Molecularity
The number of molecules latoms of reactant
taking boot in an elementary (single step)
The number of molecules (atoms of reactiont taking foot in an elementary (single step) reaction is called molecularity of reaction
vote: Molecularity is defined only for elementary
vote: Molecularity is defined only for elementary (single step) Reaction
(ii) for Complex Reaction (mosie than one step) Molewlastity is not defined ENCERT]
Mole wority is not defined ENCERT]
Flementary Reactions -> Corden = Mole whoity (Most
$(i) A+B \longrightarrow C$
rate = KCAJ [B] Cexperimentally)
for elementerry reaction, rate Law has reactant
for elementeau reaction, rate Law has reactant terms with powers - Stochiometric coeffecient
terms with powers - stochiometric coeffecient

Molewarity = 1+1=2order = 2

(ii) NHYNO2 -> N2+2H2O

Male = 15 [MyNa_]' (experimentally)

Molecularity = 1 => Unimoleculari

order = 1

Molecularity is Actually the number of seactout molecules latons that collides simultaneously to loving a chemical change 1?

(iii) 2HI -> H2+ I, vale = K[HI]2 (experimentally) Molecularity = 2 -> BiMolecular order = 2 (iv) $2NO + O, \longrightarrow 2NO,$ State = K[NO]2[0,]' Termolewlass Molecularity = 2+1=3 So, we can see for elementary greaction

order = Molegylority (mostly) CH3 COO C2M5+ H2O -> CH3 COOH + C2M50H Hydrolysis of ester Youk = K [CH3 (OOG HS] [H30] Here water is taken in excess (salvent) So conc of water nearly remains Constant throughout the reaction => state= K[CH3 coo CH5]

Mole adouty = 2 (as reaction is still elementary) One molecule of the coactic will collide coith One molecule by the abouty is 2 Hene, in elementary reaction only order + molecularity This reaction is called pseudo first Order (vii) Cle Herolf + Hero -> Colled pseudo first Order (viii) Cle Herolf + Hero -> Colled pseudo first Order (viii) Cle Herolf + Herolf Ithola again water is solved the in excess so concentration of water is solved that it remains constant throughout the reaction (autent throughout the reaction (viii) Order = 1 Molecularity = 2 Order + Molecularity Pseudo first order Reaction (viii) 2A + B -> C (excess) Hake = Is [A12 [B] scort order = 2 Pseudo Second Molecularity = 3 Order Reaction	Orden=1
Bre molecule of the cockin will collide conting. One molecule of the above ty is 2 Hene, in elementary sheachin only Order of molecularity. This sheacher is called pseudo first order (vii) Cl2 H22OH + H2O -> CcH2Oc + CcH2Oc Soute = K [C12 H22OH] [H2O] again water is solent 8 in excess so concentration of water is so large that it scemains carter throughout the sheachin Yorder = I Molecularity = 2 Order of Molecularity Pseudo first order Reaction (viii) 2A + B -> C (excess) soute = K [CA]2[B] cost Yorder = 2 Pseedo Second	Mole adoptity = 2 (as seaction is still
Bre molecule of the cockin will collide conting. One molecule of the above ty is 2 Hene, in elementary sheachin only Order of molecularity. This sheacher is called pseudo first order (vii) Cl2 H22OH + H2O -> CcH2Oc + CcH2Oc Soute = K [C12 H22OH] [H2O] again water is solent 8 in excess so concentration of water is so large that it scemains carter throughout the sheachin Yorder = I Molecularity = 2 Order of Molecularity Pseudo first order Reaction (viii) 2A + B -> C (excess) soute = K [CA]2[B] cost Yorder = 2 Pseedo Second	(elementary)
Hene, in elementary seachin only Order of molecularity This seacher is called pseudo first Order (VIII) C12 H22OH + H2O -> C6H12Os + C6H12Os State = K[C12 H22OH] [H2O] again worten is solvent 8 in excess so concentration of worten is so large that it sumains constant throughout the seachin Take = K[C12H22OH] Order = 1 Molecularity = 2 Order of Molecularity Pseudo first order Reaction (VIII) 2A + B -> C (Exercise) 91018 = Ix [A]^2[B] rate = K'[A]^2 Order = 2 Pseedo Second	One molecule of CH2 (OOC, He will collède with
Hene, in elementary seachin only Order of molecularity This seacher is called pseudo first Order (VIII) C12 H22OH + H2O -> C6H12Os + C6H12Os State = K[C12 H22OH] [H2O] again worten is solvent 8 in excess so concentration of worten is so large that it sumains constant throughout the seachin Take = K[C12H22OH] Order = 1 Molecularity = 2 Order of Molecularity Pseudo first order Reaction (VIII) 2A + B -> C (Exercise) 91018 = Ix [A]^2[B] rate = K'[A]^2 Order = 2 Pseedo Second	One molecule of 1/20 -> Molecularity is 2
This reaction is called pseudo First Order (vii) C12 H22O11 + H2O -> C6H2O6 + C6H2O6 Yorke = K[C12 H22O11][H2O] again water is solvent 8 in excess so concentration of water is so large that it tremains Constant throughout the greaction Your = K[C12H22O11]' Order = I Molewlarity = 2 Order & Molewlarity Pseudo First order Reaction (viii) 2A + B -> C (exces) Hale = Is [A12[B] cost Your = Reaction Second	*
This reaction is called pseudo First Order (vii) C12 H22O11 + H2O -> C6H2O6 + C6H2O6 Yorke = K[C12 H22O11][H2O] again water is solvent 8 in excess so concentration of water is so large that it tremains Constant throughout the greaction Your = K[C12H22O11]' Order = I Molewlarity = 2 Order & Molewlarity Pseudo First order Reaction (viii) 2A + B -> C (exces) Hale = Is [A12[B] cost Your = Reaction Second	Here, in elementary reaction only
This reaction is called pseudo First Order (vii) C12 H22O11 + H2O -> C6H2O6 + C6H2O6 Yorke = K[C12 H22O11][H2O] again water is solvent 8 in excess so concentration of water is so large that it tremains Constant throughout the greaction Your = K[C12H22O11]' Order = I Molewlarity = 2 Order & Molewlarity Pseudo First order Reaction (viii) 2A + B -> C (exces) Hale = Is [A12[B] cost Your = Reaction Second	order of molecularity
(vii) C12 H22OH + H2O -> C6H12Og + C6H12Og NOWE = K[C12 H22OH][H2O] again coaten is solvent & in excess so concentration of coaten is so large that it remains constant throughout the reaction Nowe = K[C12H22OH]' Order = I Molecularity = 2 Order & Molecularity Pseudo First order Reaction (viii) 2A + B -> C (excess) I ale = Is [A]^2[B] South - 2 Pseudo Second	
(vii) C12 H22OH + H2O -> C6H12Og + C6H12Og NOWE = K[C12 H22OH][H2O] again coaten is solvent & in excess so concentration of coaten is so large that it remains constant throughout the reaction Nowe = K[C12H22OH]' Order = I Molecularity = 2 Order & Molecularity Pseudo First order Reaction (viii) 2A + B -> C (excess) I ale = Is [A]^2[B] South - 2 Pseudo Second	This reaction is called pseudo first Order
State = K[C ₁₂ H ₂₂ O ₁₁] [H ₂ O] again water is solvent 8 in excess so concentration of water is so large that it remains constant throughout the screection The screection The second of the screection Pseudo First order Reaction (Viii) 2A+B (Concers) Hale = In [A] ² [B] content = 2 Pseudo Second	
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Pseudo First order Reaction (VIII) 2A+B-> C (excess) 9101e = 1c [A]^2[B], cost YOUR = 1c [A]^2 Order = 2 Psuedo Second	Molecularity = 2 Order of Molecular
(viii) $2A + B \rightarrow C$ (exces) $91018 = IC[A]^2[B]$ $50018 = IC[A]^2$	
(extens) $91016 = 10 [A]^2 [B]_3 const$ $50016 = 10 [A]^2$ $500000000000000000000000000000000000$	rsevolo tirst order Keaction
(extens) $91016 = 10 [A]^2 [B]_3 const$ $50016 = 10 [A]^2$ $500000000000000000000000000000000000$	(viii) 24+R -> C
$ycale = IC[A]^{2}[B]; cost$ $ycale = IC[A]^{2}$ $order = 2$ $Psuedo Second$	(extens)
order = 2 Psuedo Second	91010-105125R7
order = 2 Psuedo Second	YOUR - KILATE COST
	0-3

