*CHEM 342 – Lecture 6 22/01/15*

Overheads: - Today’s Outline

Quiz feedback:

Recap Tuesday:

Woodward-Hoffman Rule for cycloadditions

4n  e­ (even pairs)  = antarafacial

h = suprafacial

4n+2  e­ (odd pairs)  = suprafacial = Diels-Alder!

h = antarafacial

Stereochemistry of Cycloaddition Reactions:

1) Reaction is concerted – so stereochemistry of reactants is retained

e.g. Diels-Alder



* Product is initially formed in “boat” conformation:



2) Relative stereochemistry between X/Y and A/B?

Alder’s “endo rule”: endo product usually favoured



Summary:

Diels-Alder is:

* Stereospecific with respect to diene and dienophile
* Stereoselective wrt endo/exo

Regiochemistry: what happens when diene and dienophile are not symmetrical?





→ generally get “ortho/para-like” products if have electron-donating group matched with electron-withdrawing group.

What makes a “good” Diels-Alder?:



