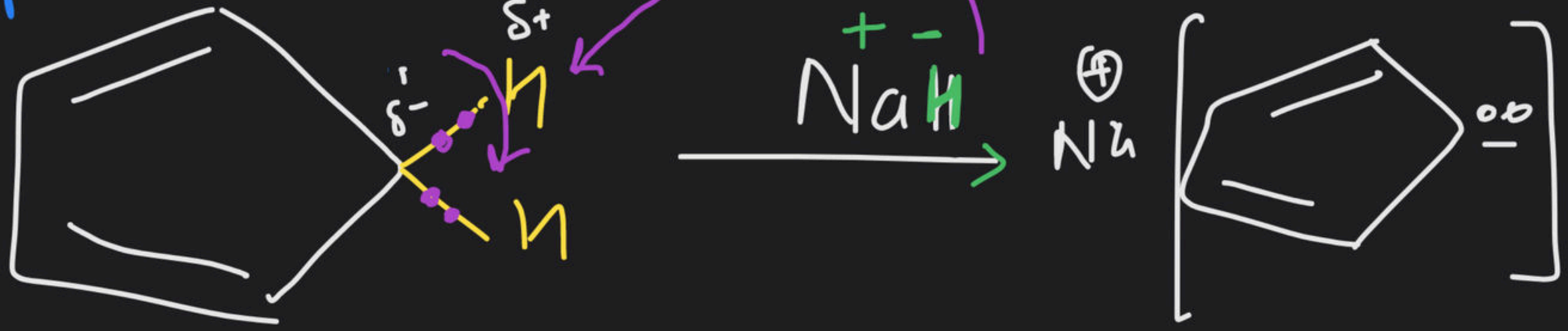
$NO_3^{\ominus}$

(55)



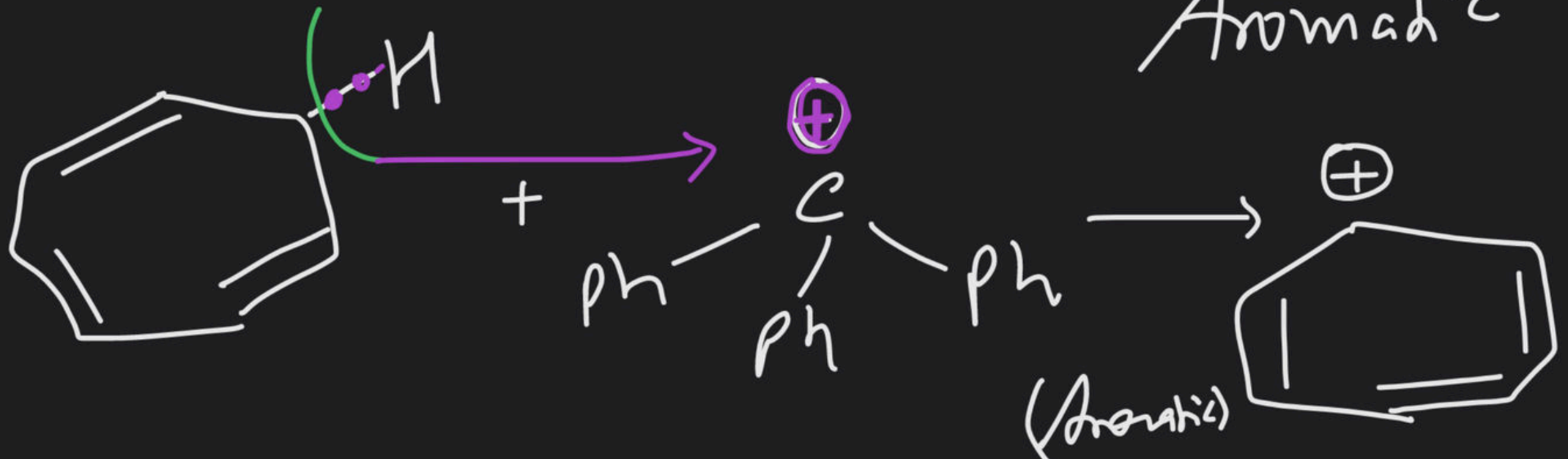

(56)
H⊕
OH
π
σ
Cl⊖
IF1
OH
Cl⊖

(57) Imp



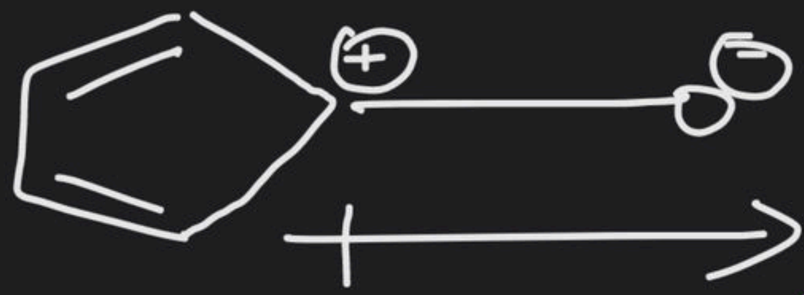
Aromatic

(58)

