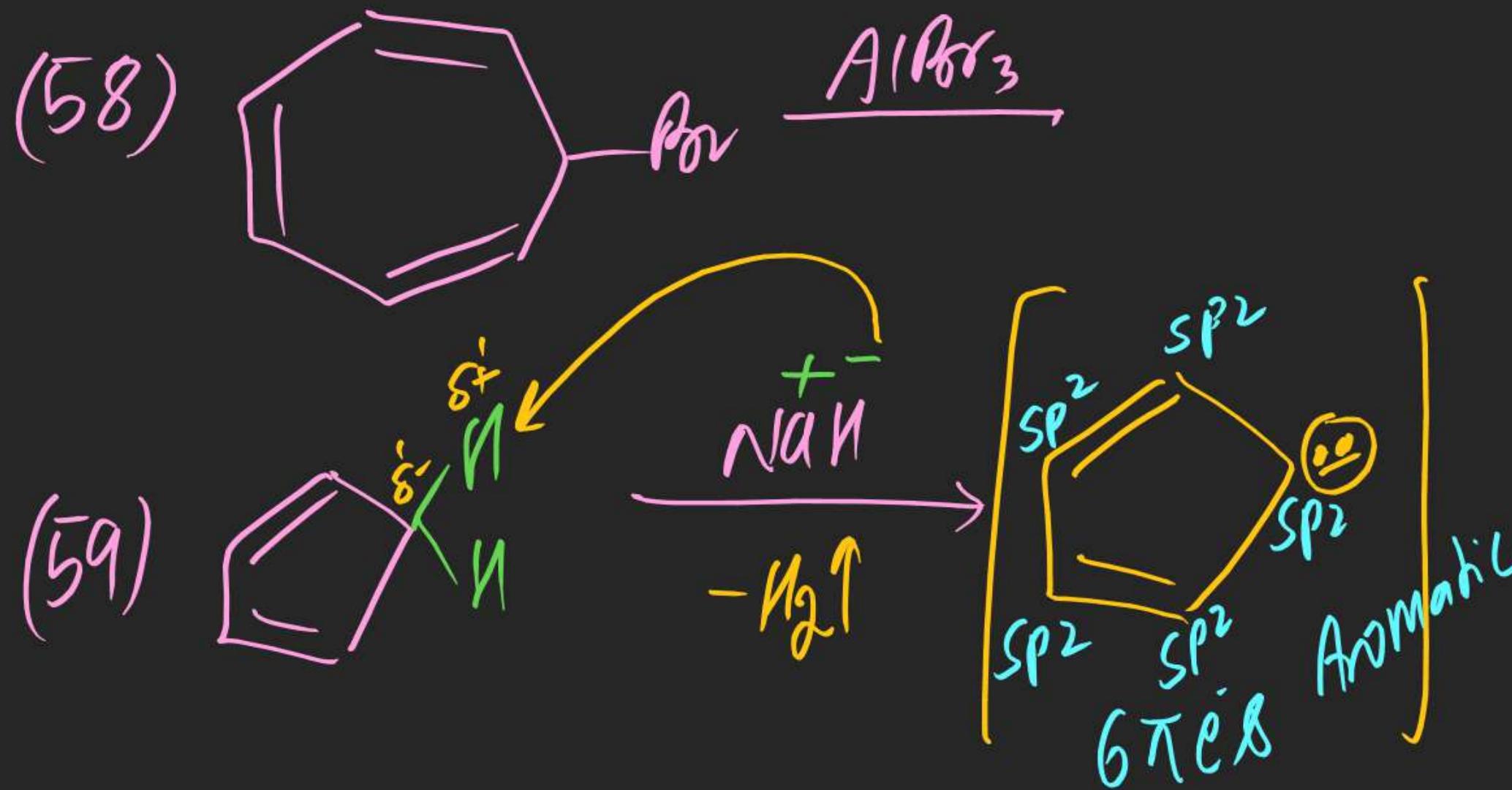
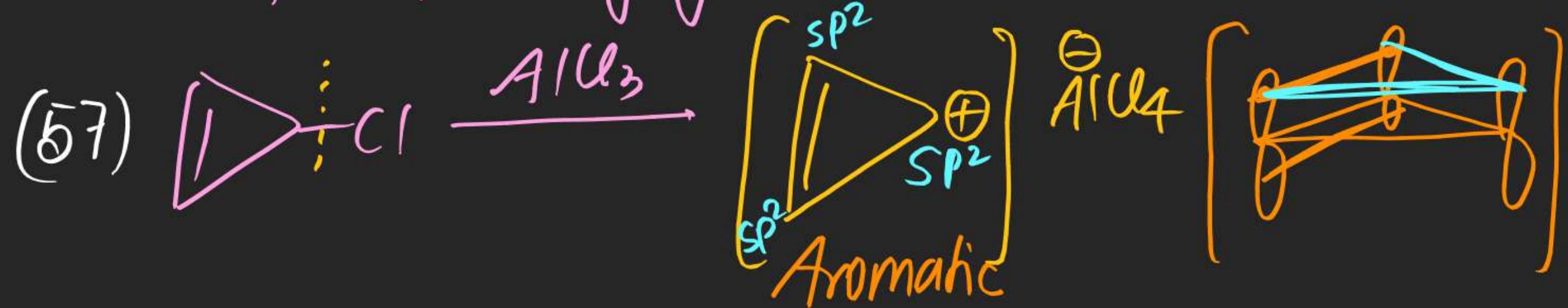
