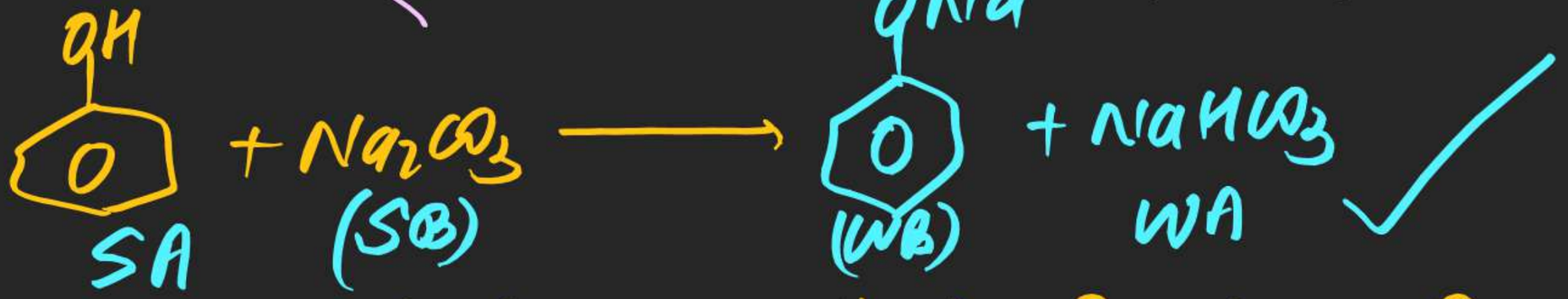
Nishant Jindal

गैस हमेशा बेस से निकलती है !

(15) 

IIT Adv

(16) Gases Evolved during following Reactions Respectively.

(i) $R-\overset{14}{C}(=O)-OH + NaHCO_3 \longrightarrow R-CO_2^{14-}Na^{+} + H_2CO_3$ (Base)

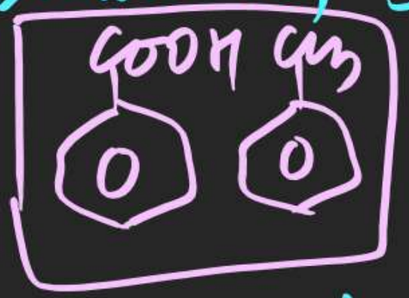
(ii) $R-SO_3H + NaHCO_3 \longrightarrow R-SO_3^{-}Na^{\oplus} + H_2CO_3$ (Base)

(A) CO_2, SO_3 (C) $^{14}CO_2, SO_2$ (E) $^{14}CO_2, ^{14}CO_2$

(B) CO_2, SO_2 (D) $^{14}CO_2, SO_3$ (F) CO_2, CO_2

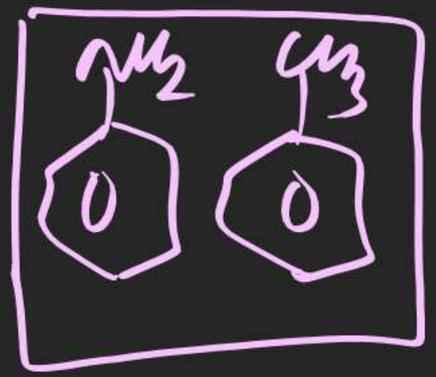
Separation of Binary mixture

(19)



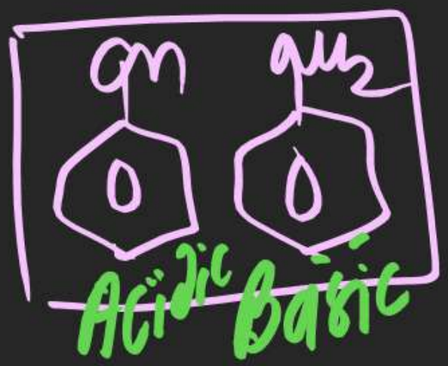
Aq. $NaHCO_3$ or Aq. NaOH

(20)



Aq / HCl

(21)

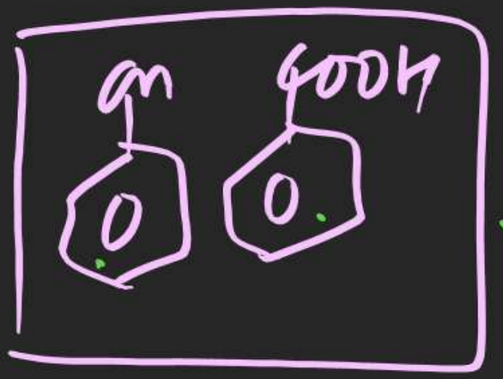


Aq. ~~NaHCO3~~

Aq. NaOH →  + H_2O (WA)

Aq. HCl → 

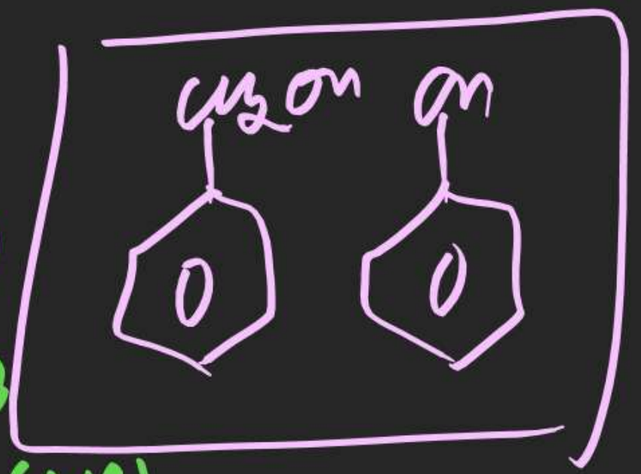
(22)



Aq. NaOH ✗

Aq. $NaHCO_3$ ✓

(23)



(SA)

ONa + H_2CO_3

Aq. NaOH

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(24) Fa following Binary mix

Find X, Y.

X (A) Ph-OH, Ph-COOH

(B) Ph-OH, Ph-CH2-OH

(C) Ph-CH2-OH, Ph-COOH

X (D) Ph-OH, Ph-CH2-COOH

(25) Fa following Binary mix

Find X, Y.

X (A) Ph-OH, Ph-COOH

(B) Ph-OH, Ph-CH2-OH

X (C) Ph-CH2-OH, Ph-COOH

X (D) Ph-OH, Ph-CH2-COOH

Arrange following in ↓ order of Acidic strength

(26) HF HCl HBr HI (4>3>2>1)

C-Base: $F^{\ominus}$ $Cl^{\ominus}$ $Br^{\ominus}$ $I^{\ominus}$ most stable

(27) ROH RSH

(28) CH_4 NH_3 HF H_2O

* Acidic strength ∝ Stability of C.Base ∝ EWG

(*) P.T L → R — En

(*) P.T T to B — Size

(*) in Case of Strain — Strain

(*) ——— diff. hybridisation — %S

(29) H_3C-CH_3 $H_2C=CH_2$ $HC\equiv CH$

(30) CHF_3 $CHCl_3$

(31) CH_3-COOH   

(32)  H_2O 

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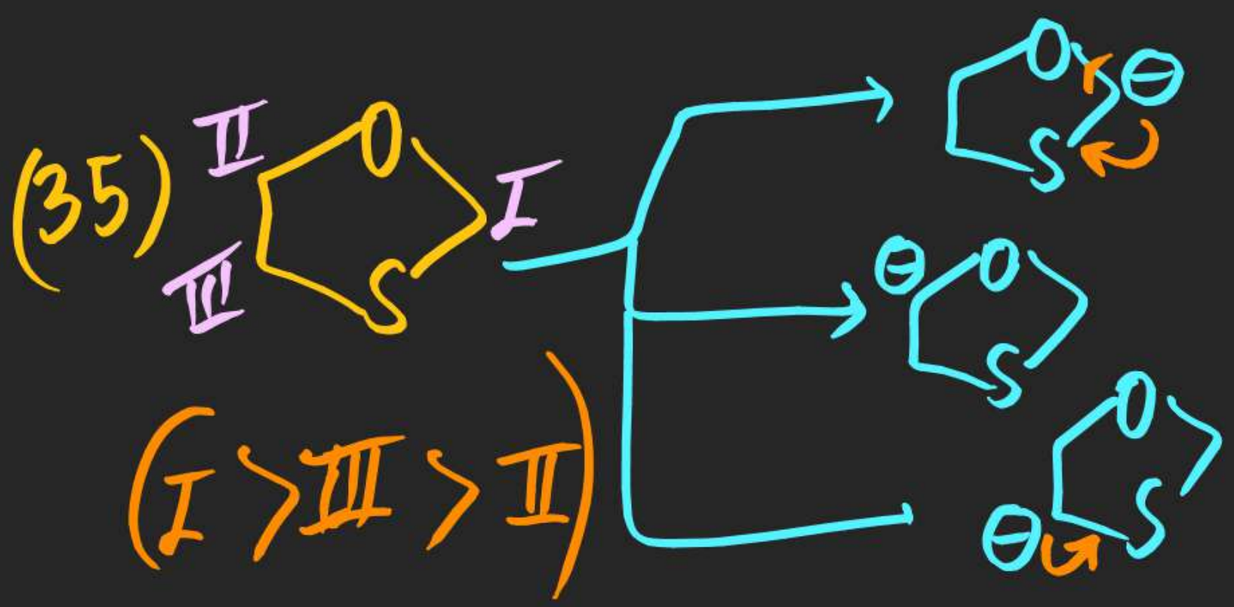
(33) $H_3C-C\equiv CH$ $HC\equiv CH$ $CH_2=CH_2$

(34) 

(35) 

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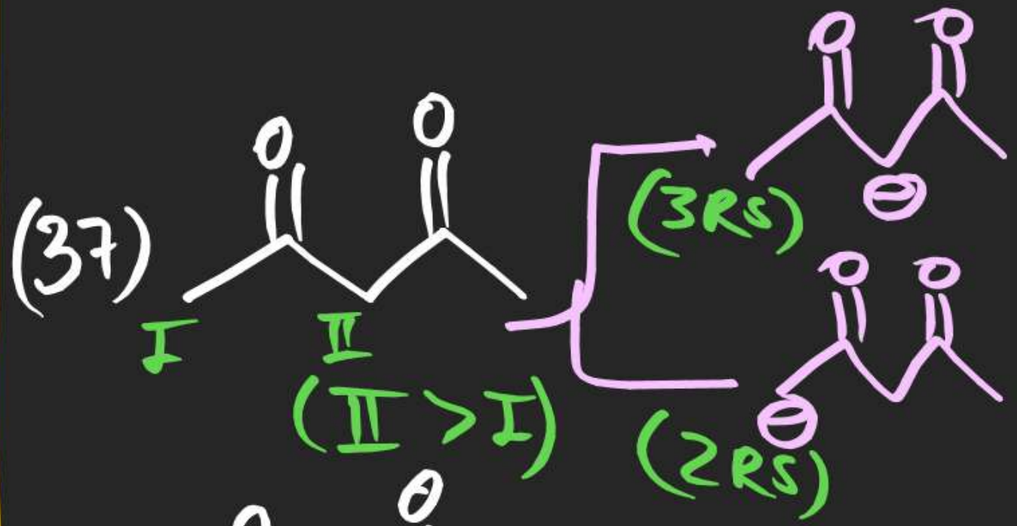
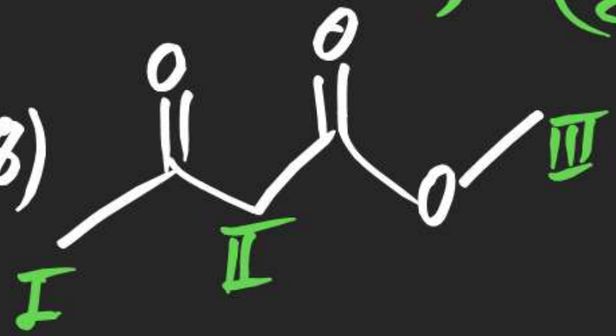
(37) 

(38) 

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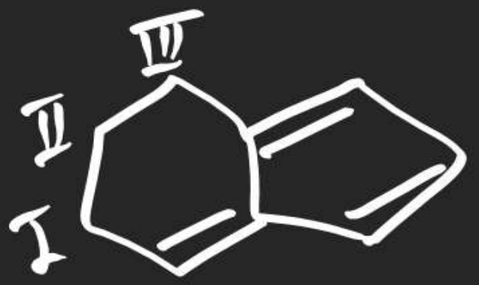

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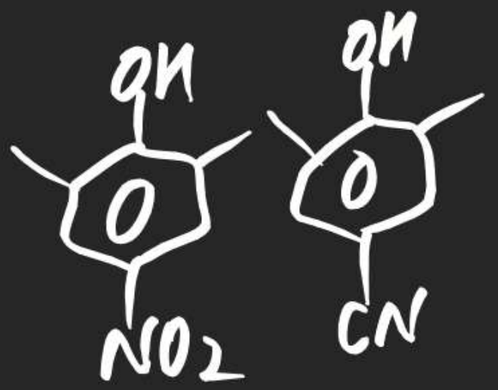