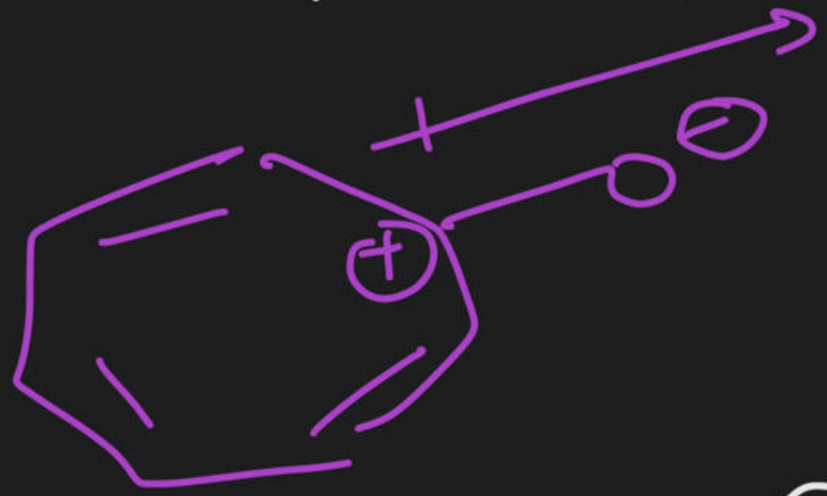


+ Ph_2C-H

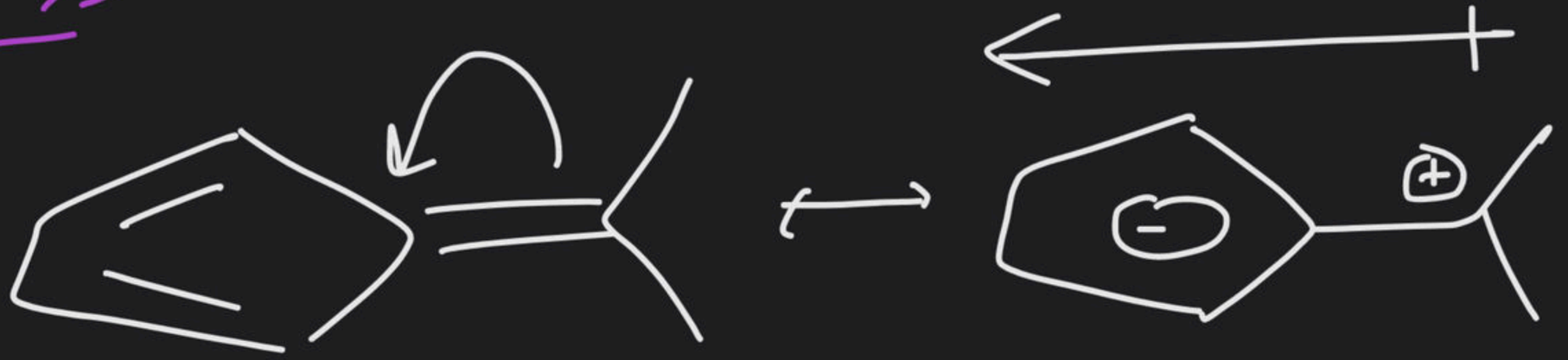
(60)



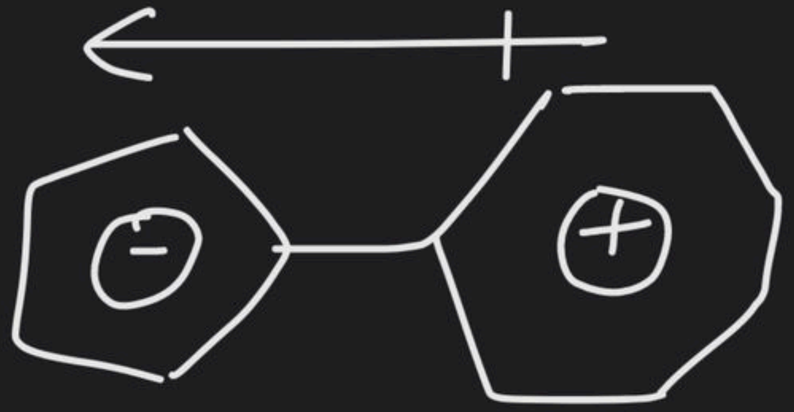
(61)



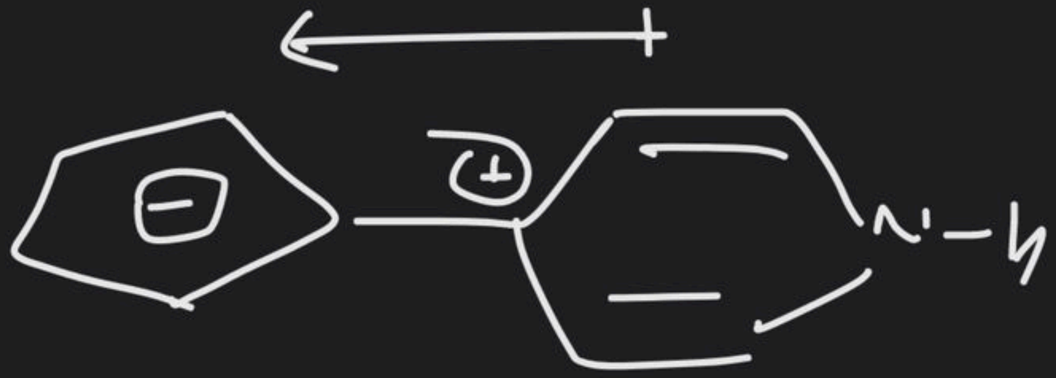
(62)



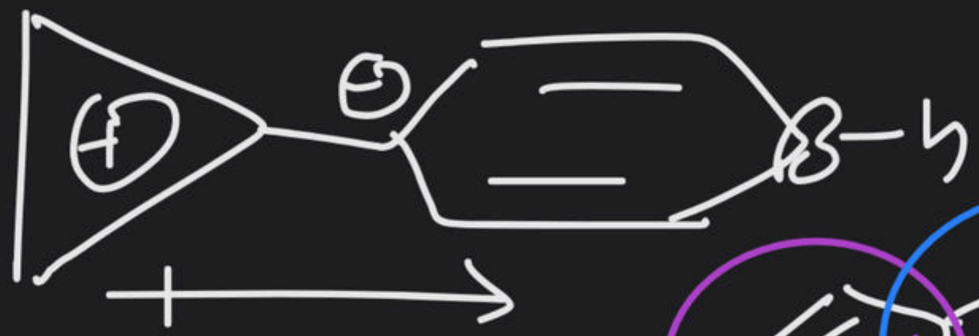
(64)



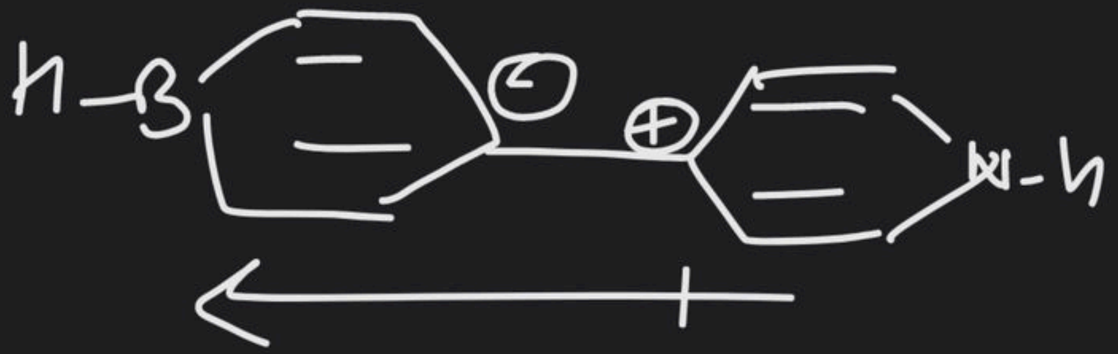
(65)



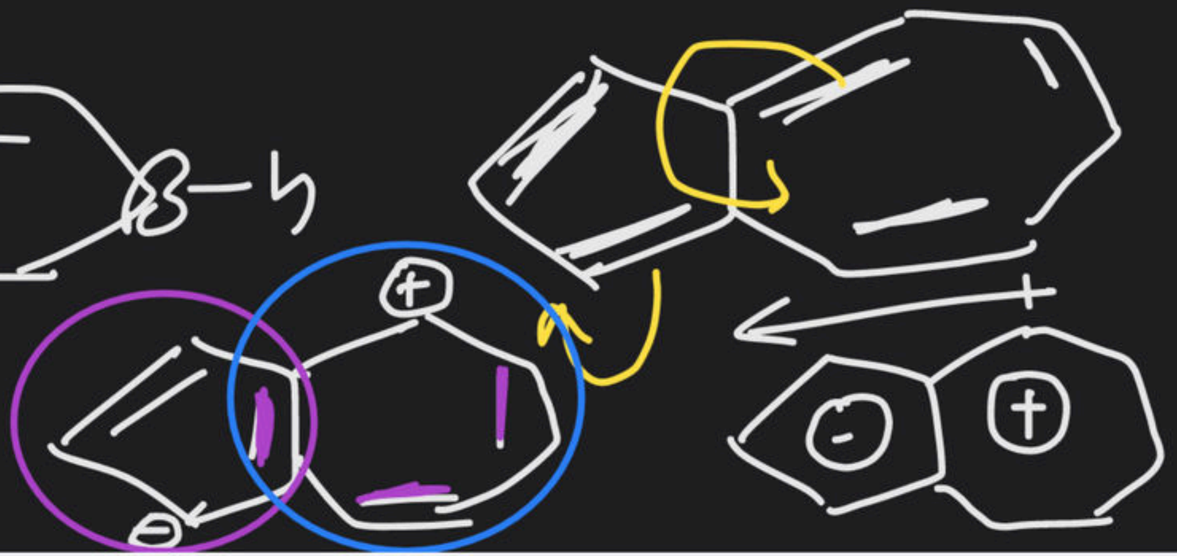
(66)



