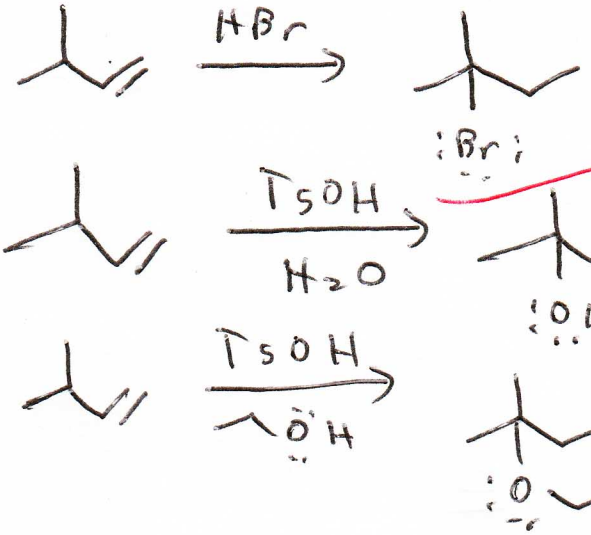
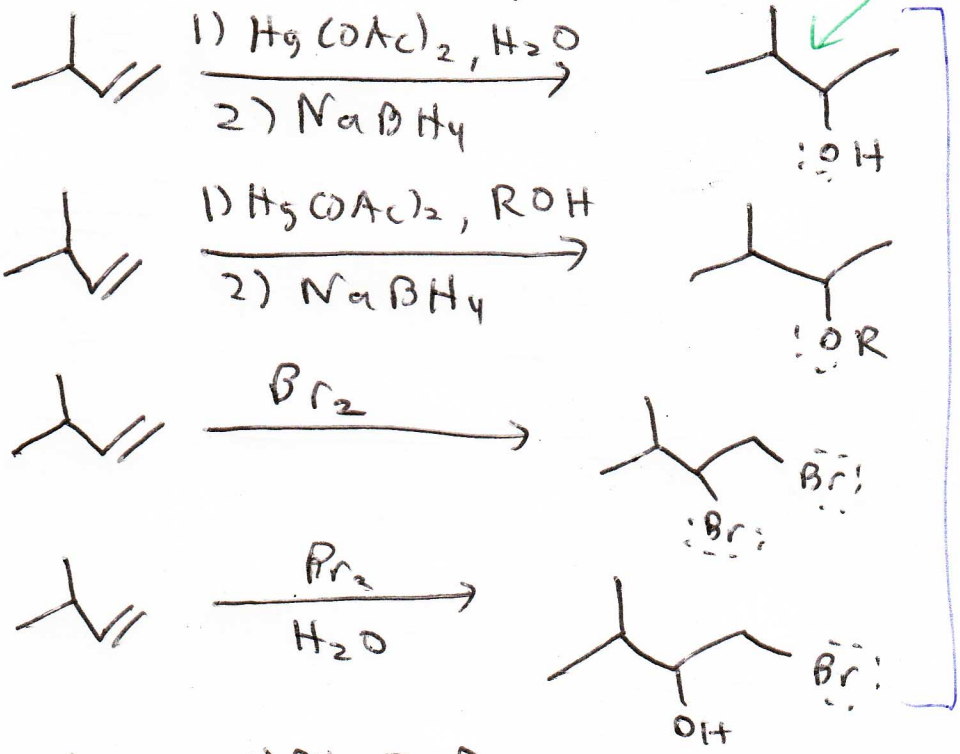
Exam #3