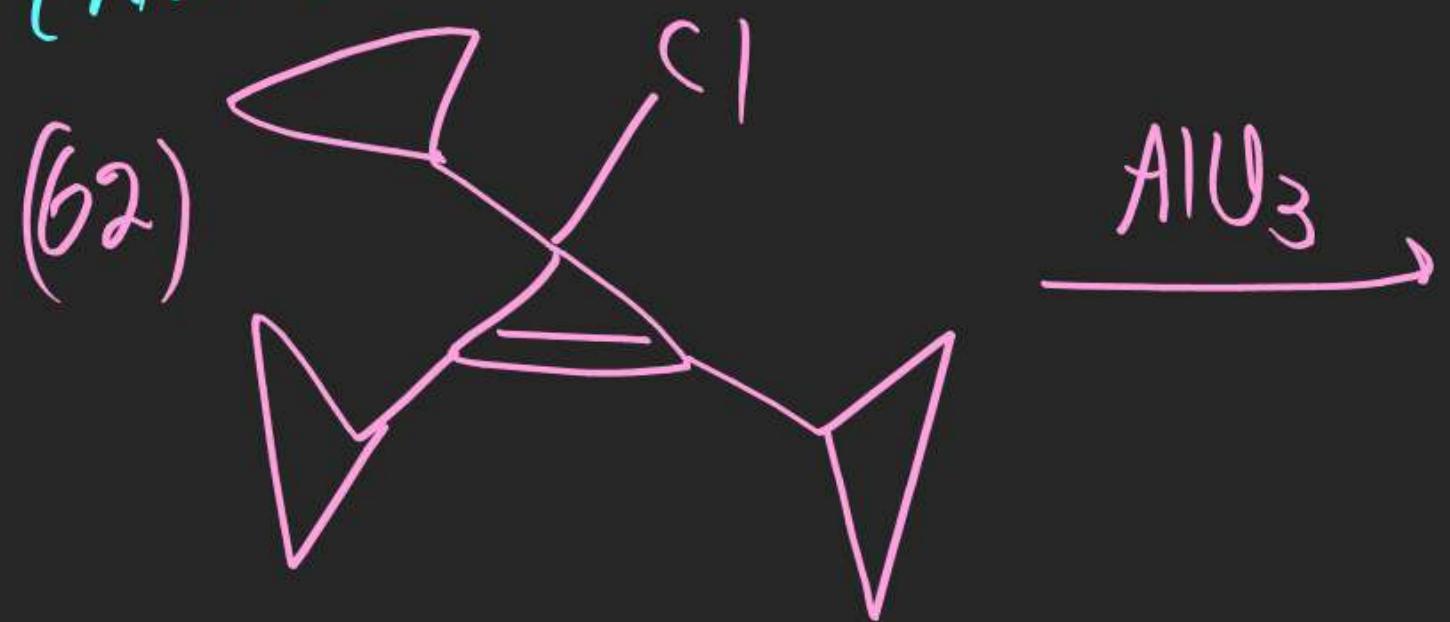
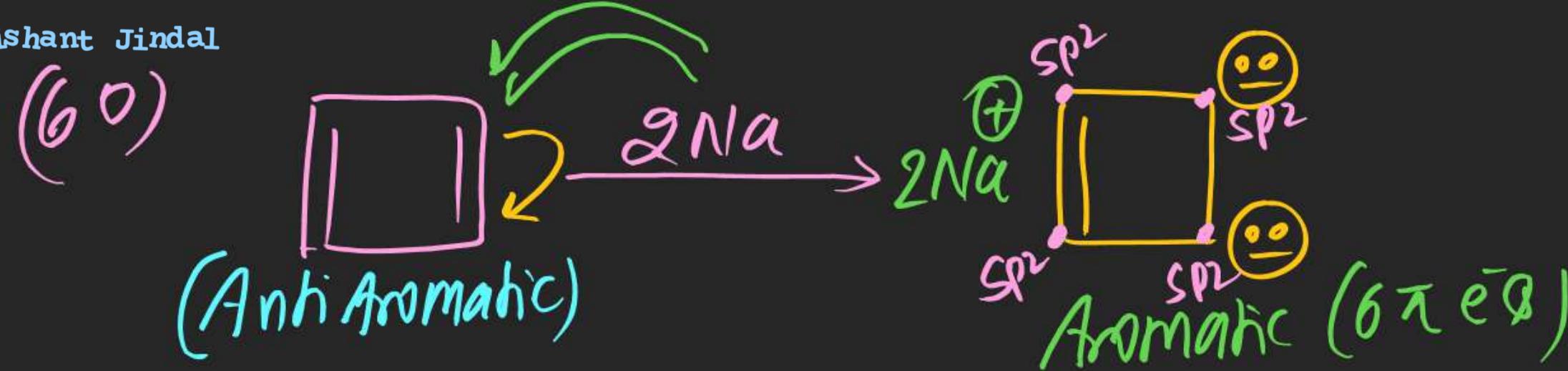


