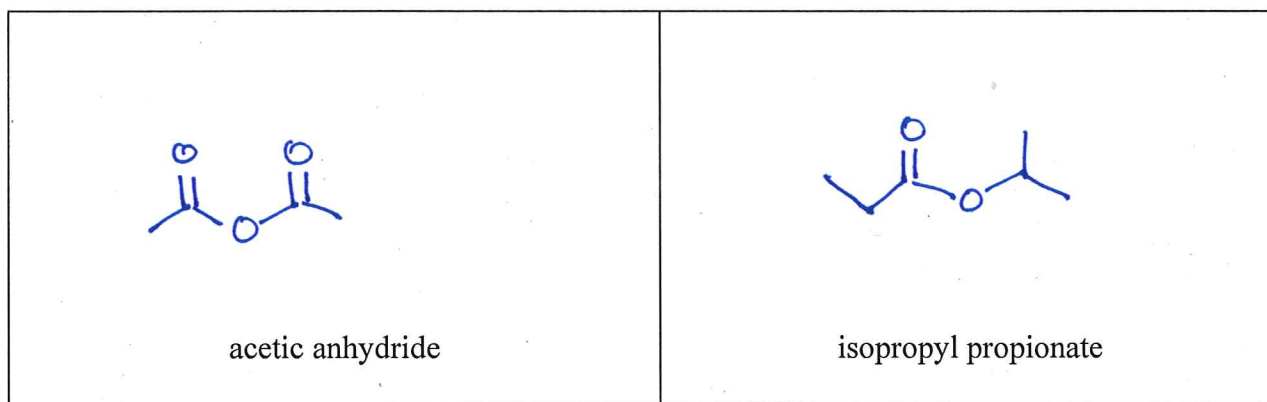
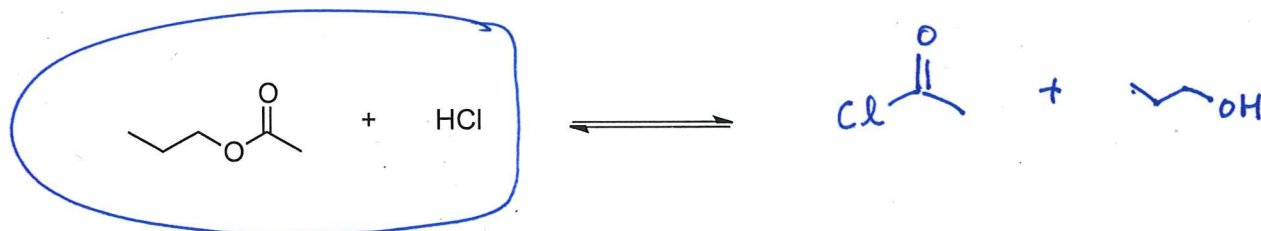
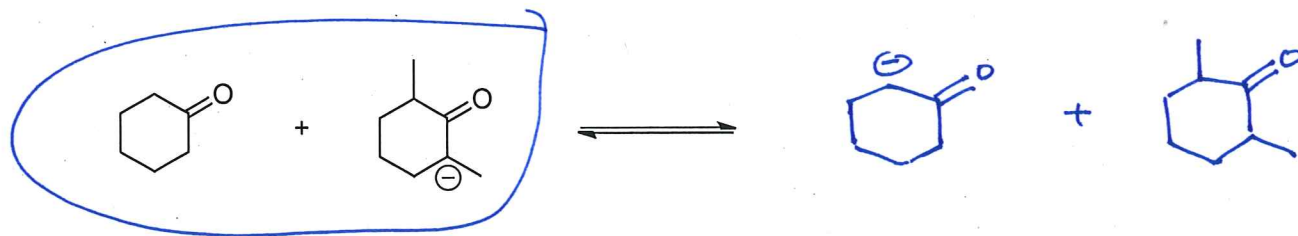
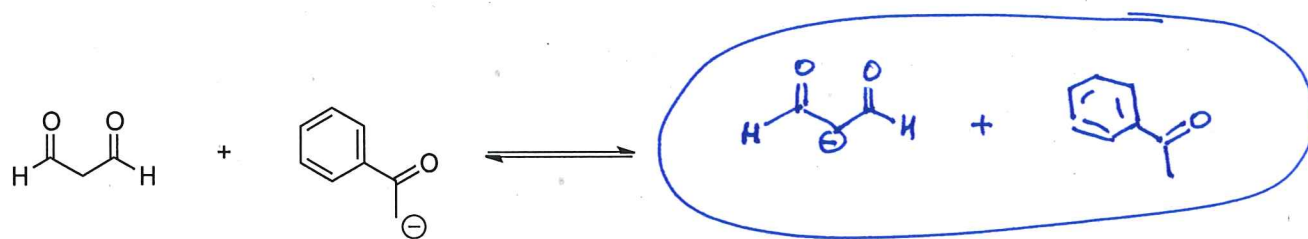
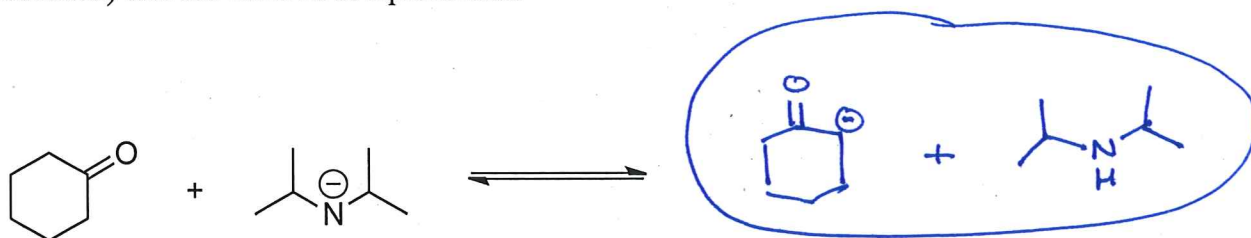


