Course 343-5! Lecturer Prof. Gellman!
Day Friday! Hooray! Date 10/~~20~~21/2016!
Notes Taken By Sungho! Total # of Pages Five!

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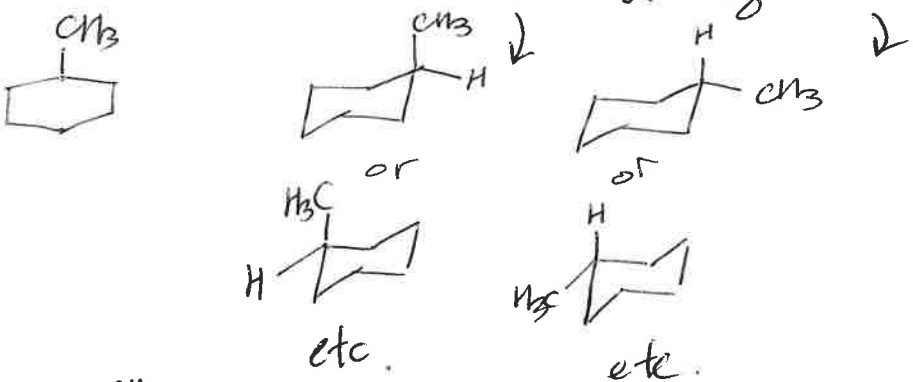
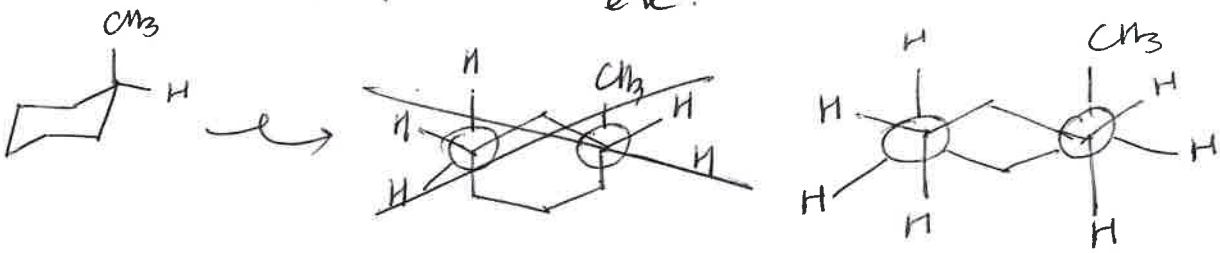
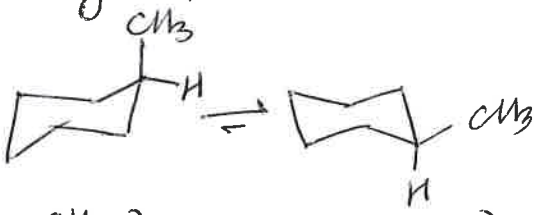
Recall: Cyclohexane is a strain-free cycloalkane

Substituents: axial vs. equatorial





Cyclohexane 2 chair conformations
Interconversion from one chair to the other ("flip") interconverts all axial & equatorial bonding partners. (Ax → Eq, Eq → Ax)



(ax. CH_3) (eq. CH_3)

ΔH (kcal/mol)
~ -1.8 (A measure of CH_3 "size")

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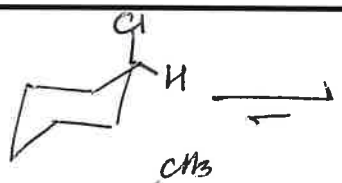
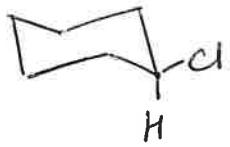
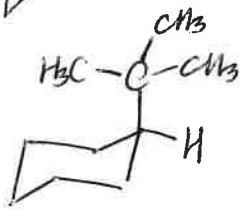
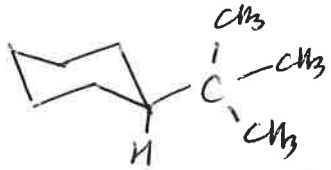




−0.4

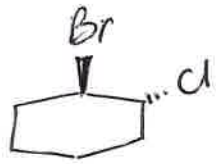




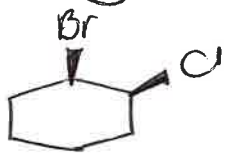
−5.0

(^{t}Bu "locks" the ring into one chair)