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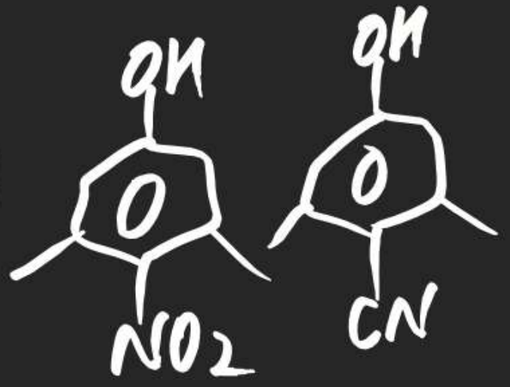

(42)

(43)

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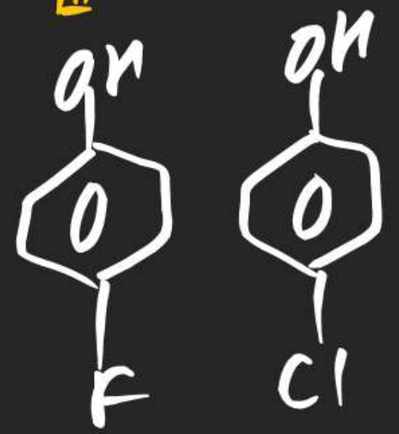

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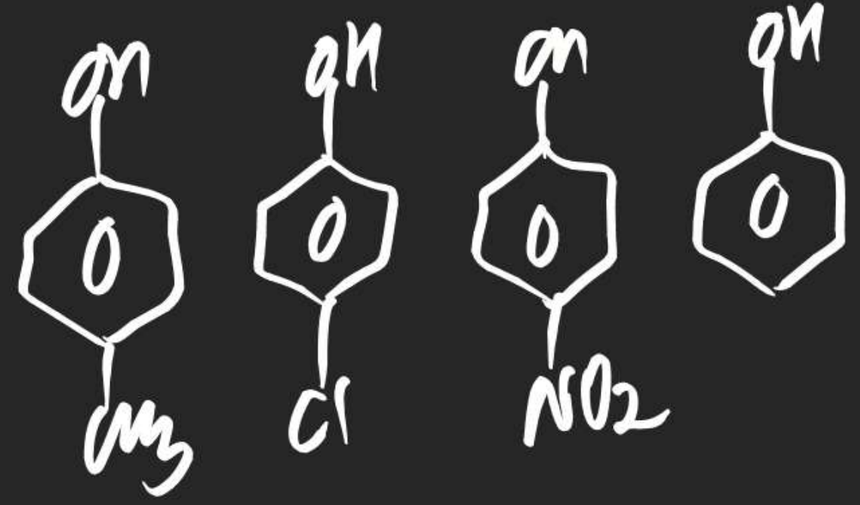

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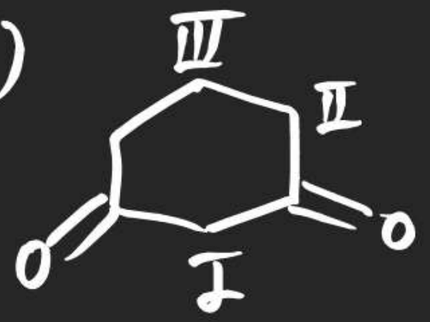
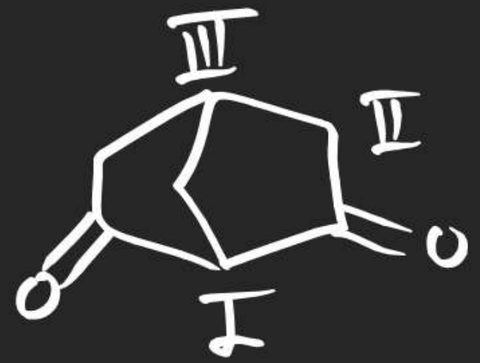
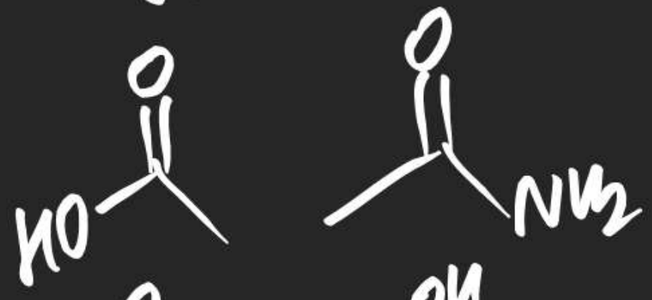
(46) 

(47) 

(48) 

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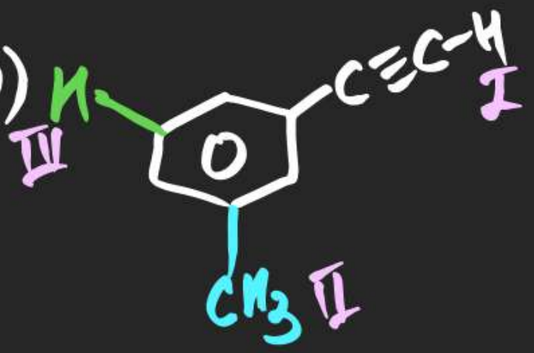
(50) 

(51) 

(52) 

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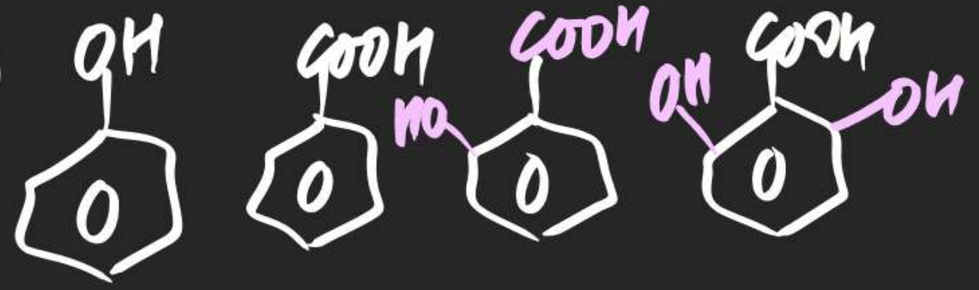
(53)

(54)

(55)