(67)



(68)

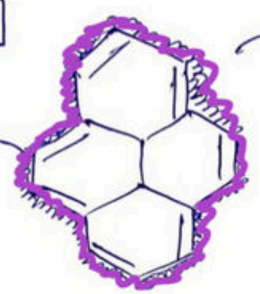


unacademy

▲ 24 • Asked by Ridham

SIR HUCKLE NUMBER SE EK DOUBT HAI

Ridhi [48]



largest Peripheri

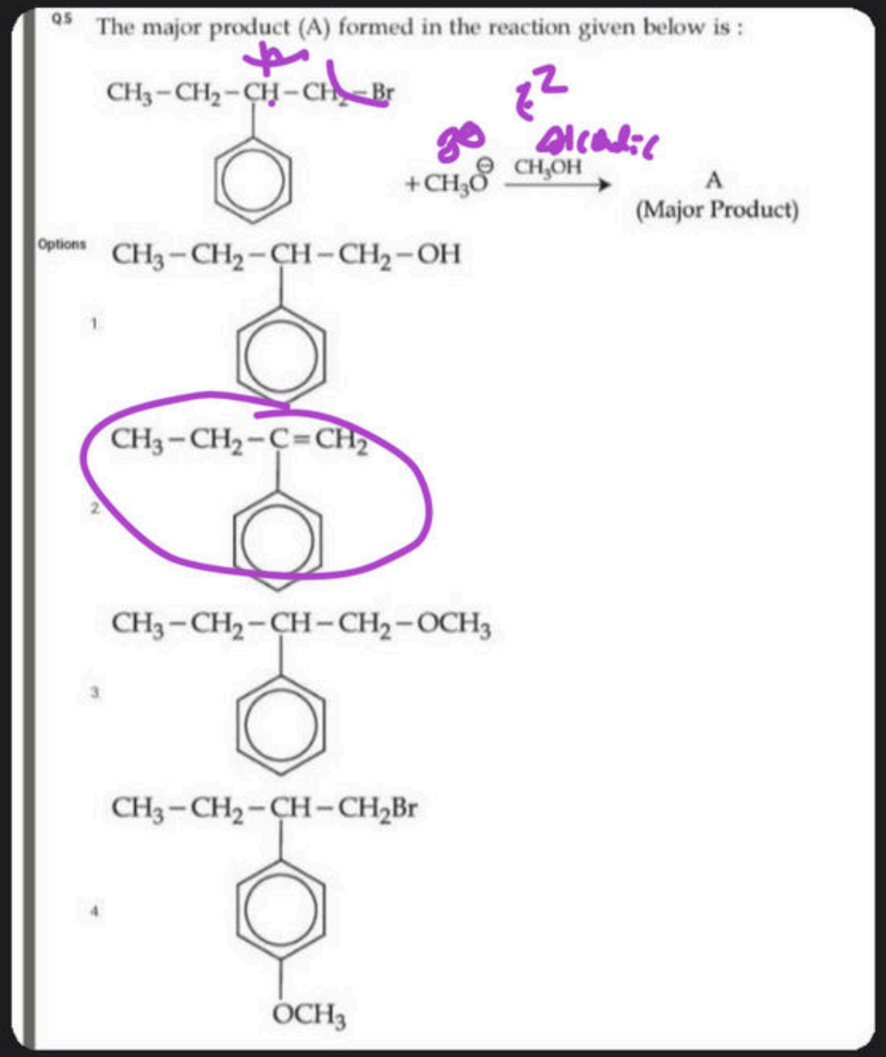
→ While teaching Huckle number you told that it will be Aromatic

→ But sir, In previous lecture you told that full cyclic conjugation must also be there which is not present here. Then why should it be Aromatic?