S_N1, S_N2, E1, E2 ; radical halogenation



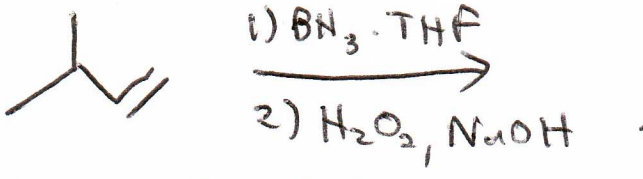
no 1) or 2) used

simple electrophilic additions

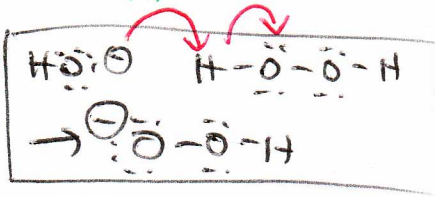


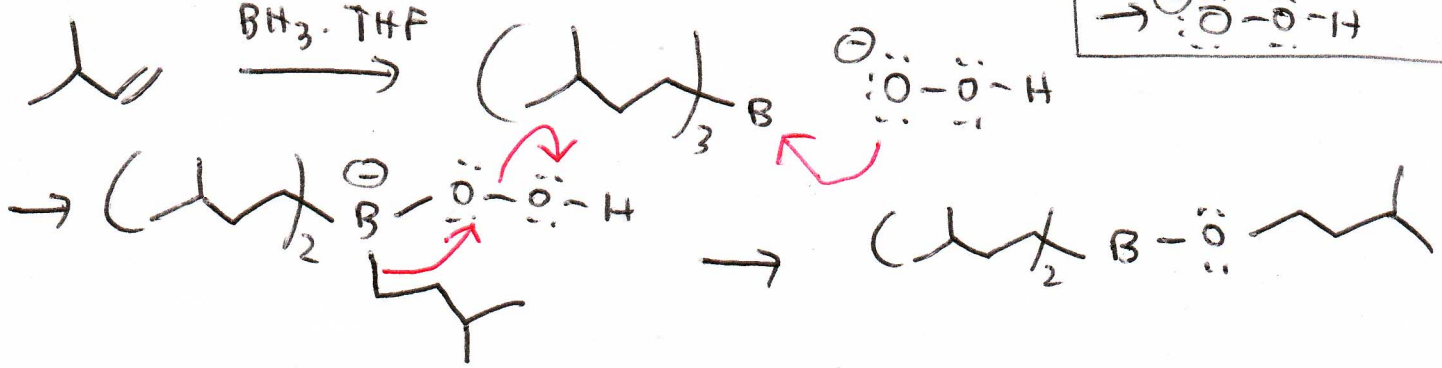
no rearrangement

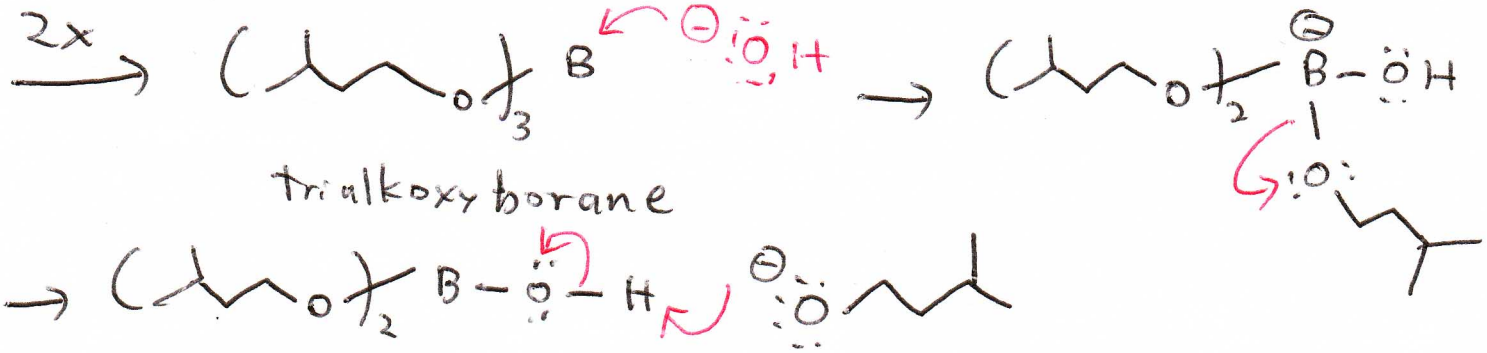
electrophilic additions w/ cyclic intermediate