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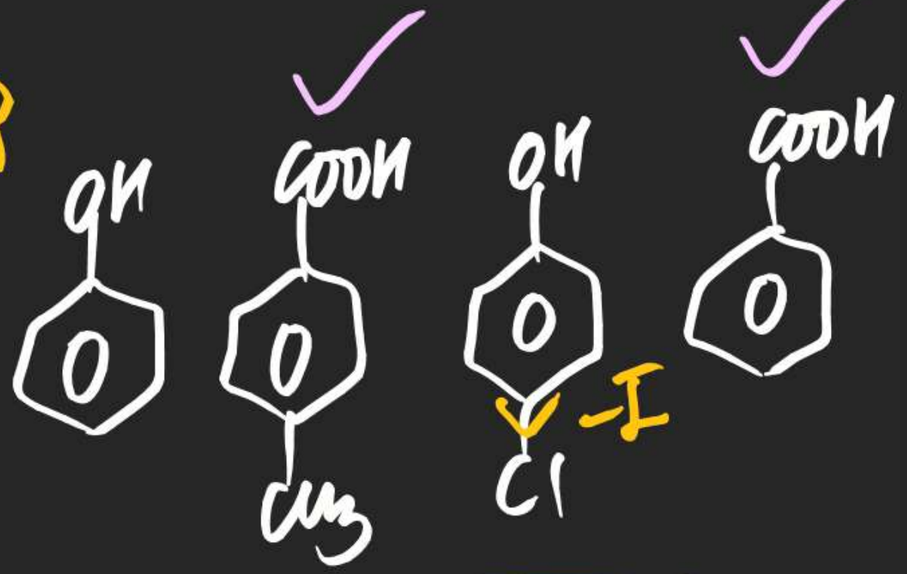

4 > 2 > 3 > 1

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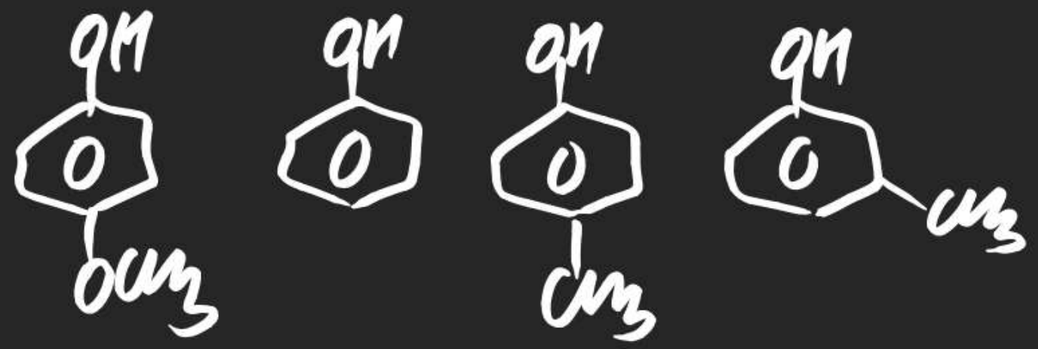
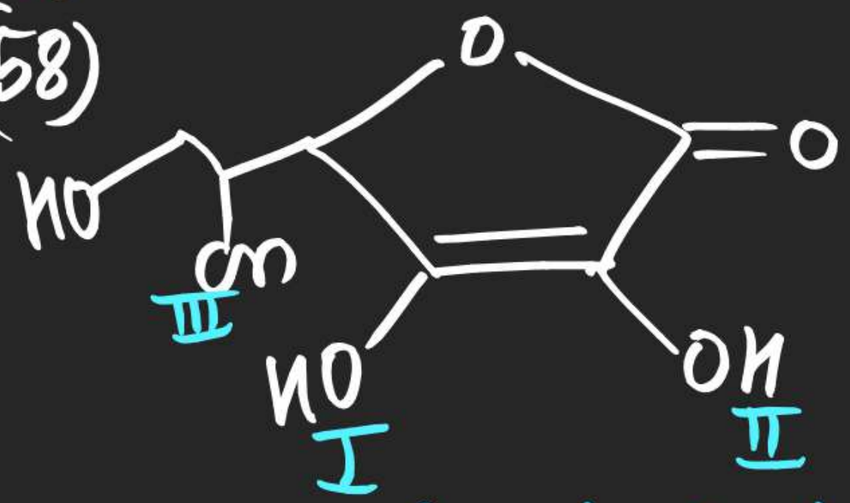
(57)



M.Imp:

(58)



Ascorbic Acid
(vitmin-C)

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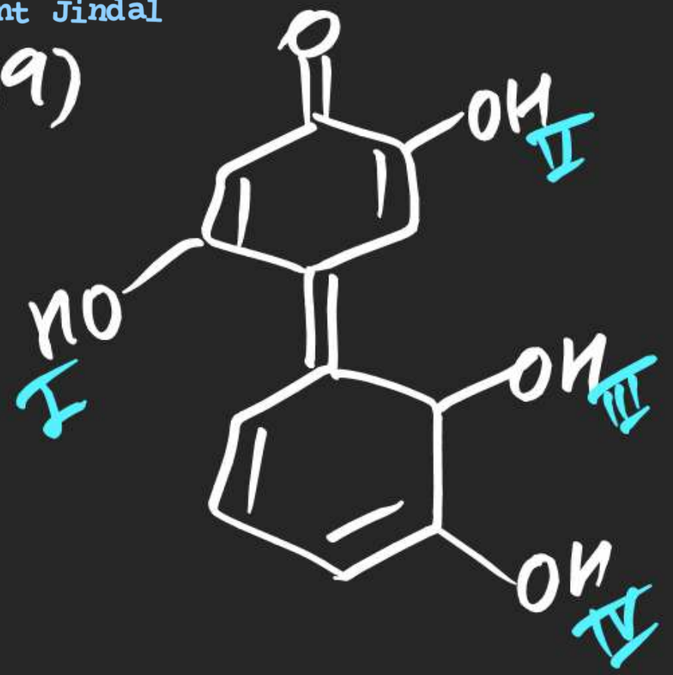
(59)



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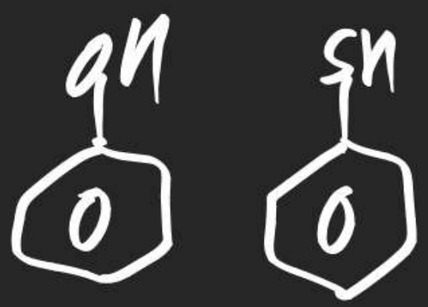
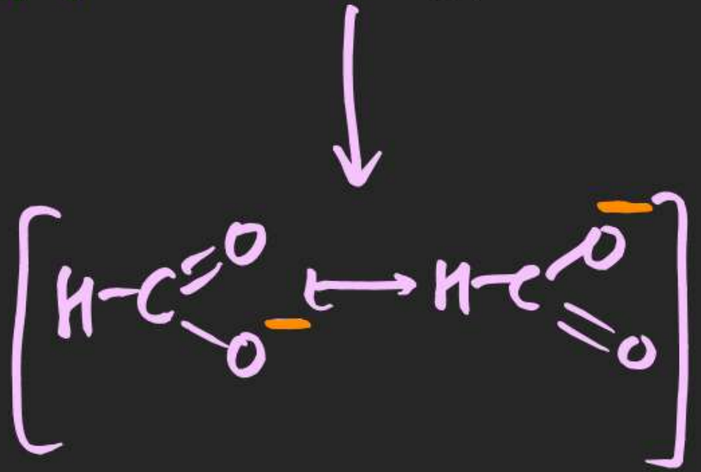