unacademy

▲ 12 • Asked by Lalak

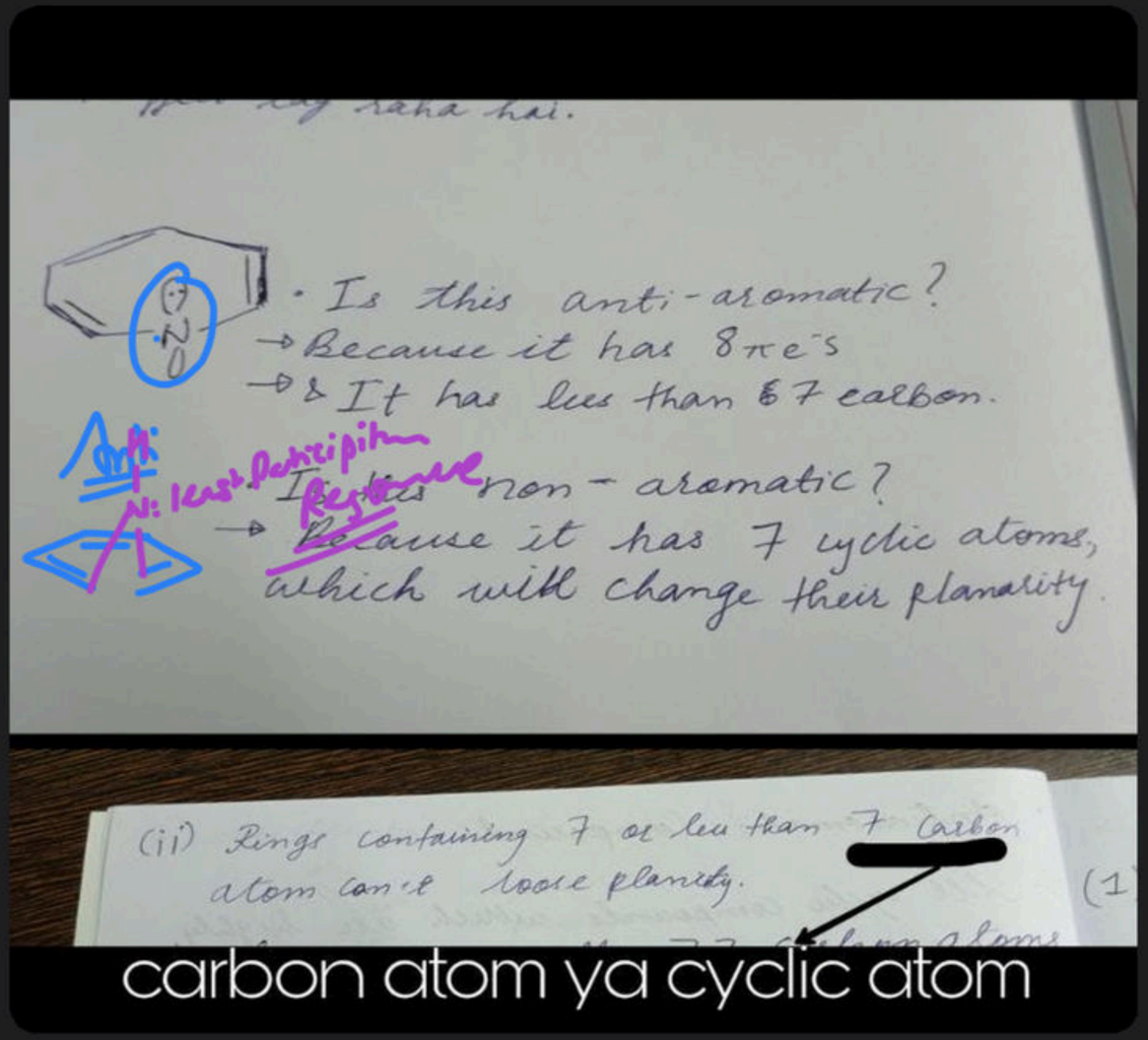
Please help me with this doubt

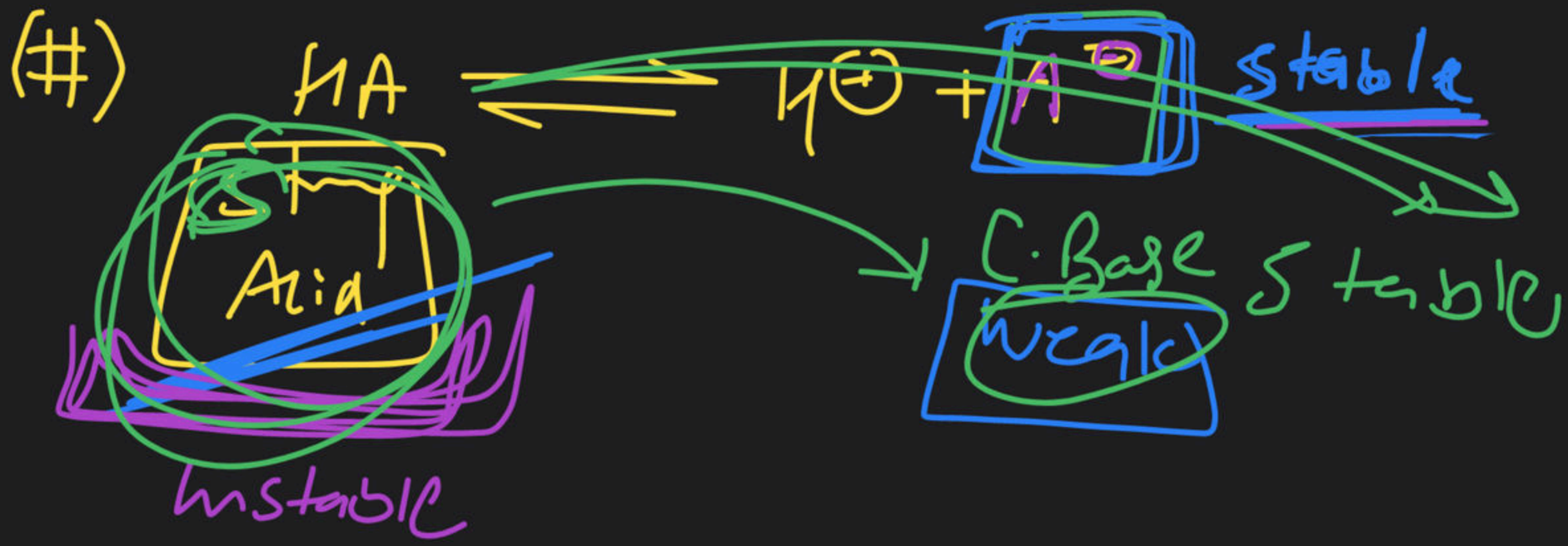


unacademy

▲ 10 • Asked by Pratyush

Doubt 1




(#)
HA
Aid
Instable
stable
C-Base
weak
stable

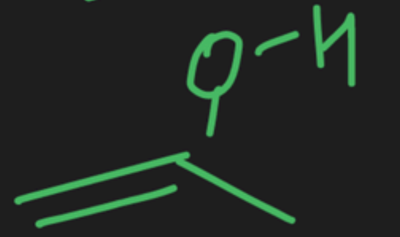
Note :- (V) Strong Acid & strong Bases have weaker C.Base & Conjugate Acid respectively & vice versa.

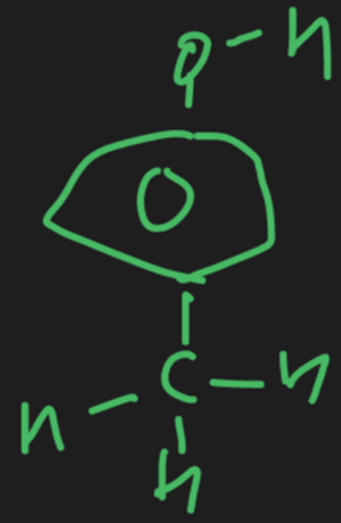
Ex-1 : Write C.Base of following

