

# CEM 850 Review for CEM 852 SS21 Key

January 25, 2021

Total points possible for this review are 50. In answering your questions, please write legibly and draw all structures clearly. Write all your answers in the exam booklets. Good luck.

I. For the following compounds provide the pKa's within 2 pKa units of the compounds most acidic proton. (10 pts)

1. 1-hexyne **25**

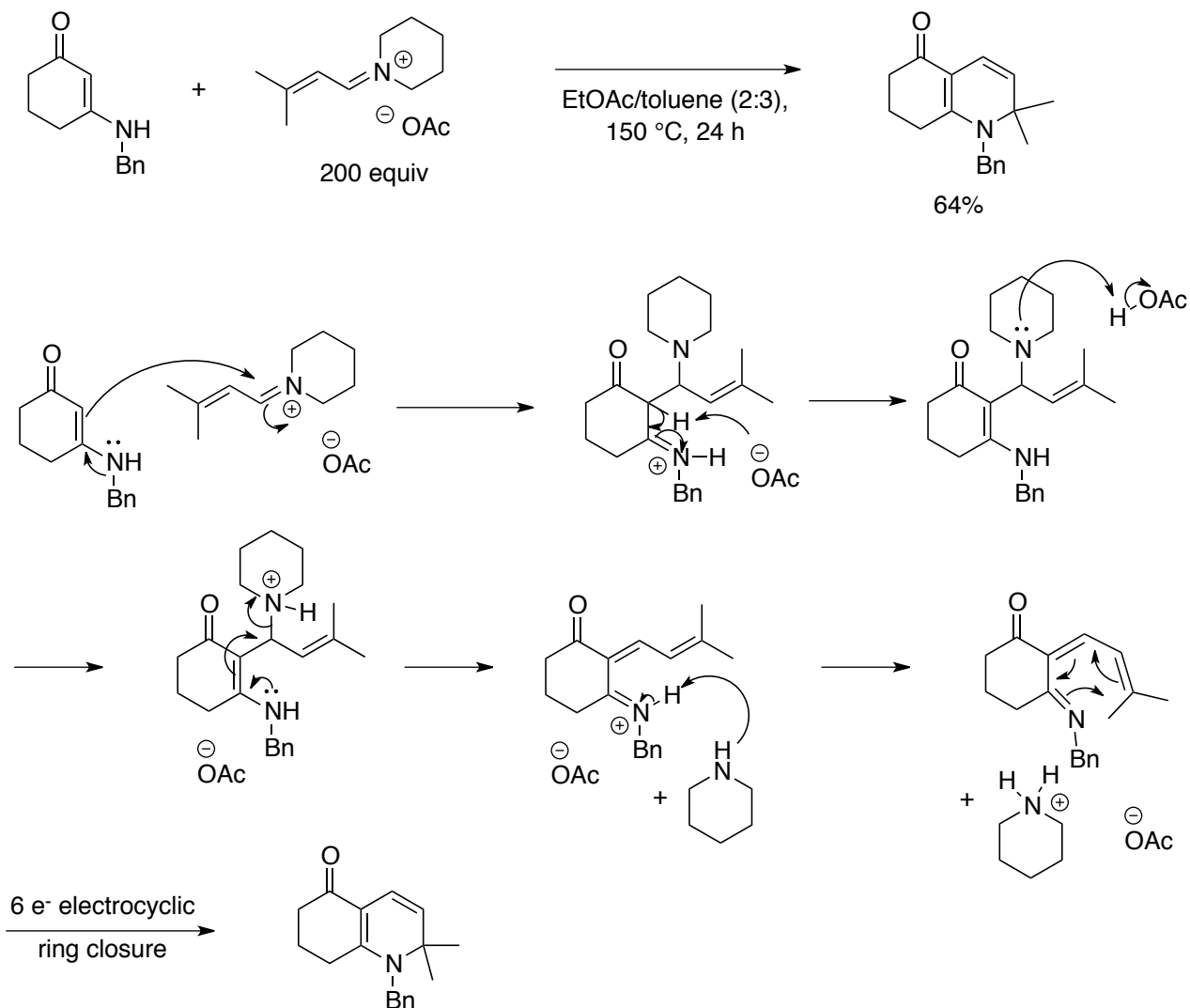
