Define:

Rate Determining Step- slowest step of a chemical reaction that determines the speed (rate) at which the overall reaction proceeds.

Molecularity- whether a particular reaction step is unimolecular or bimolecular.

Activated complex (or transition state)- species that collide in bimolecular process initially form this.

intermediates- species which occur at a P.E minimum and are consumed in a later step in the mechanism.

Describe relationship between mechanism, order, rate determining step and activated complex.

Mechanism- **complex changes** which occur by a series of fundamental processes.

Unimolecular- 1 species that breaks up or undergoes internal rearrangement to form products.

Bimolecular process- two species that collide and interact to form the product(s).

Both processes are reversible (i.e lead to equilibrium) or irreversible (i.e lead to complete reaction)

Preview from Notesale.co.uk
Page 1 of 2

Molecularity	Elementary step	rate law
*Uni*molecular	$A \rightarrow$ product	$k[A]$
*Bi*molecular	$A + B \rightarrow$ product	$k[A][B]$
	$A + A \rightarrow$ product	$k[A]^2$

Table 7.4 - Differences between intermediates and activated complexes

Intermediates	Activated Complexes
Exist for a finite time	Have only a transient existence
Occur at a P.E. minimum	Occur at a P.E. maximum
Formed in one step of a reaction and consumed in a subsequent step	Exist part way through every step of a reaction