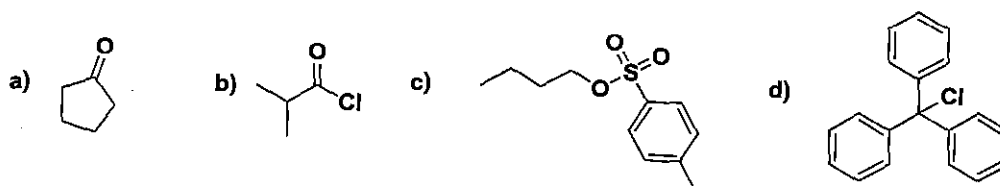
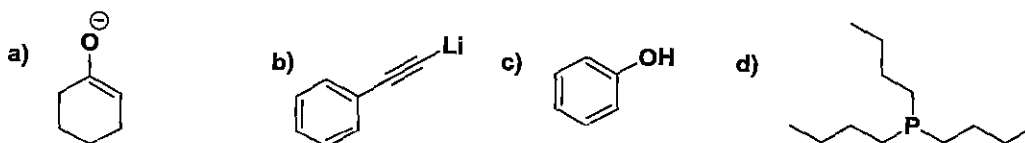


The use of calculators or any electronic devices is not allowed.

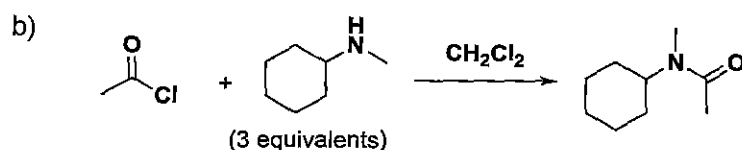
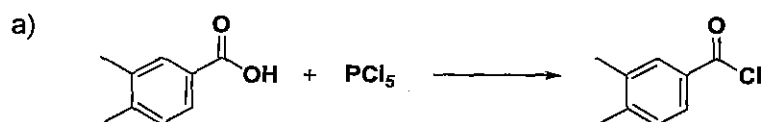
1. Each of these molecules is electrophilic. Identify the electrophilic atom and draw a mechanism for the reaction with a generalized nucleophile Nu^- , giving the product in each case. In case of more than one possibility, draw them all. (16 p)



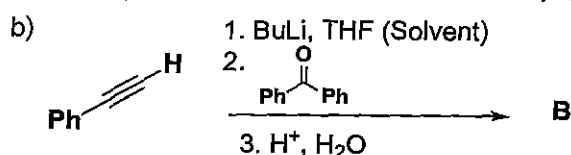
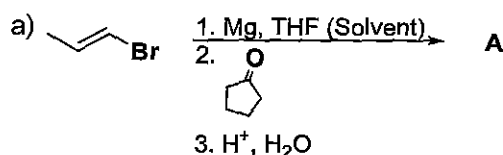
2. Each of these molecules is nucleophilic. Identify the nucleophilic atom and draw a mechanism for reaction with a generalized electrophile E^+ , giving the product in each case. (16 p)



3. Suggest acceptable mechanisms for the following reactions: (15 p)

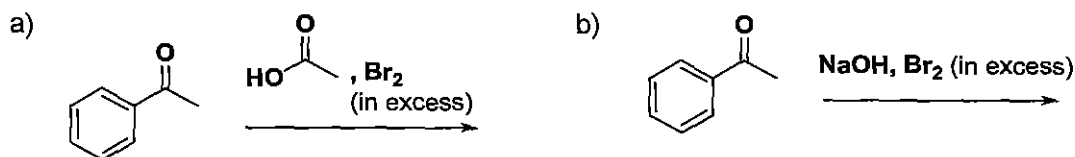


4. What products would be formed in these reactions? (no need to write the mechanisms). (10 p)



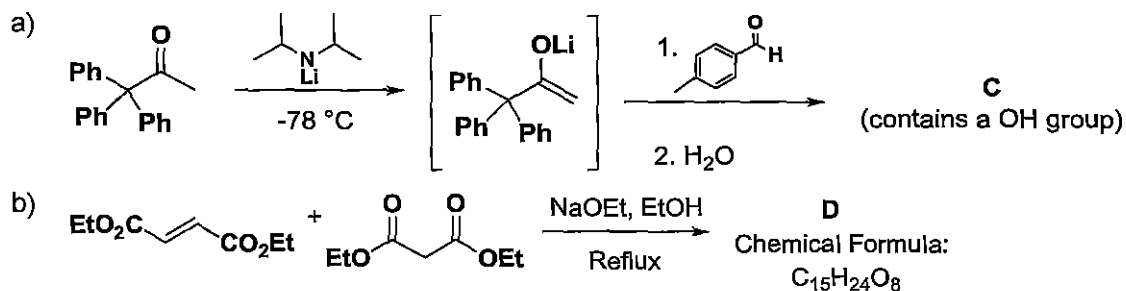
5. Predict the product formed in each of the following reactions and write the mechanisms involved.

(13 p)

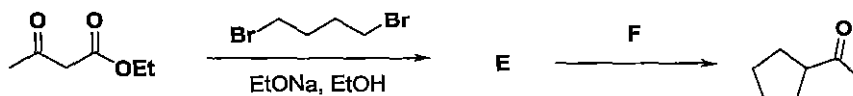


6. Predict the product formed in each of the following reactions and write the mechanisms involved.

(15 p)



7. Complete the following synthetic scheme (no need to write mechanisms involved). (5 p)



8. Write the chemicals needed to perform the following transformations. If more than one step is required, show each step clearly (no need to write the mechanisms involved). (10 p)