anti-Markovnikov

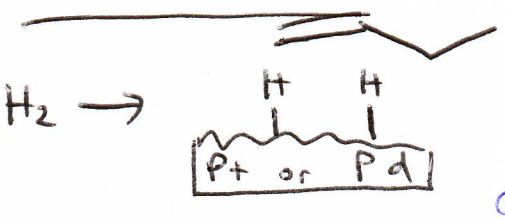






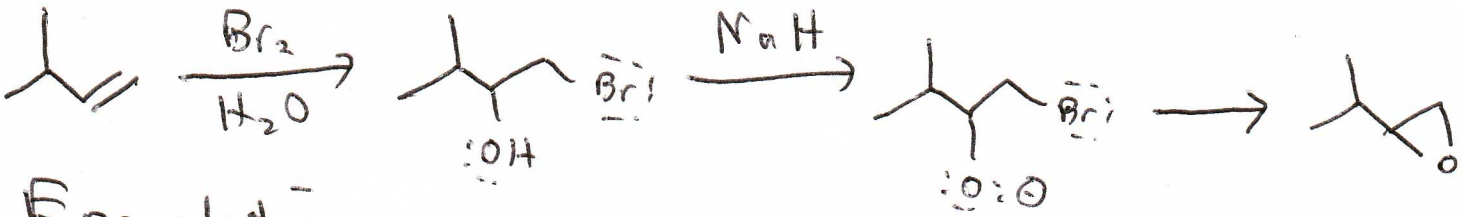
1. utility: alkene ⟶ alcohol
2. reagents: 1) $BH_3 \cdot THF$ 2) H_2O_2, NaOH
3. conditions: no water!!!
4. mechanism: ———
5. stereochemistry: syn addition; enantiomers
6. regiochemistry: anti-Markovnikov addition, no rearrangement

Hydrogenation



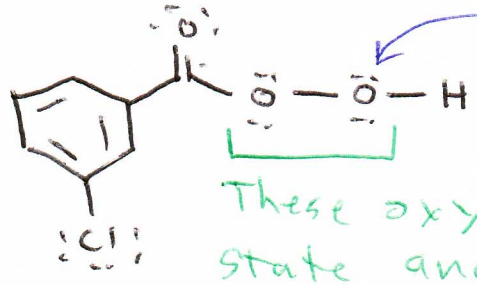
Hydrogen can be adsorbed onto the surface of Pd or Pt. Once adsorbed, the hydrogen becomes more reactive and can then be reacted with an alkene. Since the alkene is approaching the metal surface with both hydrogens pointed in the same direction, the hydrogens add w/ syn addition.

1) utility: alkenes ⟶ alkanes
2) reagents: H_2 and Pt or Pd
3) conditions: ——— 4) mechanism: ———
5) stereochemistry: syn addition; enantiomers
6) regiochemistry: no rearrangements