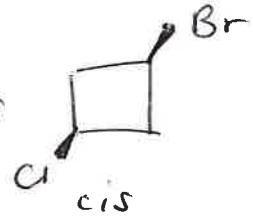
Disubstituted rings



"trans"

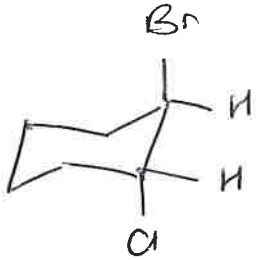


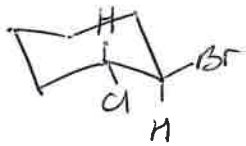
"cis"

( vs )

trans cis

Trans:

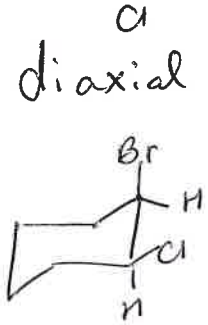


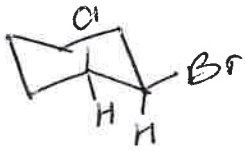


(favored)

diaxial diequatorial

Cis:





ax, eq eq, ax

Work out drawings for cis ~~of~~ & trans 1,3 ≠ 1,4

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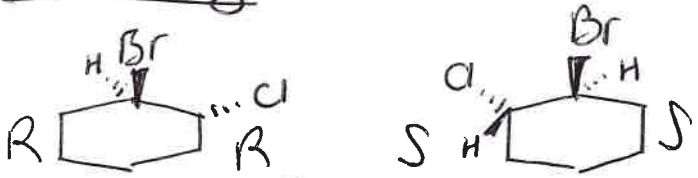
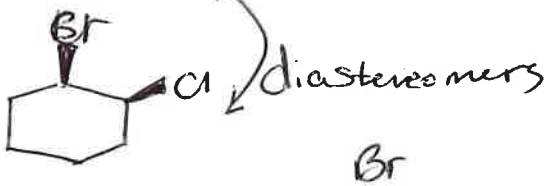
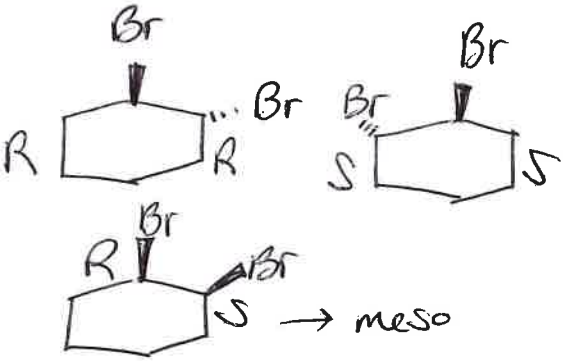
Chirality





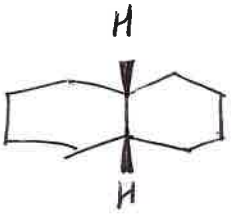
Consider



Multiple rings

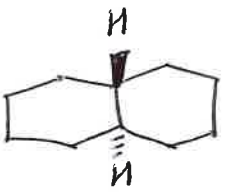
decalin

2 isomers :

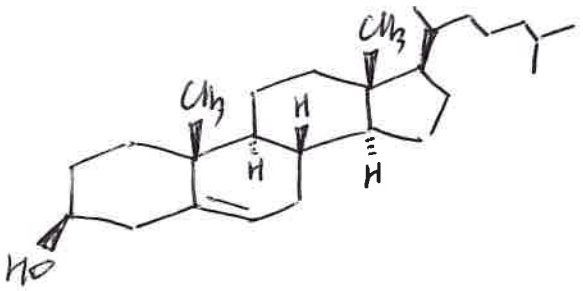


cis-decalin

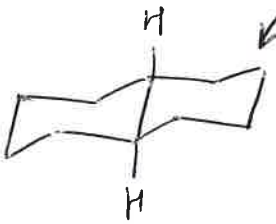
vs.