Acid	C.Base
(a) CH_3-OH	
(b) ✓ CH_3-CH_2-OH	$CH_3-CH_2-O^{\ominus}$
(c) H_2SO_4	
(d) H_2O	
(e) ✓ $H_2PO_4^{\ominus}$	HPO_4^{-2}

(f) $HC \equiv CH$

(g) 

(h) 

(i) 

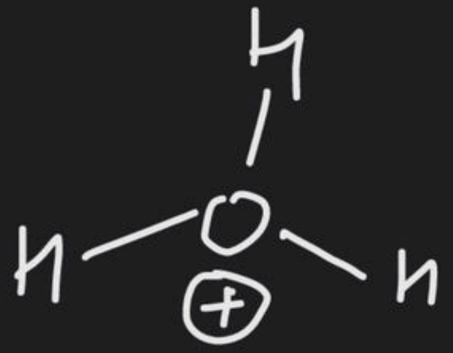
EX-2: Write C. Acid for following

(C. Acid)

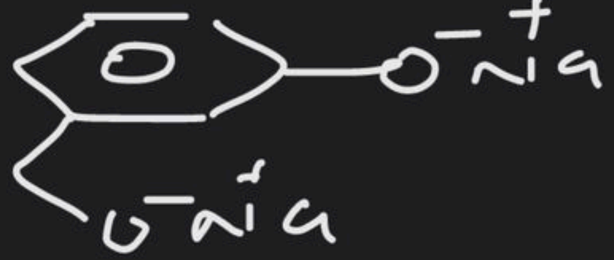
(a) O^{2-}

(b) $^{\ominus}NH_2$

(c) 



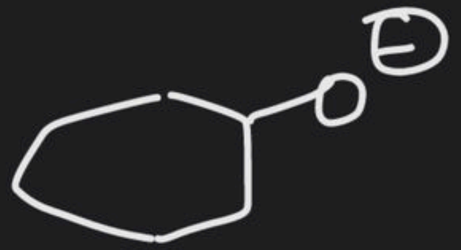
(H_3O^+)

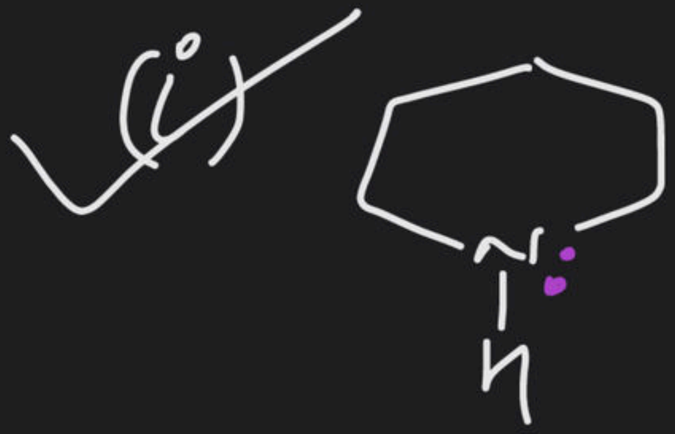
(d) 

