Course Chem 343 Lecturer Gellman
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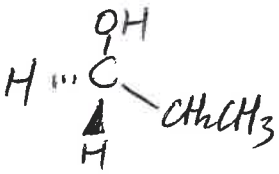
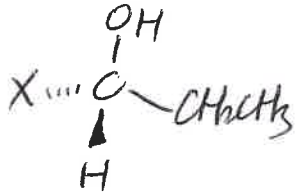
Are H's (or other chemical groups) w/i a molecule equivalent to one another?

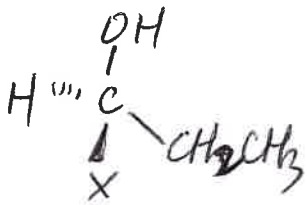
Consider:

$^{3}CH_3\,^{2}CH_2\,^{1}CH_2OH$

What about the H's on C_1?







H's on C_1, C_2, C_3 different

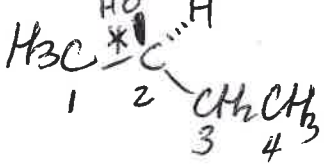
^1C – enantiotopic: If substitute one for something else, and then the other, you obtain enantiomers.

$CH_3\,^{2}CH_2\,^{1}CH_2OH$

↑ ↑ enantiotopic

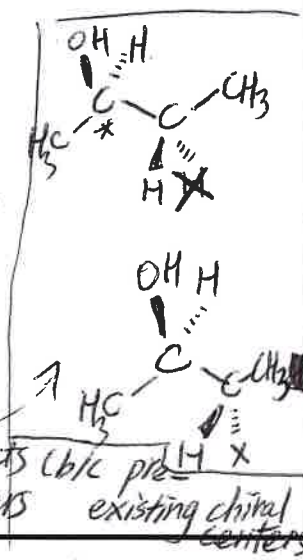
homotopic: Substitution any gives same product.

(R)-2-butanol



H's on C_1, C_4 = homotopic

" " C_3 = diastereotopic: replacement products (b/c pre-existing chiral center) produce diastereomers



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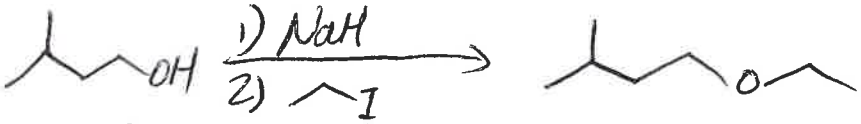
CH 11 → Ethers & related compounds

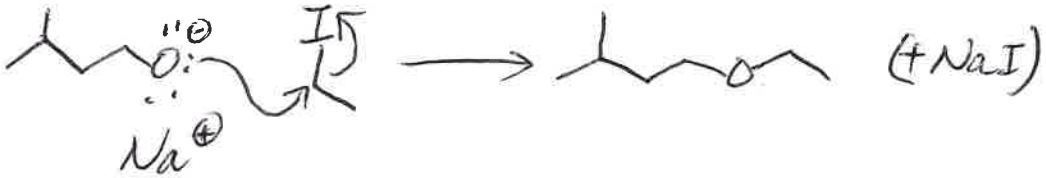
problems: 1-25, 32, 34, 36, 39, 40 a,b,d, 44, 45 c-j, 46-48, 50-63, 65, 69-71, 77, 79-81.

R–O–R (R–S–R thioether / sulfide)

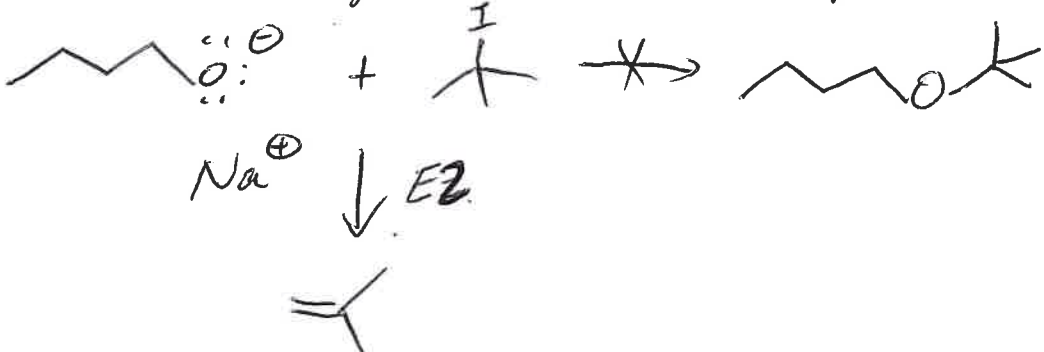
1) Williamson ether Synthesis: (SN2 rxn of alkoxides)



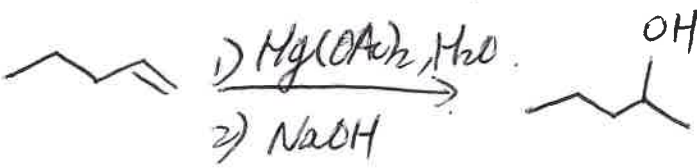
1st step: Quantitative Deprotonation of alcohol.