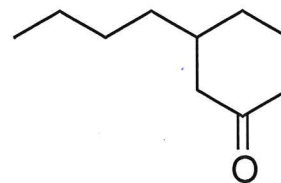
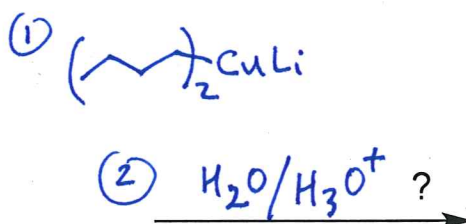
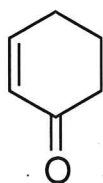
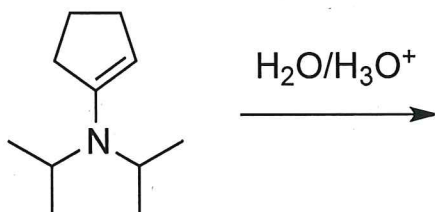
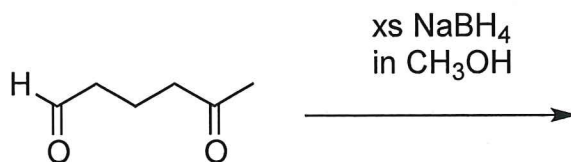
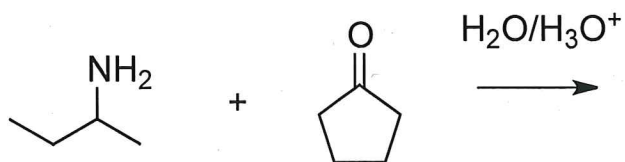
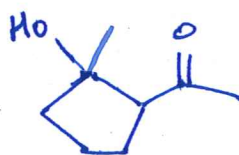
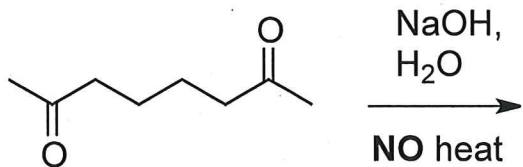
61. Nomenclature. Please give name for structure or structure for name.



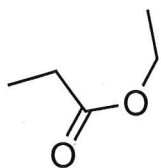
102. Complete these reactions (the first three are proton transfers) and **CIRCLE** the side (products or reactants) that are favored at equilibrium.



403. Fill in any of the missing starting material(s), reagent(s), and/or dominant **organic** product(s) for each single reaction. Please specifically denote all stereochemistry.



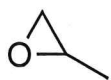
Question 3 continued.