Let us study Complex Reactions Now (Multi-Step) In such reactions, state law contains terms from the slovest step. only (i) NO + CO
Complex Reactions Now
> In sigh was (Multi-Step)
forme I wall state law contains
Jourst step only
$(i) \qquad NO_0 + CO_1 \qquad A = CO_2$
(i) $NO_2 + CO \longrightarrow NO + CO_2$ (Complex)
State = KPMD 22 C
Order = 2 (experimentally)
State = K[NO ₂] ² (experimentally) Order = 2 Molewlarity = Not defined for Complex seaction (ii) CH2CHO = CLICATE COMPLEX
Constant of for
(ii) Chau
(i) CH3CHO -> CH4+ CO (Complex)
(Complex)
Plate = K [CHCHO] 1/2 exposioned as
Mate = K [CHCHO] 1/2 experimentally Order = 3 Mate : Mat
Malandan
Molewlovity = Not Defined for Complex Reactions
(iii) Days
XIVO + F DAM - O
(omplex)
State = K[NO2][E] Experimentally)
Order = 2
Molewbasity = Not Defined fase Complex Reactions
Complex Reactions

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Molecularity < 3	
The change of	
moleculas David	eneous Collision of 3
Energy laster force	sper orientation? & forupper
Jacres is	Hare o
So Molewlastity >3	eneous Collision of 3 pper orientation? & proper Scarce O is not observed.
	is not observed.
KClo, + 6Fexo.	316 50.
S Syt i	316504 -> (<u+2fe, (504)+3420<="" td=""></u+2fe,>
Moleculasi	ity=10 (X crong)
	0
Ordan ar o	
Order of Reaction	Molecularity of Reaction
·	
i) experimentally determined	i) theoretically determined
ii) Defined for elementer.	ii) Delined and 1.
ii) Defined for elementary & complex greaction	ii) Defined only for elementary reaction
	<u> </u>
ili) can be -ve, 0, tre	iii) can only be the Integers
Or fractional	LI HEGOV
in) Can !	20)
iv) can be greater than	(N) cannot be greater than 3.
	· 5. 0
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