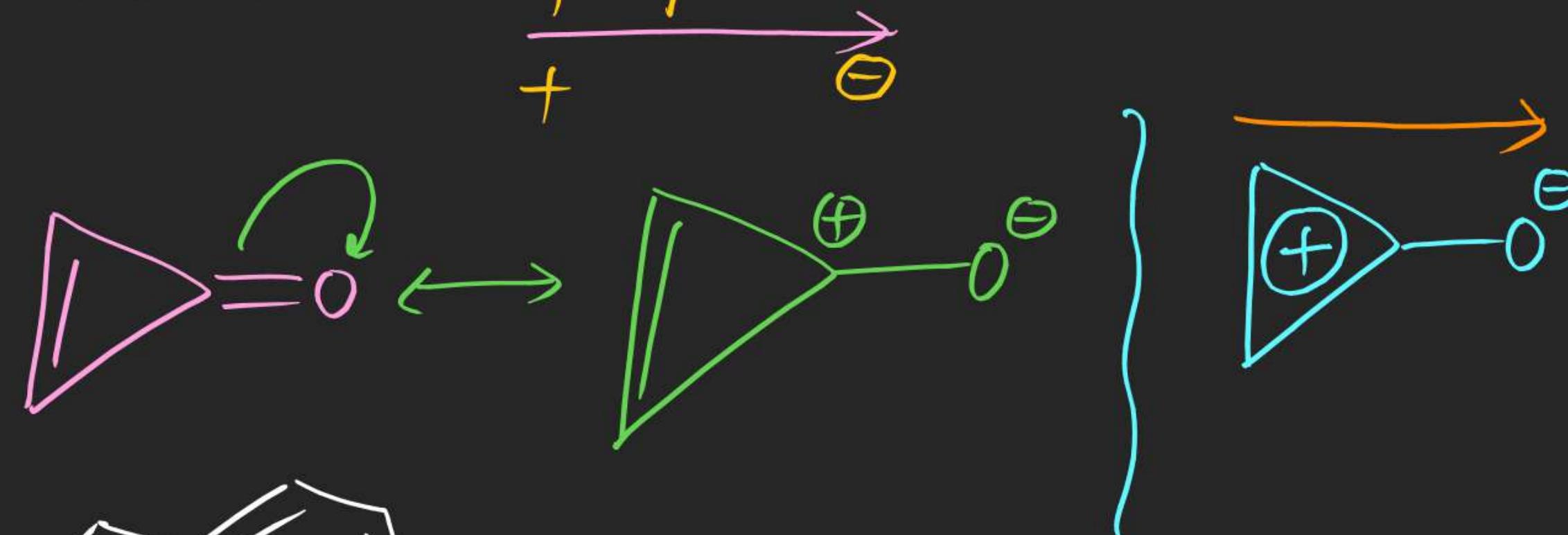
Which of the following gives Aromatic Product