(e) PO_4^{3-} HPO_4^{2-}

(f) 

(g) 

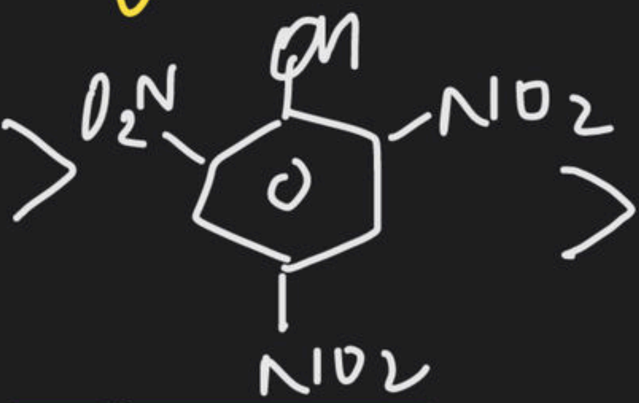
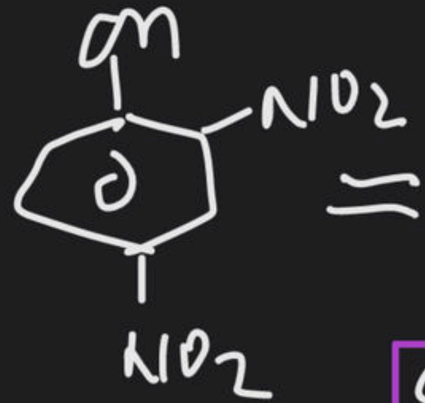
(h) 

(i) 

(#) Acidic Strength Order

M.I.P

(a)

$R-SO_3H$ >  >  = $R-COOH$ > H_2CO_3

Sulphonic Acid

(Picric Acid)

Carboxylic Acid

Carbonic Acid

Aq. CO_2

CH_3COOH

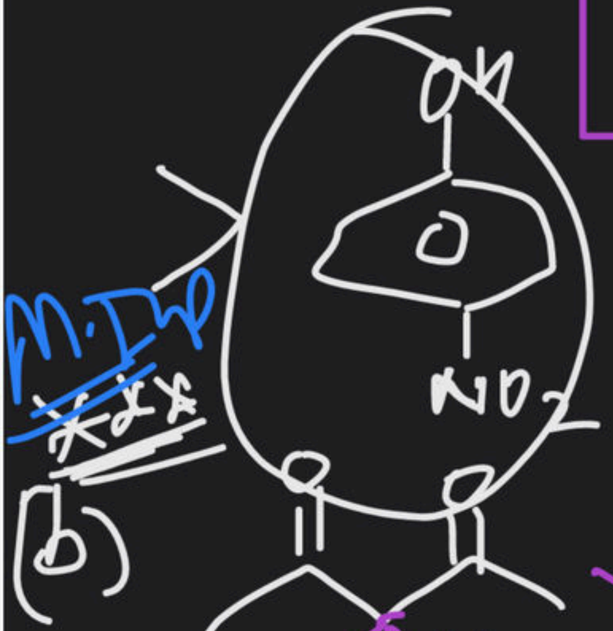
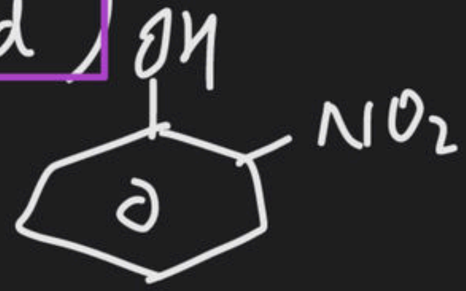
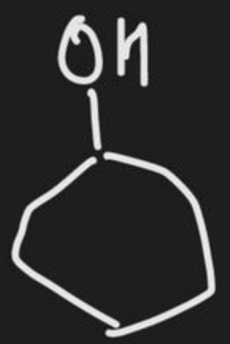
$K_a = 1.8 \times 10^{-5}$

$pK_a = 4.18$

$(H_2O + CO_2\uparrow)$

M.I.P

(b)

 >  >  > H_2O > 

Carbolic Acid

$H-H$ > H_2O > ROH > $R-C\equiv C-H$ > NH_3 > H_2

Ex-1: Which of the following reaction is spontaneous / feasible / moving in forward direction

(a) $R-C\equiv C-H + K^{+}OH^{-} \longrightarrow R-C\equiv C^{\ominus}K^{\oplus} + H_2O$ (Acid: WA; Base; Base; Acid: SA)

(b) $R-C\equiv C-H + Na^{+}OH^{-} \longrightarrow R-C\equiv C^{\ominus}Na^{\oplus} + H_2O$ (WA; SA)

(c) $R-C\equiv C-H + Na^{+}NH_2^{-} \longrightarrow$ " $+ NH_3$ (SA; WA)