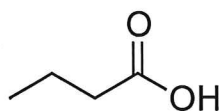
1. 2 CH_3Li
2. $\text{H}_2\text{O}/\text{H}_3\text{O}^+$



(+ EtOH)



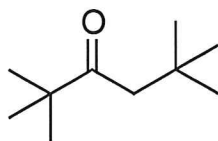
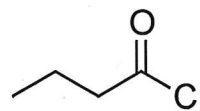
1. LiAlH_4
2. $\text{H}_2\text{O}/\text{H}_3\text{O}^+$



SOCl_2

Py

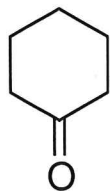
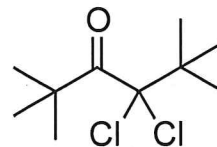
?



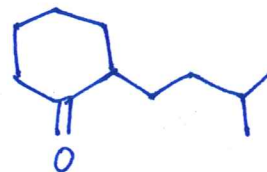
Cl_2

NaOH

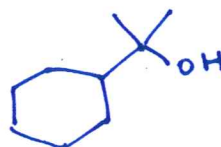
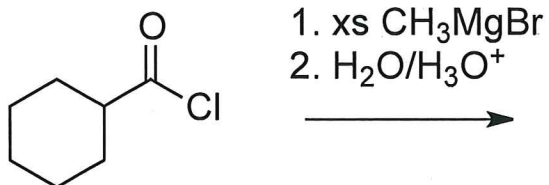
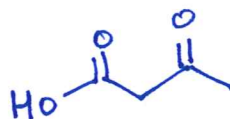
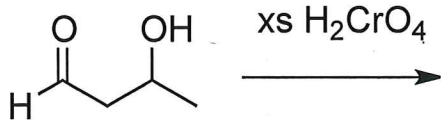
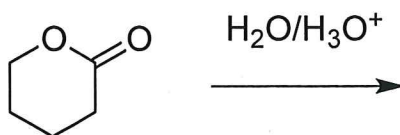
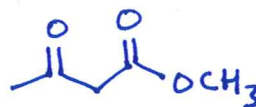
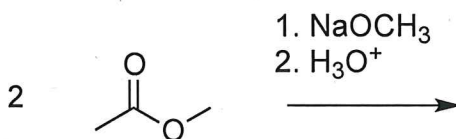
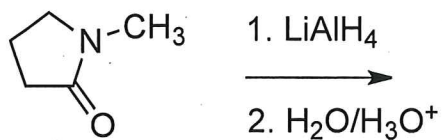
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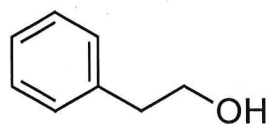
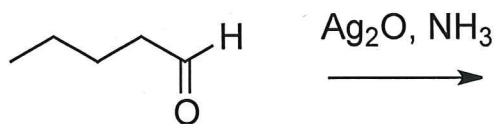
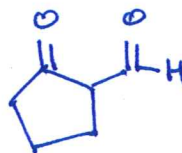
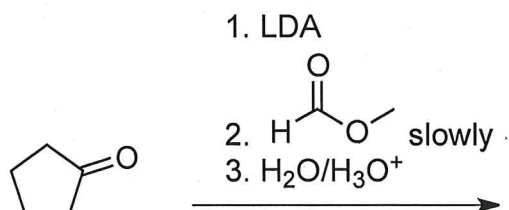
1. LiNHPr_2 ("LDA")
2. $(\text{CH}_3)_2\text{CHCH}_2\text{CH}_2\text{Cl}$



Question 3 continued.

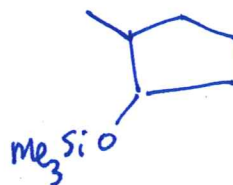
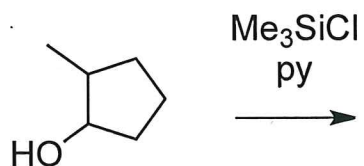
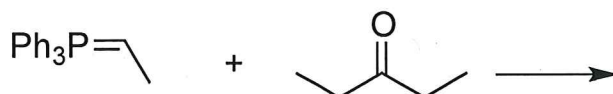
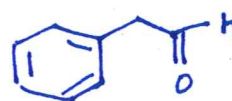


Question 3 continued.