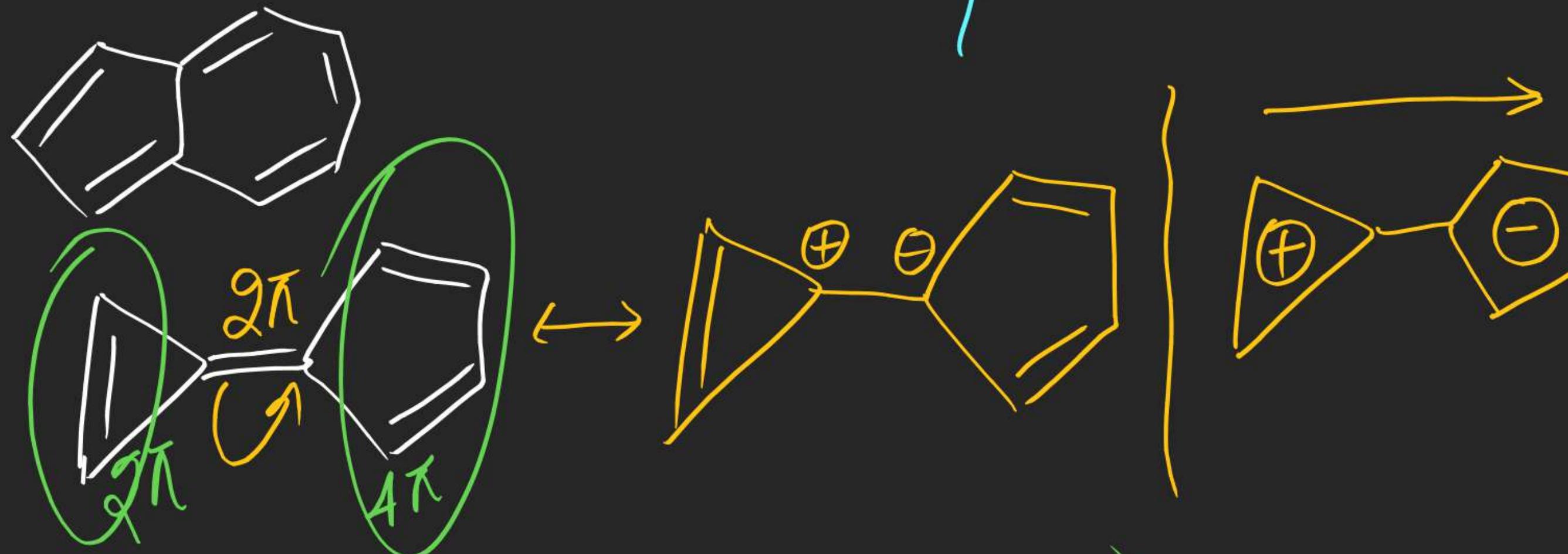


(#) Predict direction of dipole moment

(63)

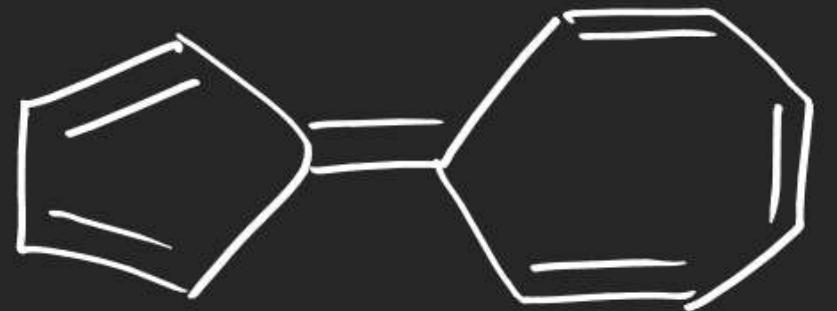


(64)

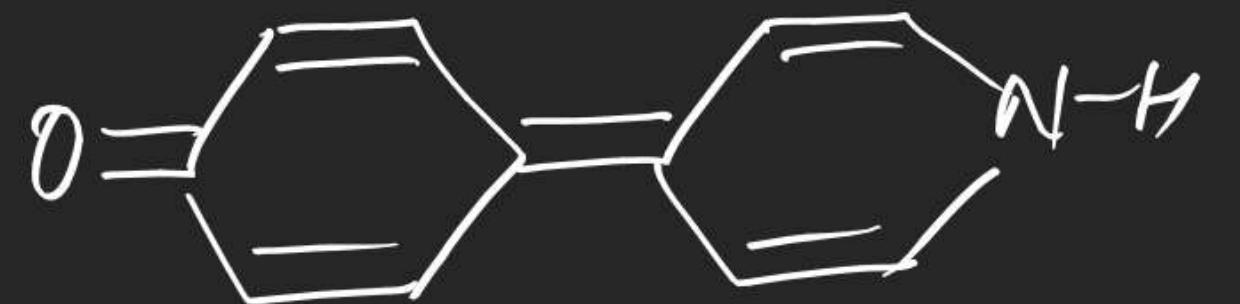


(65)

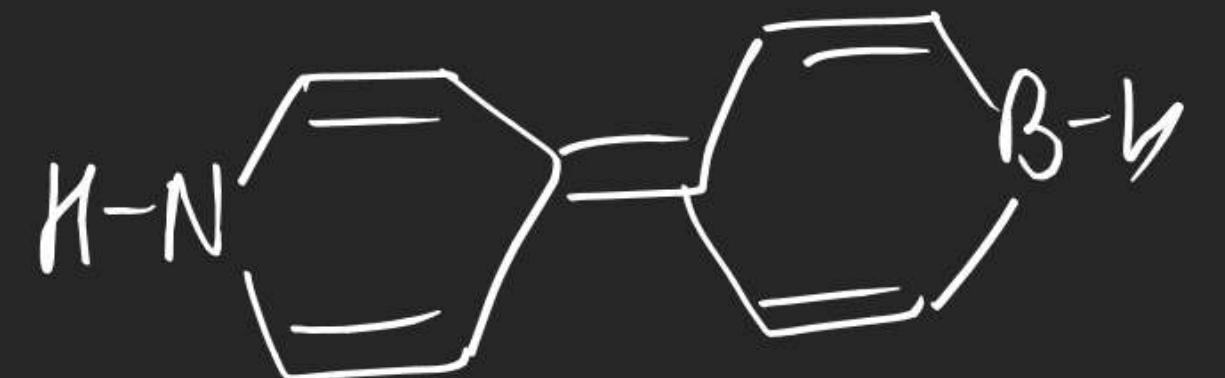
(66)