(d) $R-C\equiv C-H + Na^{+}H^{-} \longrightarrow$ " $+ H_2$ (WA; WA)

(e) $R-C\equiv C-H + Na^{+}HCO_3^{-} \longrightarrow$ " $+ H_2CO_3$

(f) $R-C\equiv C-H + Na^{\oplus}e^{\ominus} \longrightarrow$) $+ \frac{1}{2}H_2\uparrow$

EX-2: which of following Reaction is feasible or which of the following Compounds gives Brisk effervescence (CO_2) on reaction with Aq. $NaHCO_3$

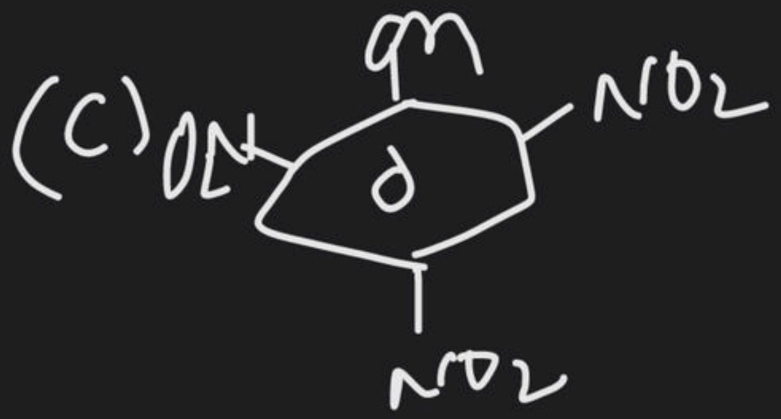
Compound is (A) (B) CO_2 (C) (D)

(a) $R-\overset{\delta-}{SO_3}\overset{\delta+}{H} + NaHCO_3 \longrightarrow R-SO_3Na + H_2CO_3 \rightarrow H_2O + CO_2\uparrow$

(SA) (WA)

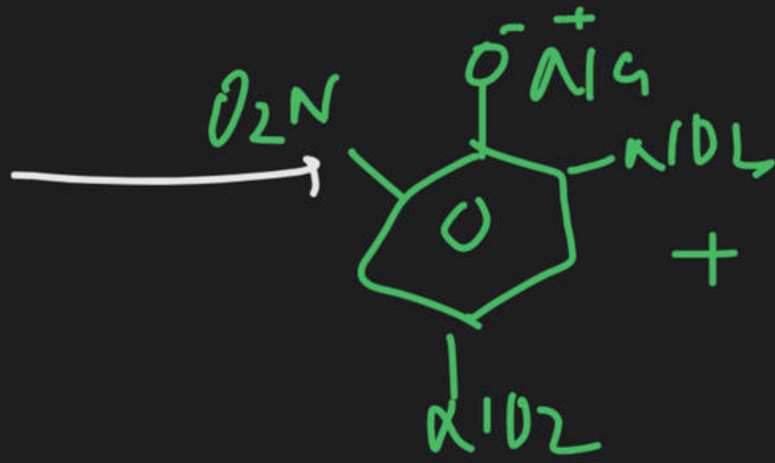
(b) $R-COOH + \overset{+}{Na}\overset{-}{HCO_3} \longrightarrow R-COONa + H_2CO_3 \rightarrow H_2O + CO_2\uparrow$

(SA) (WA)

(c) 

+ $NaHCO_3$

Base

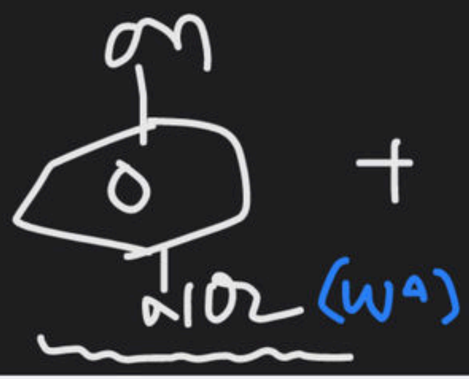


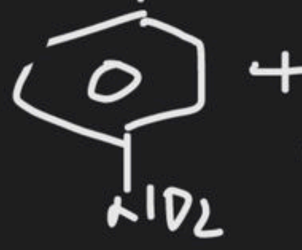
+ H_2CO_3 → $CO_2\uparrow$

(d) 

+ $NaHCO_3$ ⟶

M.Imp (c)



+ $NaHCO_3$ ⇌  + H_2CO_3 → $H_2O + CO_2\uparrow$

(Reversibility)

(Forward direction)

(f)  + $NaHCO_3$ ⟶

(g)  + Na_2CO_3 ⟶

Ex: gases evolved when $NaH^{14}CO_3$ reacted with CH_3-COOH & CH_3-SO_3H respectively

(A) CO_2 SO_3 ✓

(B) CO_2 CO_2

(C) CO_2 $^{14}CO_2$

(D) $^{14}CO_2$ $^{14}CO_2$

(E) $^{14}CO_2$ SO_2

⇒ गैस हमेशा बेस से निकलती है