2nd step: 

Limitation: alkyl halide must be good for SN2. (methyl or 1°)



2) Alkoxymercuration–reduction

recall: 

Markovnikov

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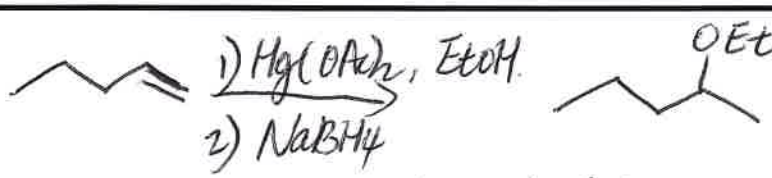
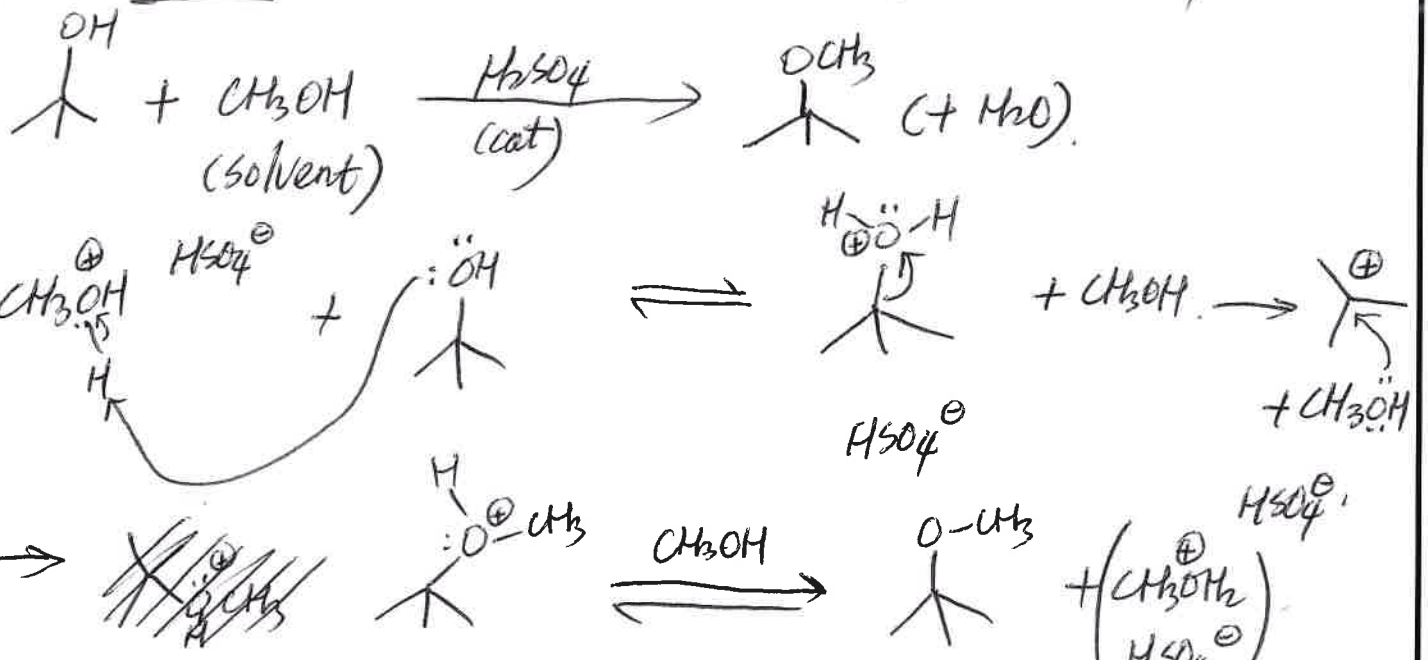


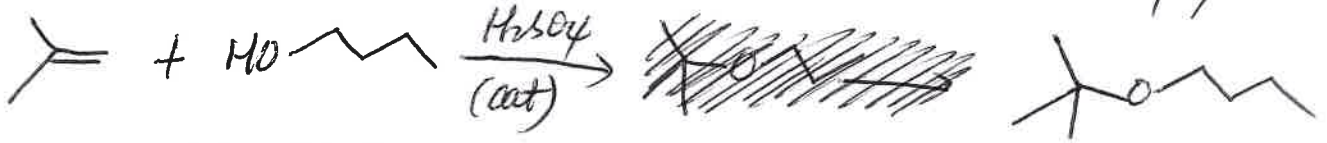
Limitations: simple alcohols, must be used as solvent.

3) Acid catalyzed rxns from alcohols or alkenes

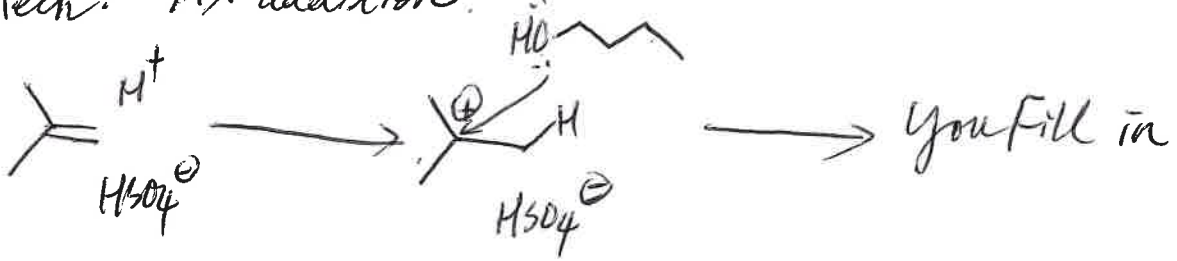
S_N1 * Most useful involve rxns of 3° $C^{\oplus}$ w/ an alcohol



ii)



Mech: HX addition.



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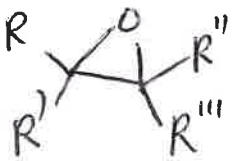
Ethers can be cyclic 

THF.

Epoxides = special class of cyclic ethers w/ high importance (b/c of their reactivity)



reactivity = ring strain