(67)

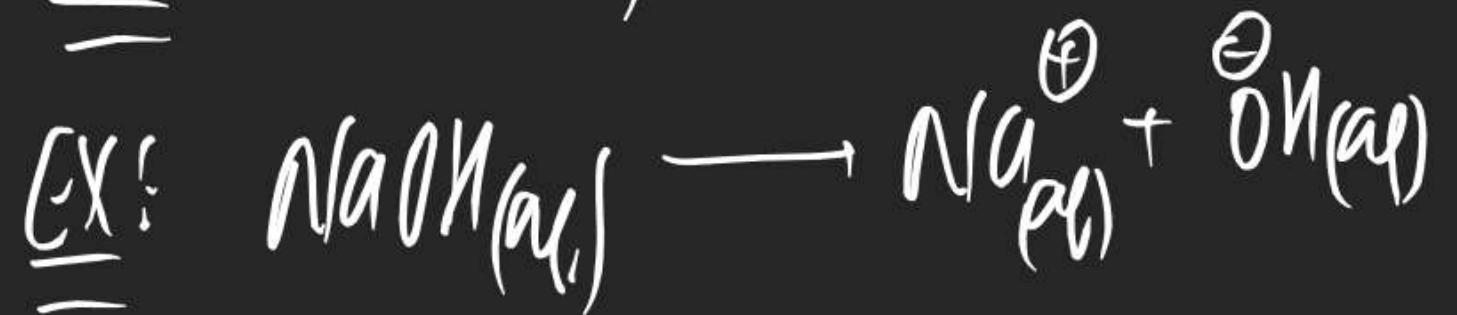
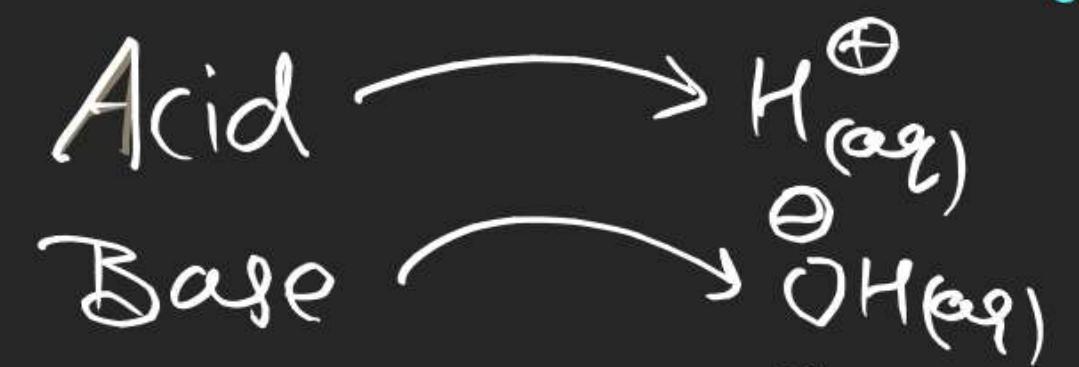


(68)



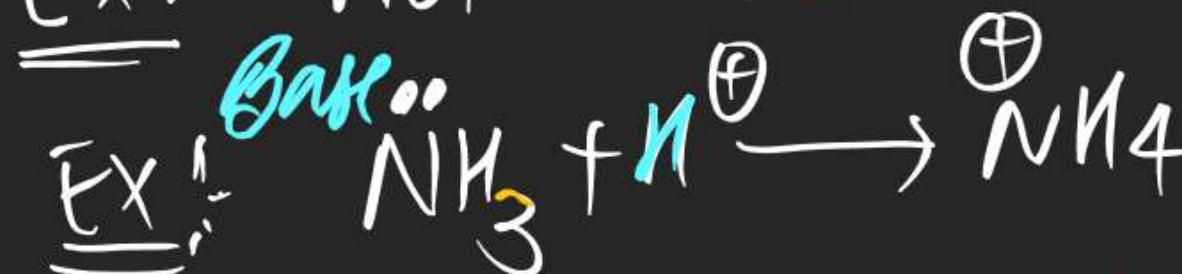
## Acid & Base

Arhenius Theory: Acids are substances which give  $H^+$  ion in aq. soln whereas bases are substances which give  $\bar{O}H$  ion in aq. soln.



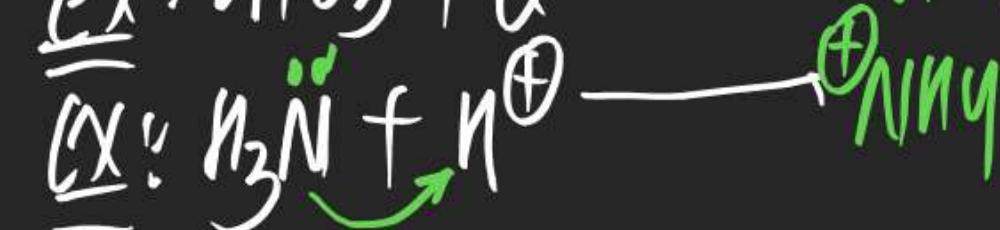
Bronsted & Lowry: Acc. to this theory Acids are H<sup>+</sup> donor whereas Bases are H<sup>+</sup> acceptor.

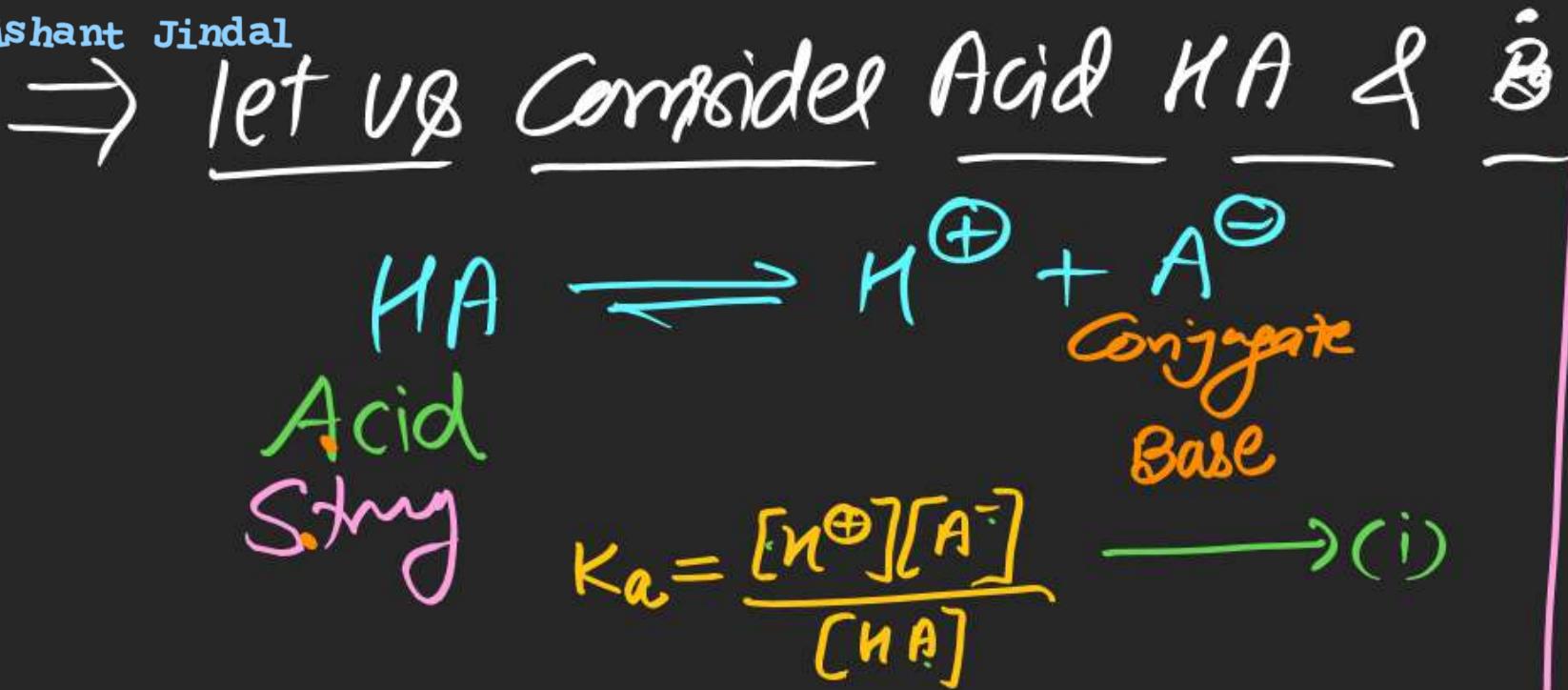
Acid  $\rightarrow$  H<sup>+</sup> donor  
Base  $\leftarrow$  H<sup>+</sup> acceptor



Lewis Theory Acc. to this theory Acids are e<sup>-</sup> pair acceptor & Bases are e<sup>-</sup> pair donors.