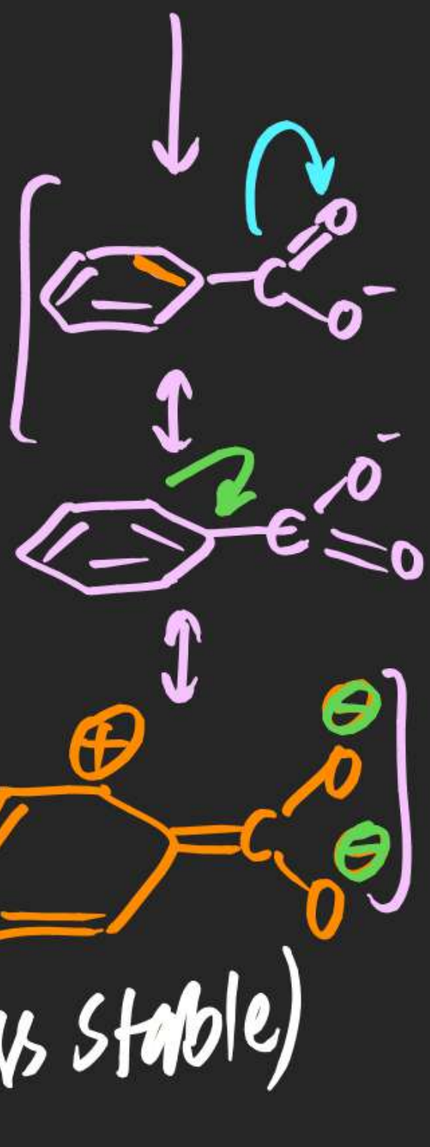
(61)

MIMP

(62) $CH_3-OH > H_2O > R-OH$

(63)

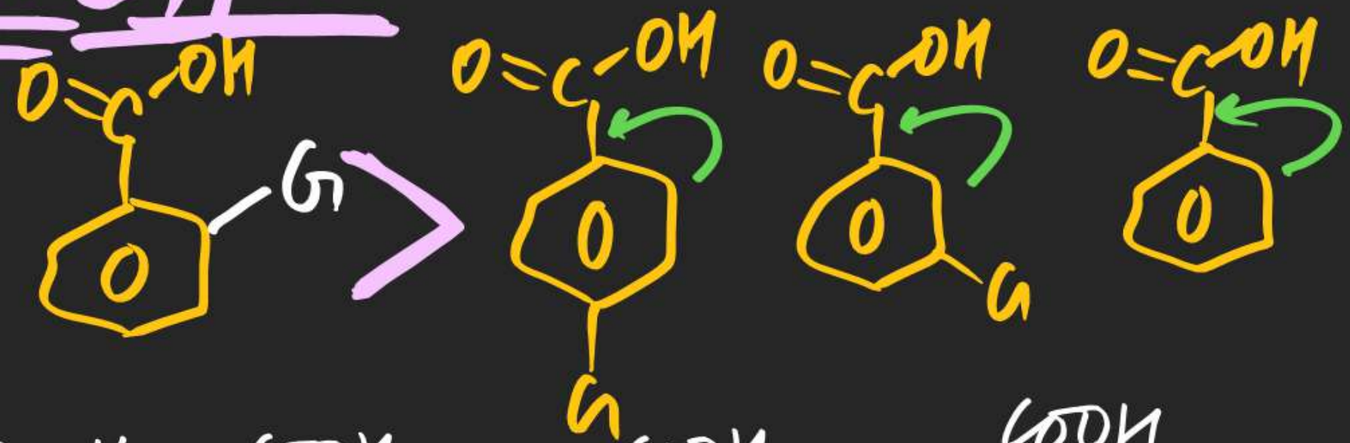




(less stable)

(#) Ortho Effect:

Ortho Substituted Aromatic Carboxylic Acid is more Acidic than para, meta & Non Substituted Aromatic Acid.



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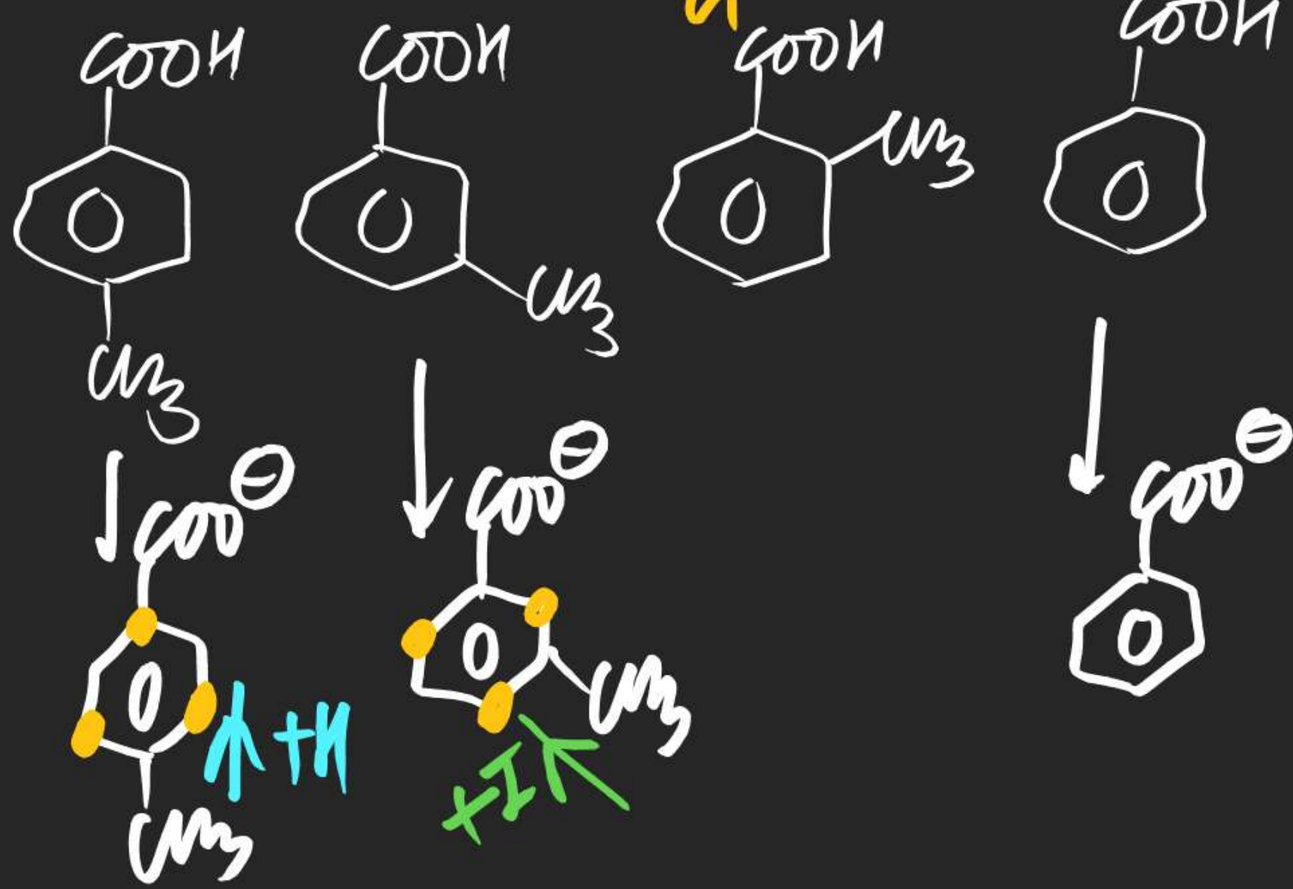
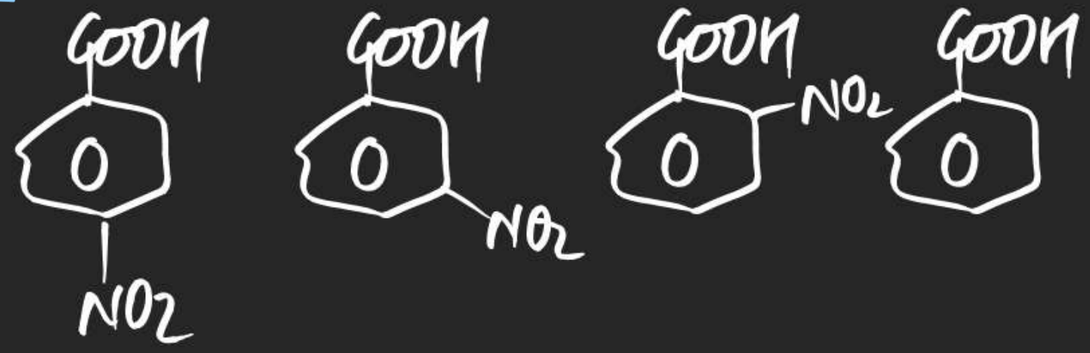