2. acetonitrile **25**

3.  $\text{CH}_2(\text{CN})_2$  **10**

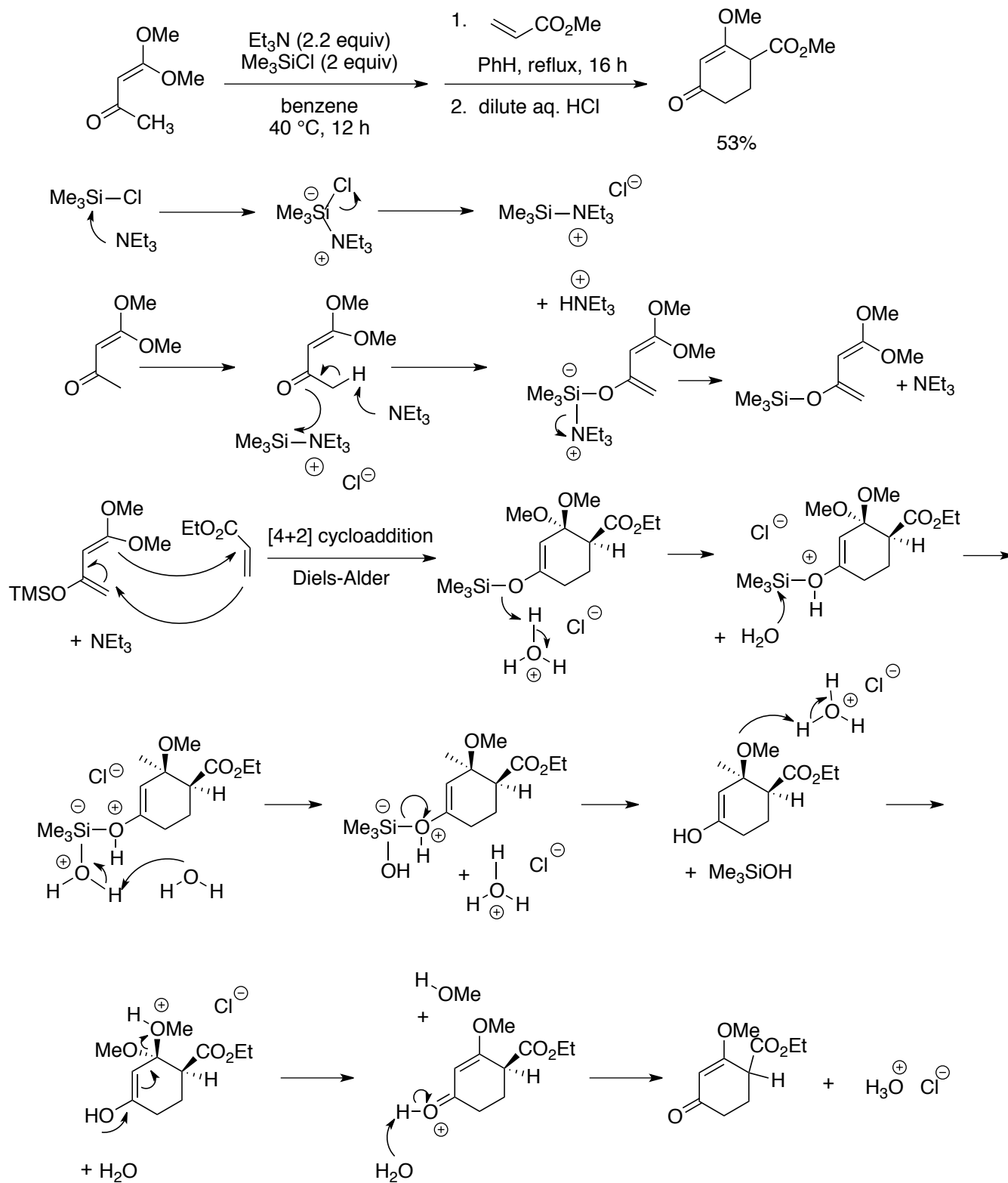
4. ethyl acetate **25**

5. hexanoic acid **5**

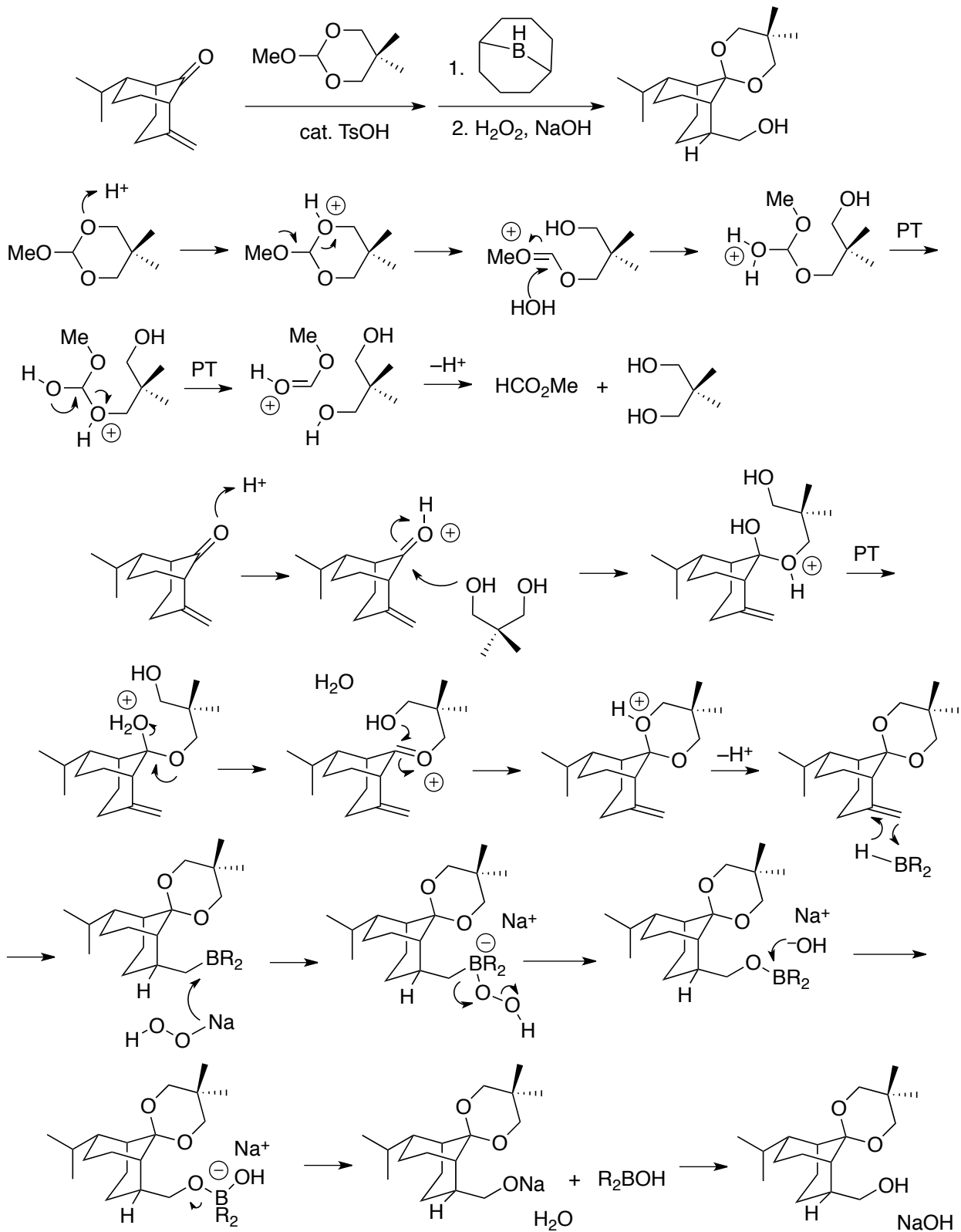
II. Provide a complete arrow (electron) pushing mechanism for the reaction below. (10 pts)



III. Provide a complete arrow (electron) pushing mechanism for the sequence below. (15 pts)



IV. Provide a complete arrow (electron) pushing mechanism for the sequence below. (15 pts)



**Bonus Question:** Who is credited with inventing the use of KBr pellets to obtain IR spectra of solid compounds? (2 pts)

- a) Lyman C. Craig (invented the rotovap)
- b) Stephanie L. Kwolek (invented Kevlar)
- c) Arthur Rosinger (first to describe magnetic stirring of a reaction)
- **d) Miriam Stimson**