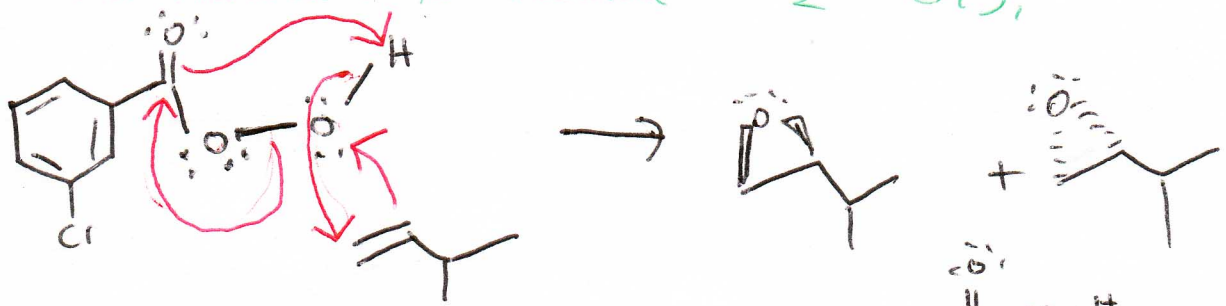


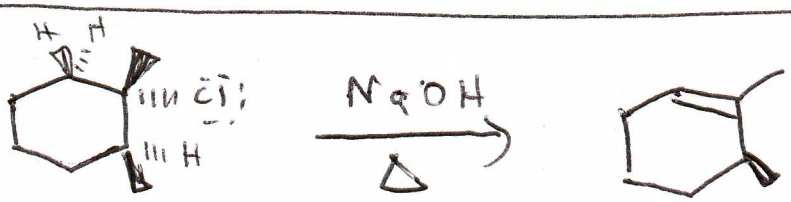
Epoxidation

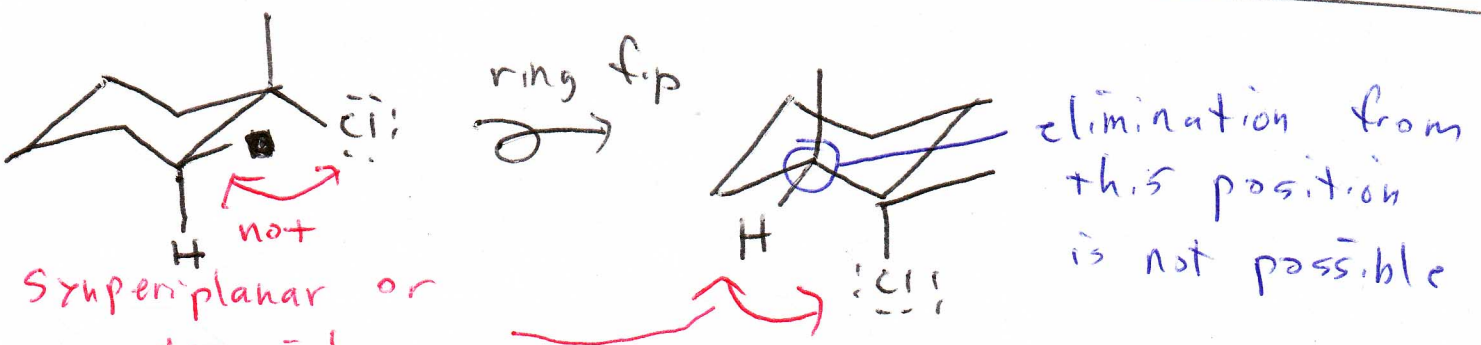
MCPBA – meta-chloro peroxy benzoic acid

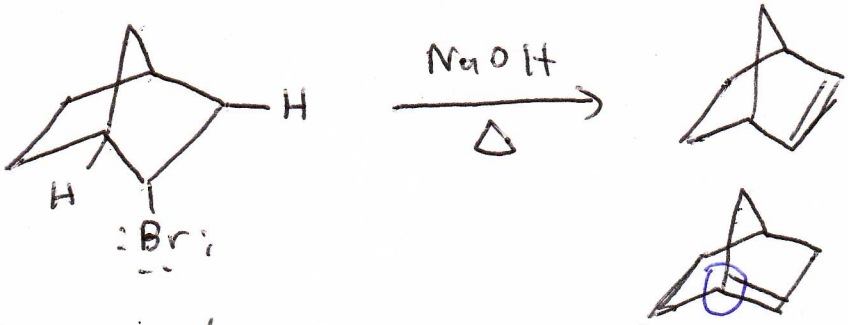


These oxygens have a −1 oxidation state and therefore can oxidize another molecule to become −2 0.5,









terminal

internal

Bridgehead carbons →
Carbons that are at the junction of two (or more) fused rings.

Bredt's rule- Unless the ring size is sufficiently large, elimination is not possible @ bridgehead positions because the carbon cannot become planar