Name: _____ SID: _____

Signature: _____ 3BL GSI Name: _____

PRINT YOUR NAME CLEARLY!!

Lecture Only: _____

Completing an I grade: _____

Chem 3B Su07 **Midterm 2** **16JUL07**
Neil O.L. Viernes

This exam has 11 pages; **make sure you have them all.** The last page is blank. Use as scratch paper, anything written on it will NOT be graded.

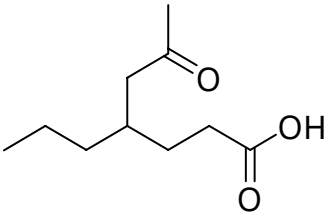
Please place answers in designated spaces. **Please write clearly**. Messy or ambiguous answers will not be graded.

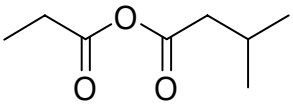
This exam runs 115 minutes. No clarifying questions will be answered by the GSI's after the exam begins.

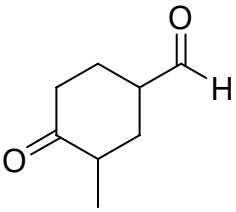
Do not write in this box
1) _____(18)
2) _____(16)
3) _____(15)
4) _____(14)
5) _____(15)
6) _____(21)
7) _____(24)
8) _____(22)
9) _____(15)
Total: _____(160)

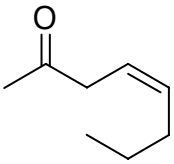
1. 18 pts

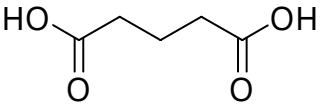
Provide nomenclature (IUPAC or common) for the following molecules:

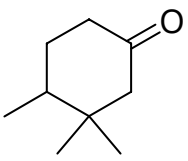






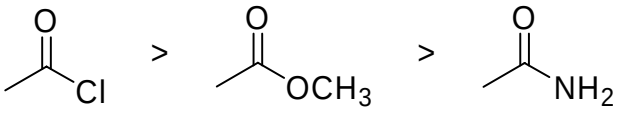




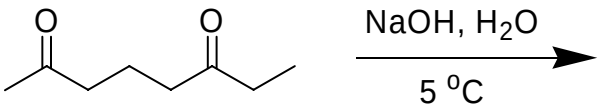


2. 16 pts

a) Rationalize the order toward addition to the carbonyl by a nucleophile.



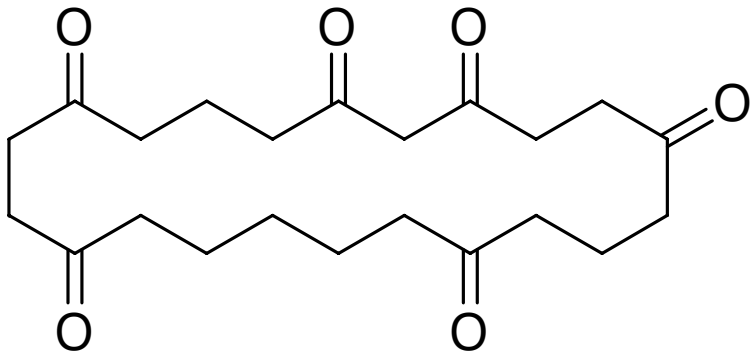
b) Draw all the products from the intramolecular aldol reaction of



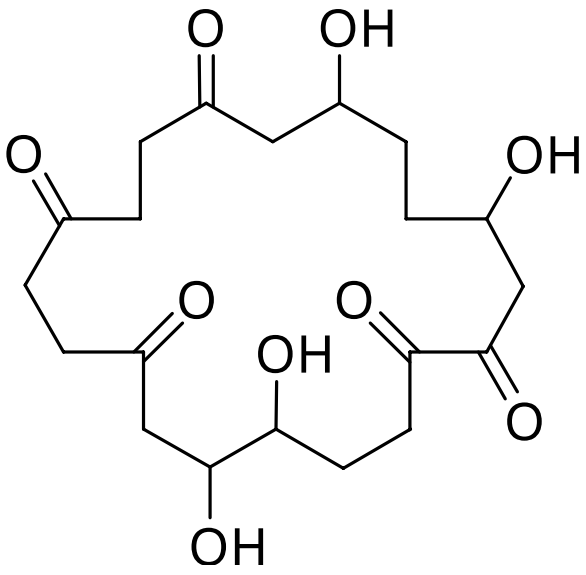
Circle the major product(s).