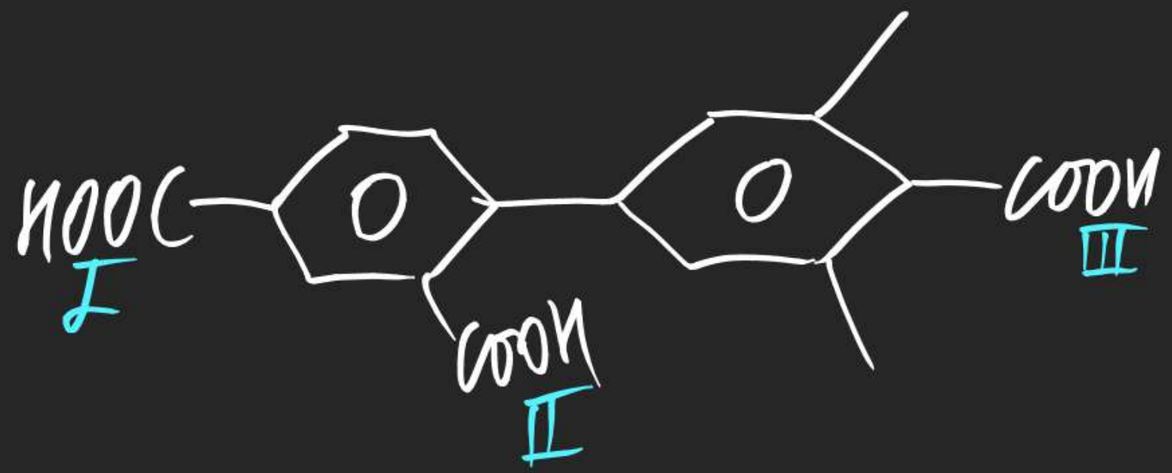
(III > IV > II > I)

(65)



(66)

(67)



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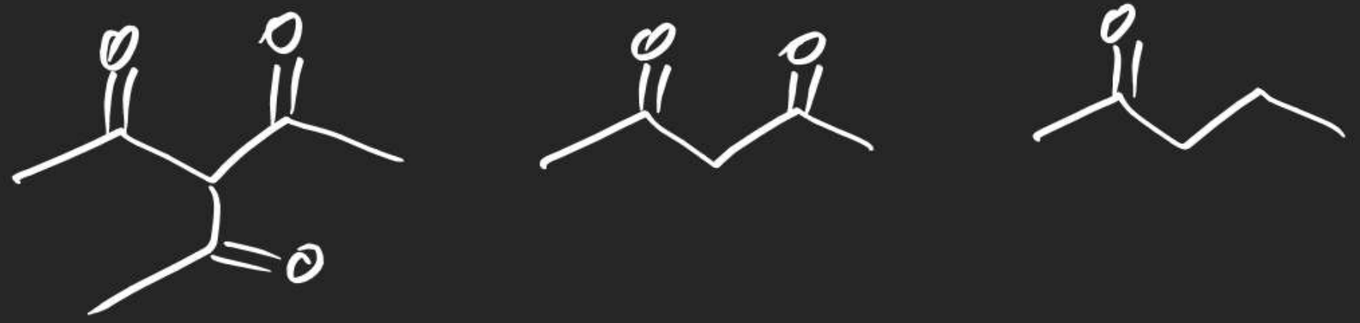
(68)



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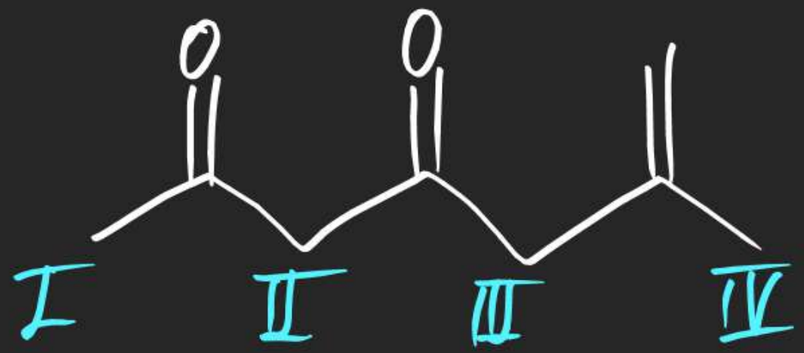
(70)