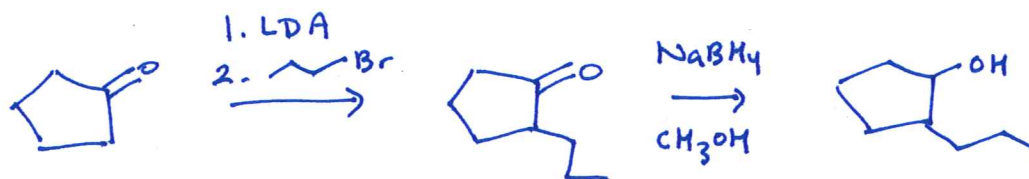
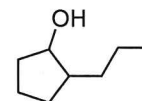
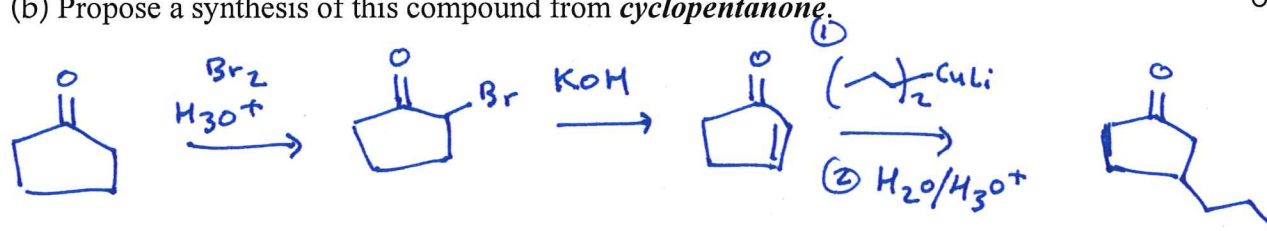
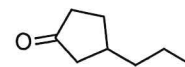
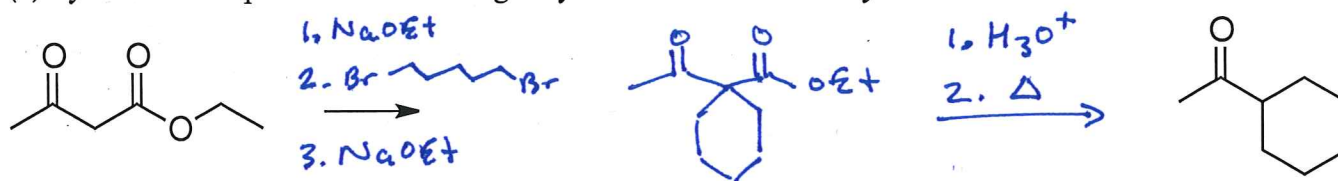