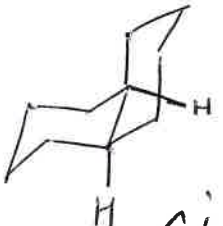
trans-decalin



Cholesterol



trans



cis

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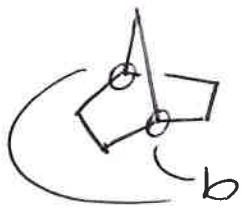
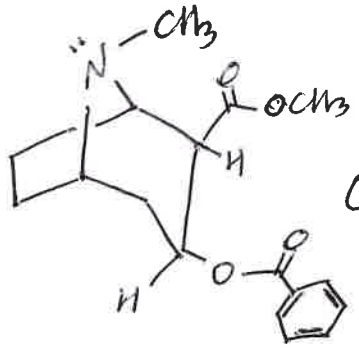
Bridged bicyclic systems

. Norborane

≡



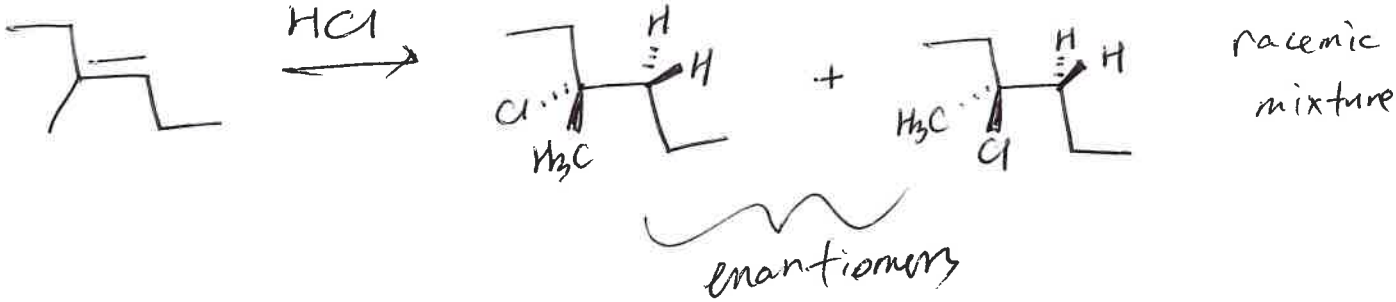
bridgehead carbons



cocaine

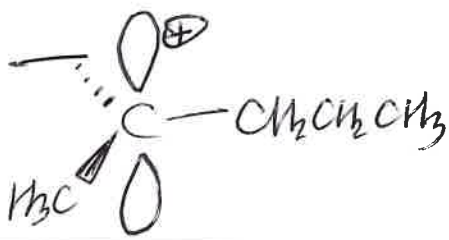
Interplay between stereochemistry & organic reactivity

General case: achiral SM → product w/ 1 chiral center



Mechanistic rationale for the fact that product is racemic

Intermediate $C^{\oplus}$ is planar



$Cl^{\ominus}$ attack equally likely from either side

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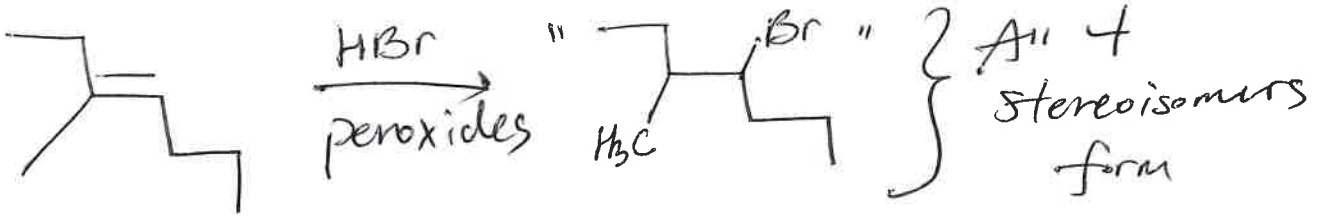
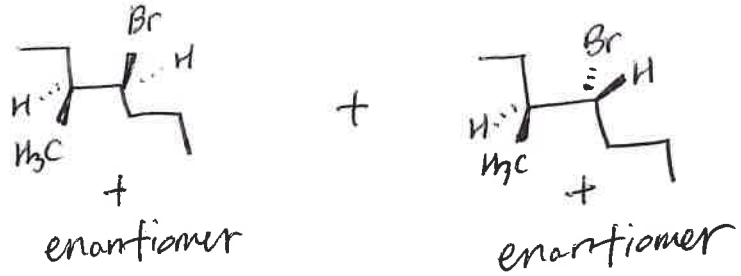
Achiral SM ⟶ product w/ 2 chiral centers

- Sometimes, all possible stereoisomers are formed





Mech. rationale: the two chiral centers are formed in separate steps, w/o correlation