(#) Arrange following in ↓ order of Basic strength.

less stable / most Basic

most stable / less Basic

(1) $F^{\ominus}$ $Cl^{\ominus}$ $Br^{\ominus}$ $I^{\ominus}$

C. Acid: H–F H–Cl H–Br H–I

H–F most stable

H–I least stable

Basic strength $F^{\ominus} > Cl^{\ominus} > Br^{\ominus} > I^{\ominus}$

(2) $R-O^{\ominus}$ $R-S^{\ominus}$

(I > II)

(3) $CH_3^{\ominus}$ $NH_2^{\ominus}$ $OH^{\ominus}$ $F^{\ominus}$

C. Acid CH_4 NH_3 H_2O HF

To compare Basic strength

(*) Aliphatic Amine > Aromatic Amine

(*) localised e^- density > delocalised e^- density

(*) Conjugate Acid stability

- Resonance
- Hybridisation ($sp^3 > sp^2 > sp$)
- Solvation effect (Ortho subs. Amine weakest Base)

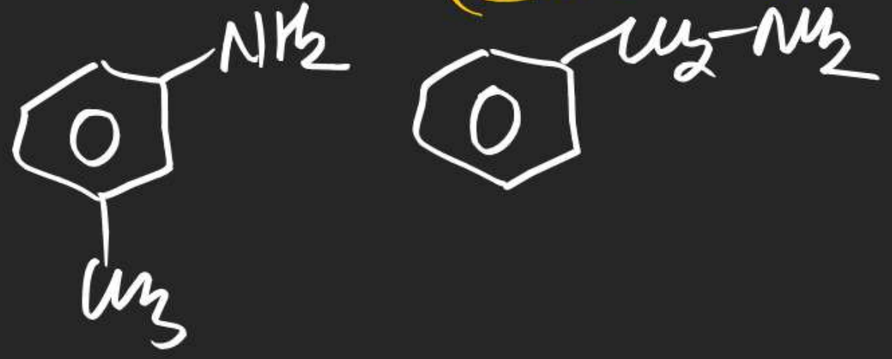
(*) EDG > EWG

(4) $CH_3-\overset{\ominus}{C}H_2$ $CH_2=\overset{\ominus}{C}H$ $HC\equiv\overset{\ominus}{C}$

(5)

(I > II > III)

(6)



(7)

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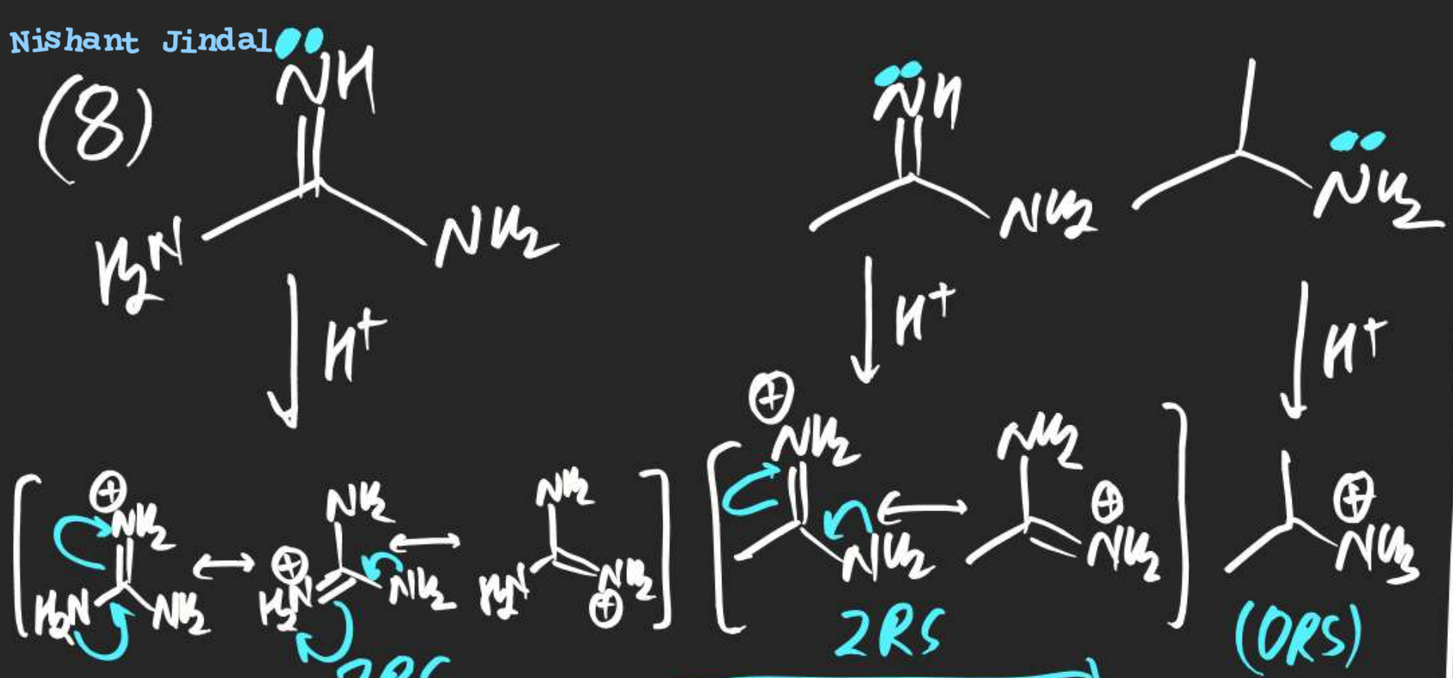
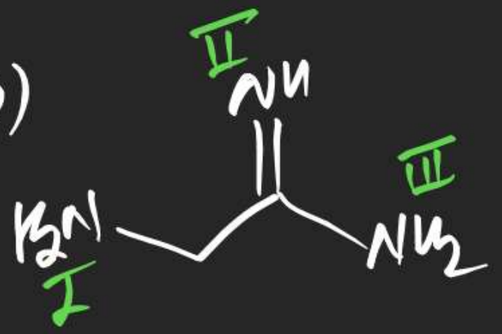
(8)



$I > II > III$

(9)

(10)



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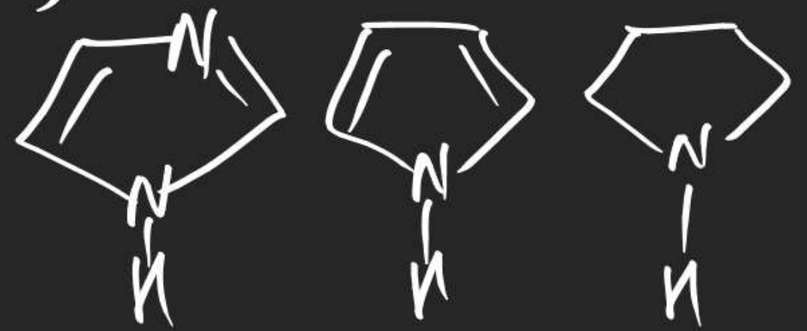