Acid  $\leftarrow$  e<sup>-</sup> pair acceptor  
Base  $\rightarrow$  e<sup>-</sup> pair donor



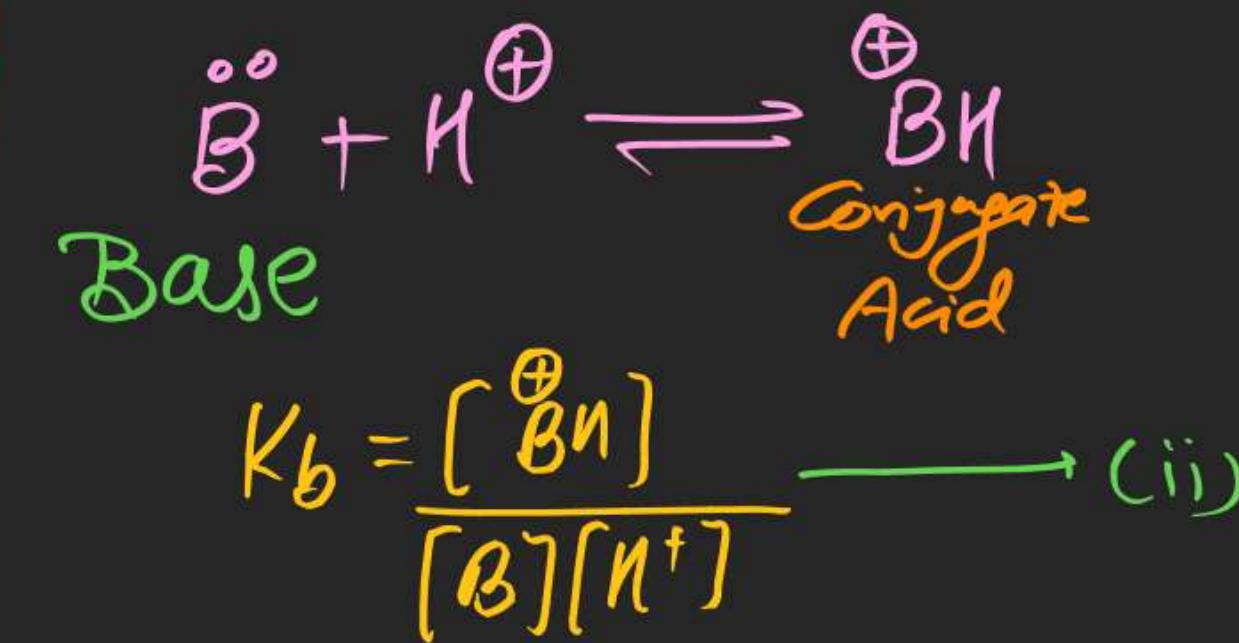


Acidic strength of HA  $\propto$  stability of  $A^-$   
 $\propto$  EWG  
 $\propto K_a \propto \frac{1}{pK_a}$

Note (i) Deprotonation generates Conjugate Base

(ii) Protonation generates Conjugate Acid

(iii) A Strong Acid & Strong Base is relatively unstable in nature



Basic Strength of  $\ddot{B} \propto$  stability of  $\overset{\oplus}{BH}$   
 $\propto$  EDG  
 $\propto K_b \propto \frac{1}{pK_b}$

(iv) A weak Acid & weak Base is relatively stable in nature.