3. 15 pts

a) Draw a line through the carbon-carbon bond(s) that can be formed through a Michael Addition.

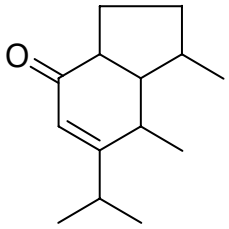


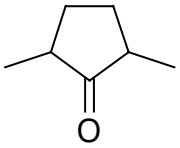
b) Draw a line through the carbon-carbon bond(s) that can be formed through an Aldol Reaction.

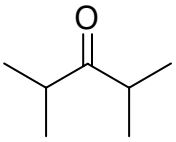


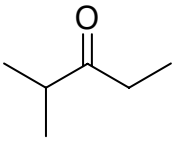
4. 14 pts

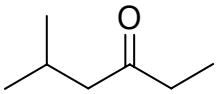
Circle the molecules that will produce the following compound through a Robinson Annulation.

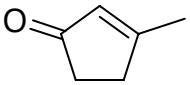


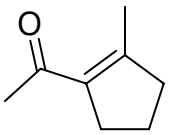


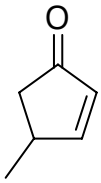


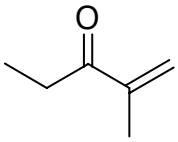


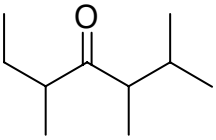


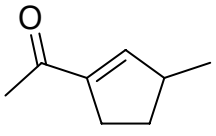


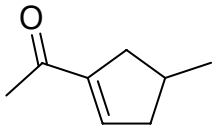


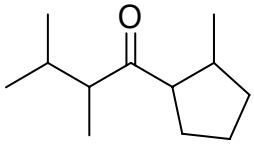






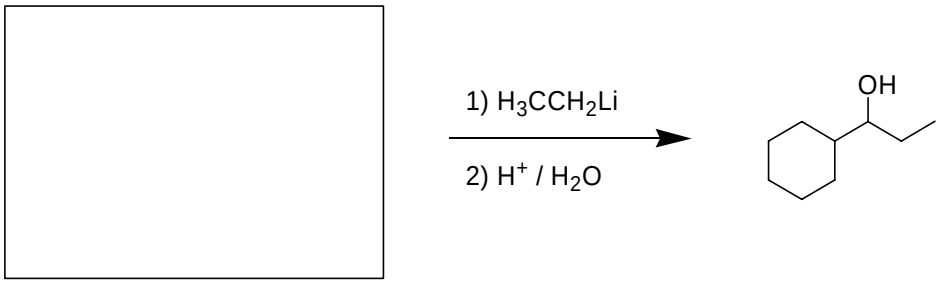


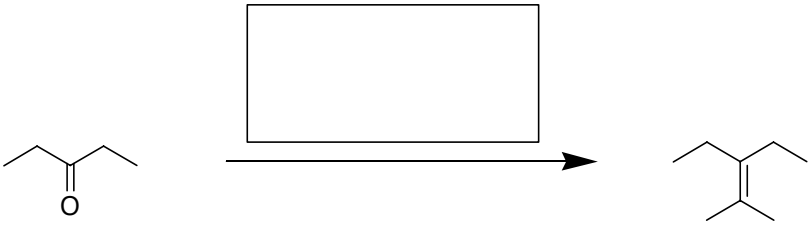


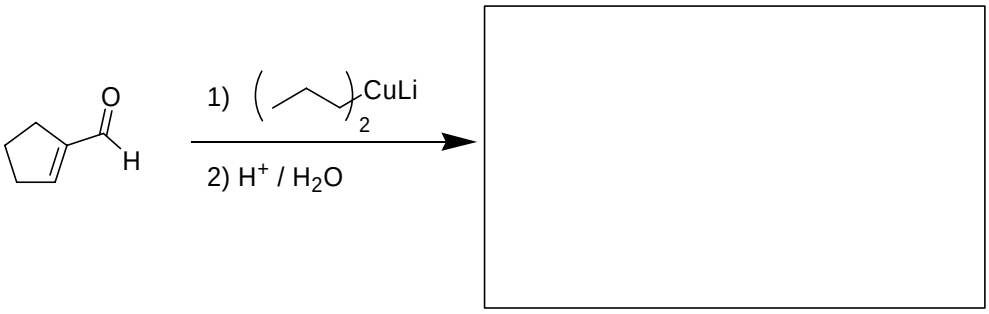


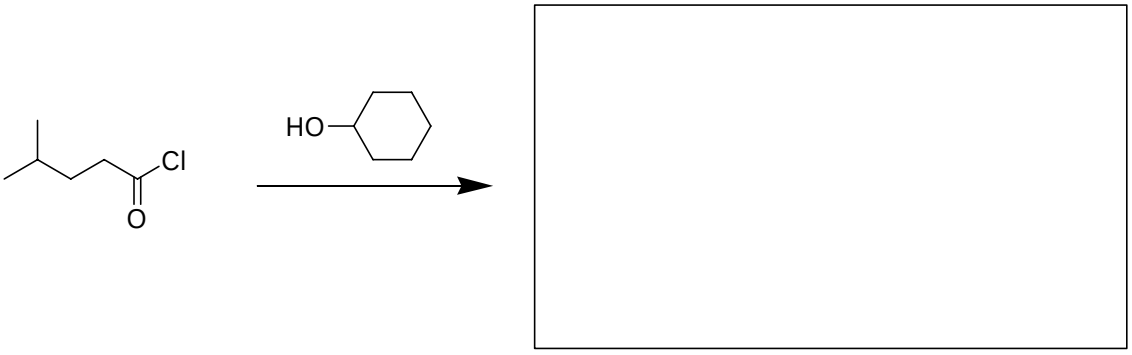
5. 15 pts