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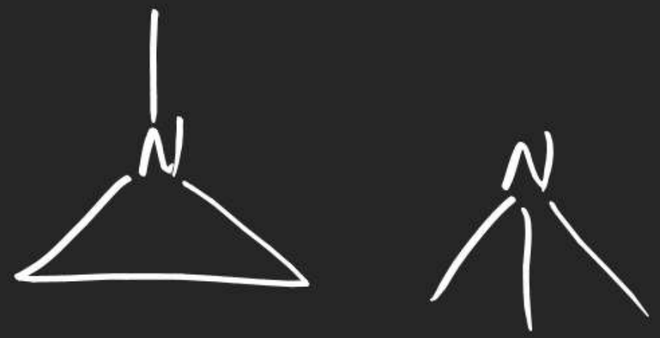
(12)

(13)

(14)



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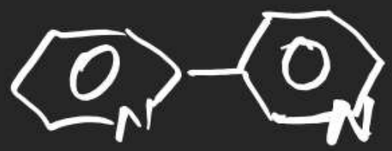

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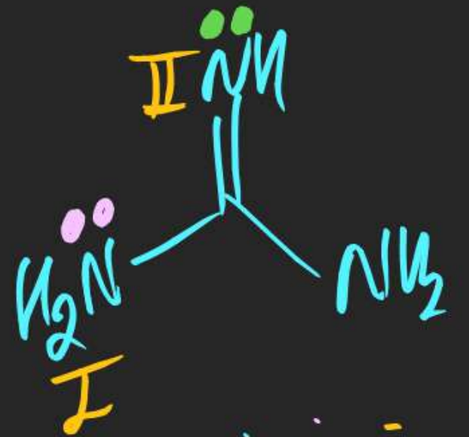

(II > I)

(17) H_3N CH_3-NH_2   (in Aq. phase) H_2O S>P>T>A

Ammonia Primary Amine Sec. Amine Tert. Amine

(18) H_3N CH_3-NH_2   (in Gas phase) T>S>P>A

(19) H_3N $Et-NH_2$   (in Gas phase) T>S>P>A

(20) H_3N $Et-NH_2$   (in H_2O) S>T>P>A

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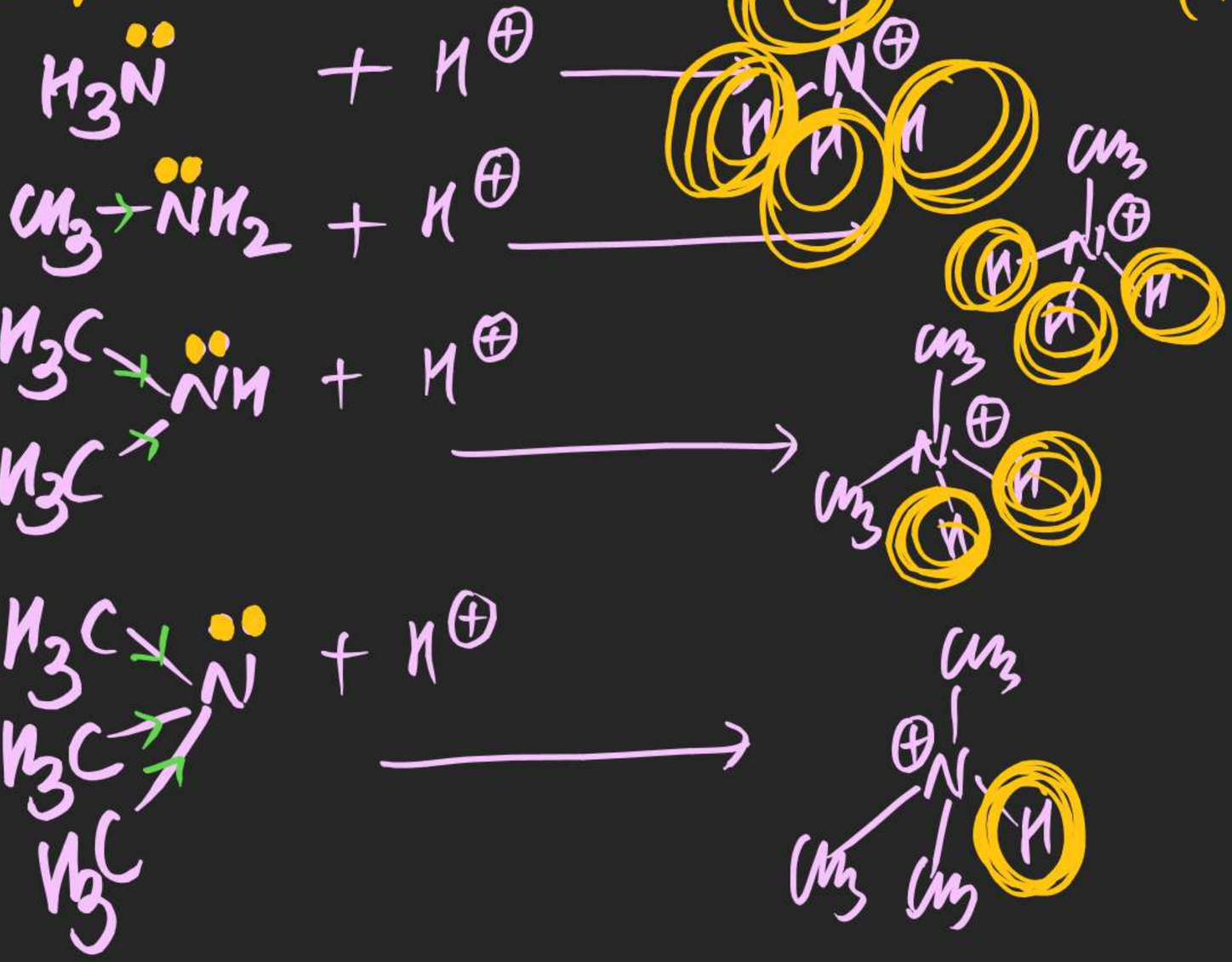
Ex:- (17)

Base



	Base	Av $\bar{e}$ density	Ex. of Solvn.
X	H_3N	X	↑↑↑
	$Me-NH_2$	↑	↑↑
	Me_2NH	↑↑	↑
X	Me_3N	↑↑↑	X

$Me_2NH > Me-NH_2 > Me_3N > NH_3$

(S > P > T > A).

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(21)