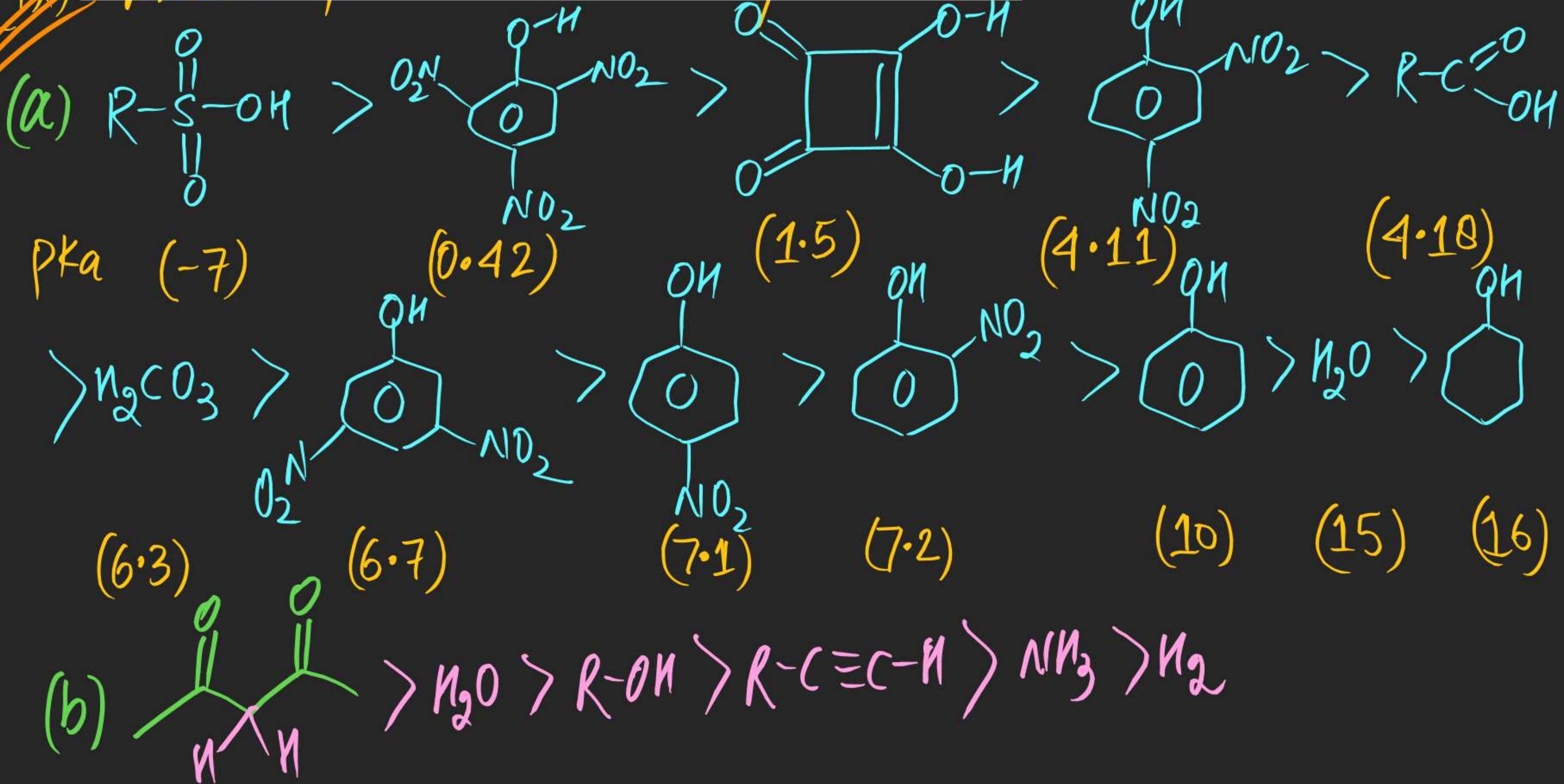
(v) Strong Acid Contains weaker Conjugate Base & vice versa.  
unstable  $\rightarrow$  stable

(vi) Strong Base Contains weaker Conjugate Acid & vice versa.  
unstable  $\rightarrow$  stable

MIMP  
(vii) Each Acid Base Reaction moves towards weaker Acid / weaker  
Base side.

$$(viii) \text{ pH} = -\log[H^+] \quad | \quad \text{pK}_a = -\log K_a \quad | \quad \text{pK}_b = -\log K_b$$

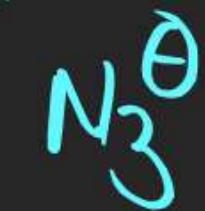
# most important Acidic strength order



(1) write Conjugate Base (Conjugate Base)



(2) Write Conjugate Acid of following Conjugate Acid



(3) Which of the following reaction is feasible / spontaneous / is moving in forward reaction.

- (a)  $\text{R}-\text{C}\equiv\text{C}-\text{H}$  +  $\text{K}^+\text{OH}^-$   $\cancel{\rightarrow}$   $\text{R}-\text{C}\equiv\text{C}^\ominus \text{K}^\oplus$  +  $\text{H}_2\text{O}$  (SA) Not feasible
- (b)  $\text{R}-\text{C}\equiv\text{C}-\text{H}$  +  $\text{NaOH}$   $\cancel{\rightarrow}$   $\text{R}-\text{C}\equiv\text{C}^\ominus \text{Na}^\oplus$  +  $\text{H}_2\text{O}$  (SA) Not feasible
- (c)  $\text{R}-\text{C}\equiv\text{C}-\text{H}$  +  $\text{NaNH}_2$   $\checkmark$   $\rightarrow \text{R}-\text{C}\equiv\text{C}^\ominus \text{Na}^\oplus$  +  $\text{H}_2$  (WA) (Feasible)
- (d)  $\text{R}-\text{C}\equiv\text{C}-\text{H}$  +  $\text{NaNH}_2$   $\longrightarrow$
- (e)  $\text{R}-\text{C}\equiv\text{C}-\text{H}$  +  $\text{NaNH}_2$   $\longrightarrow$
- (f)  $\text{R}-\text{C}\equiv\text{C}-\text{H}$  +  $\text{Na}$   $\longrightarrow$

Woo  
shent  $\propto -1(1-25)$ ,