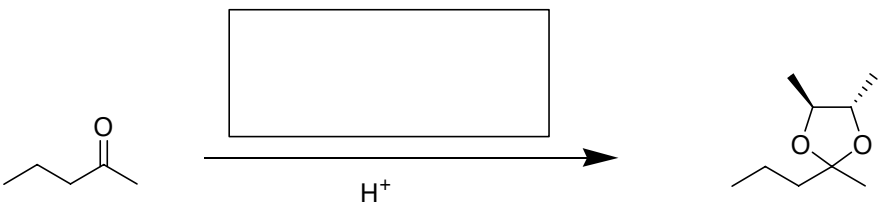
Fill in the boxes. Each box indicates one molecule, or reaction step.





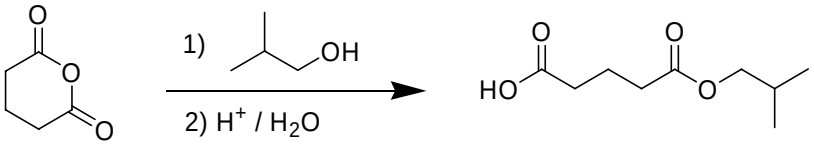


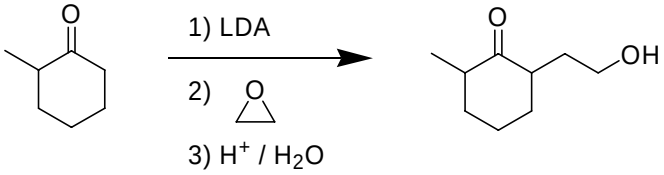




6. 21 pts

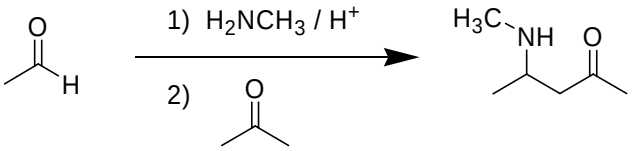
Complete the mechanisms for the following transformations:





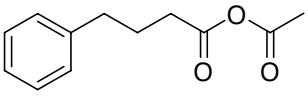
7. 24 pts

The Mannich Reaction involves the formation of an imminium ion followed by nucleophillic attack of an enol. Draw a mechanism for the transformation (include the acid catalyzed formation of the enol).

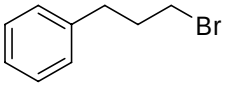


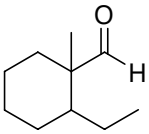
8. 22 pts

Provide the reagents and conditions to best synthesize the target molecules:



From





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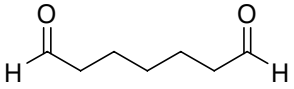
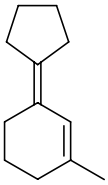
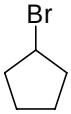


9. 15 pts

Provide the reagents and conditions to best synthesize the target molecule



From 

as only cyclic starting material