PCC
 CH_2Cl_2

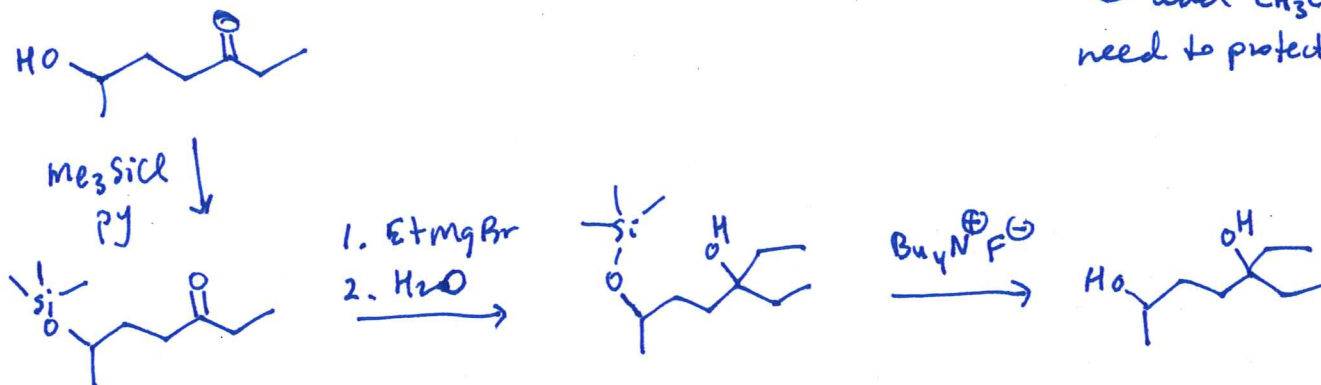
PCC = pyridinium chlorochromate



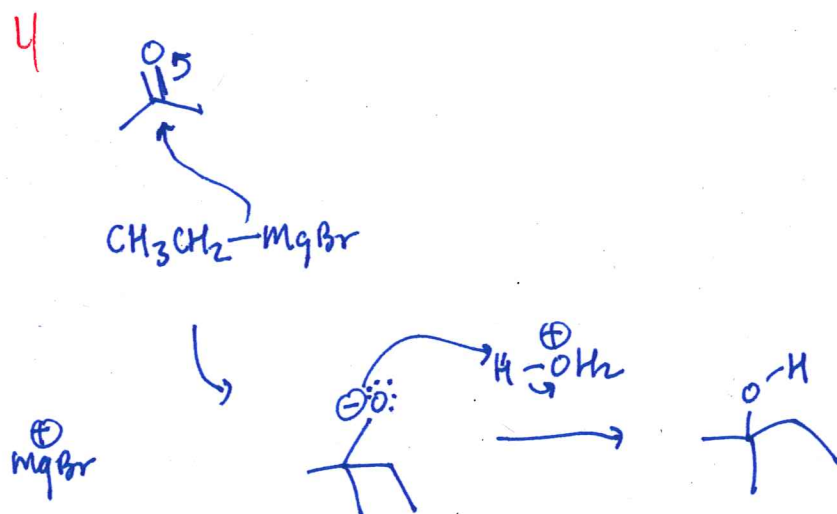
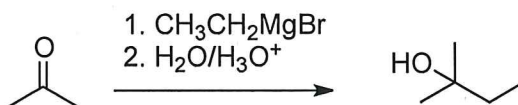
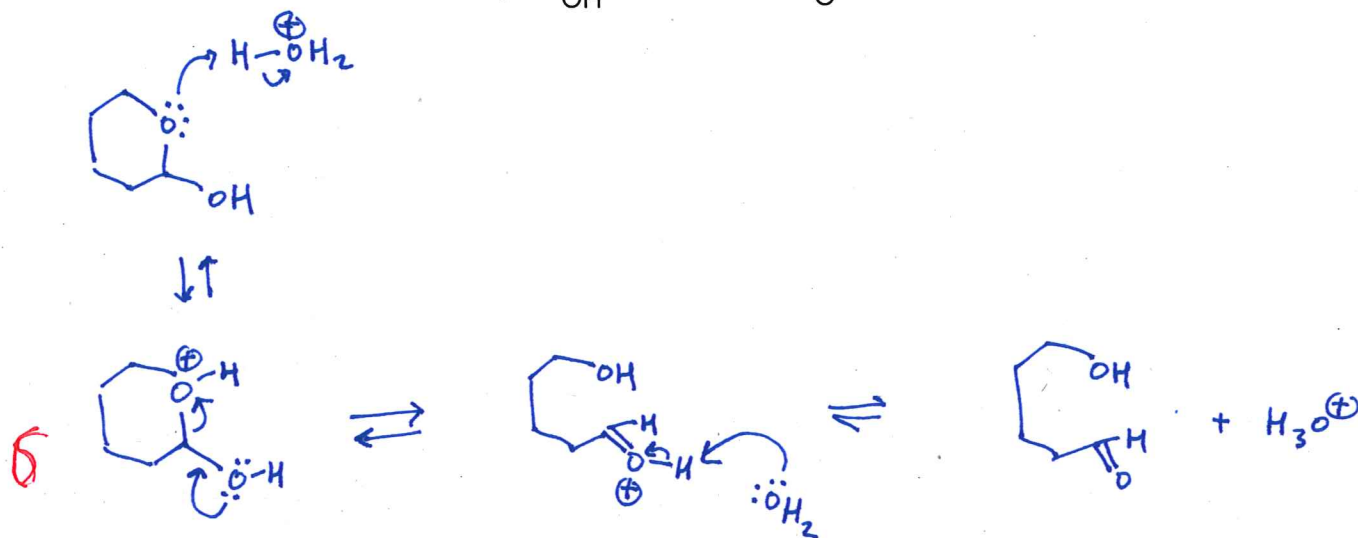
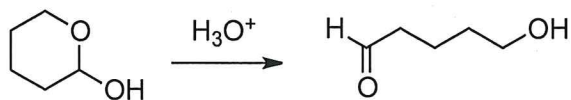
204. Short syntheses.

(a) Propose a synthesis of this compound from *cyclopentanone*.(b) Propose a synthesis of this compound from *cyclopentanone*.(c) Synthesize the product shown at right by the *acetoacetic ester synthesis*.(d) Use a *protecting-group strategy* to accomplish this synthesis:

add $\text{CH}_3\text{CH}_2\text{MgBr}$ here
need to protect alcohol



245. Please draw a stepwise electron pushing mechanism for the reactions shown below.



Problem 5, continued.

