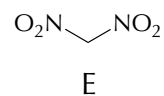
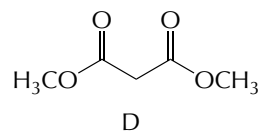
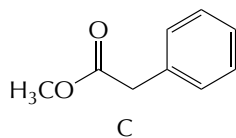
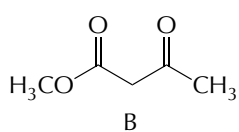
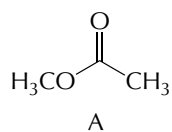
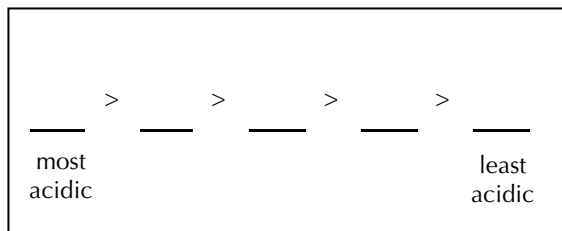


14.36 For the following five compounds:



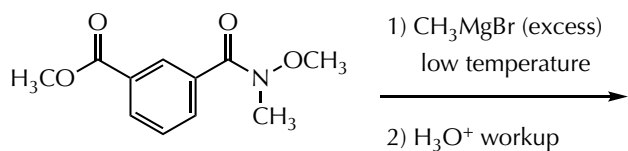
(a) Rank them in the order of most acidic to least acidic.



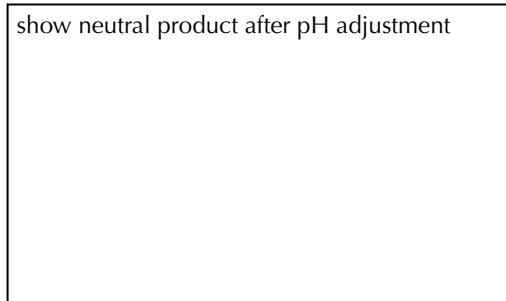
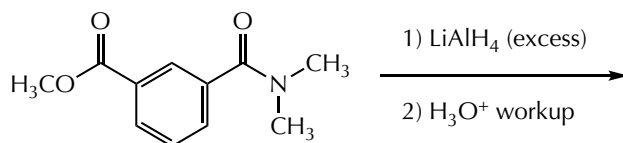
EQ 06.21

Provide the missing products in the following reaction schemes. In all cases, show only the major organic product. The byproducts of the reaction do not need to be shown.

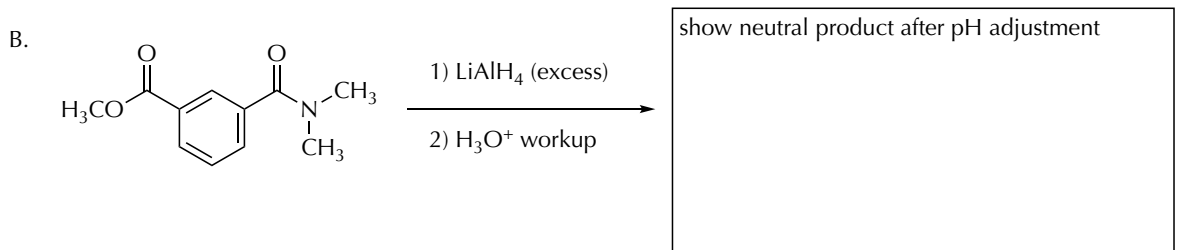
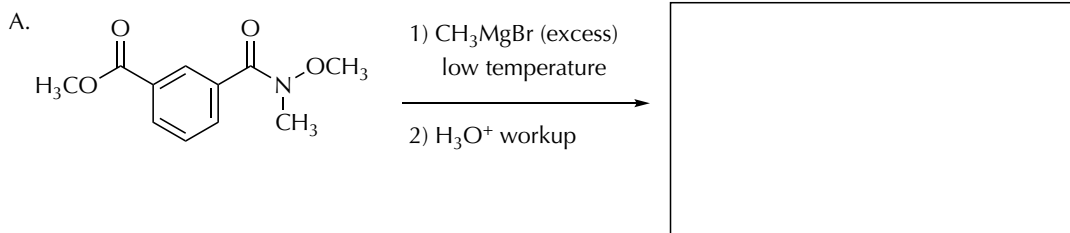
(a)



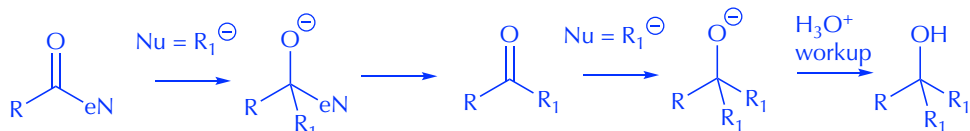
(b)



Provide the missing products in the following reaction schemes. In all cases, show only the major organic product. The byproducts of the reaction do not need to be shown.



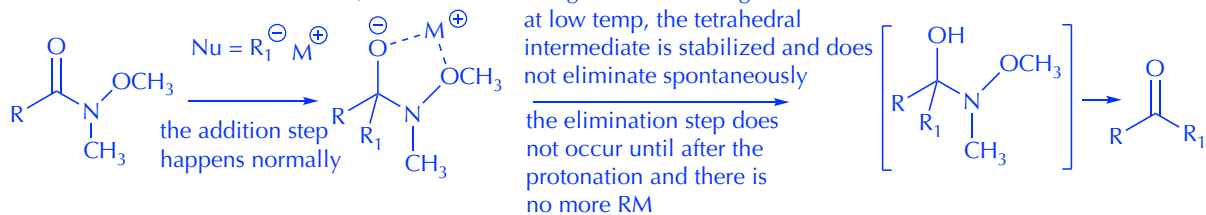
In a problem, indicating "excess" is usually there for a reason. In this case, there are two different carboxylic acid derivatives capable of undergoing acylation, and in the absence of other information, you can assume that they both will. Because the nucleophile is a strong and irreversible one (a Grignard Reagent), the general idea that two equivalents are consumed needs to be considered: acylation of carbon nucleophiles creates a ketone, and the ketone can undergo a second, productive addition reaction once it forms. The general concept is, then:



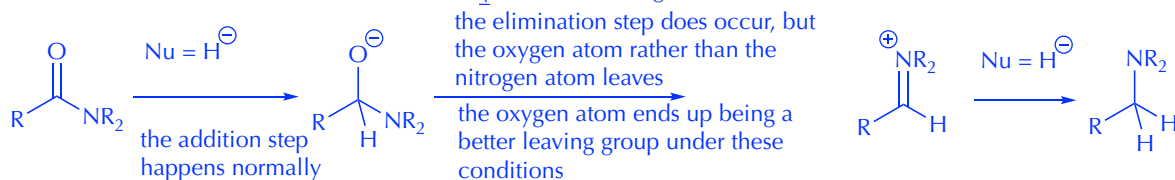
the ketone is generally more reactive than the acyl starting material, so once it forms it reacts faster than the acyl substrate

And yet, functional group identification is still critically important because sometimes the general concept has a footnote or two, where there are unique discoveries that diverge from the general result. These discoveries are exactly that: discoveries... unexpected results that can be consistent with the overall picture when understood. These two examples (above) represent such cases, and in both cases they are structured to present the internal comparison between "the general result" and "the non-general result." This conclusion is what needs to be made when looking at these questions, before writing anything down, because those "non-general results" cannot be figured out or derived from the information presented here. Those are the skills that must be brought into the room.

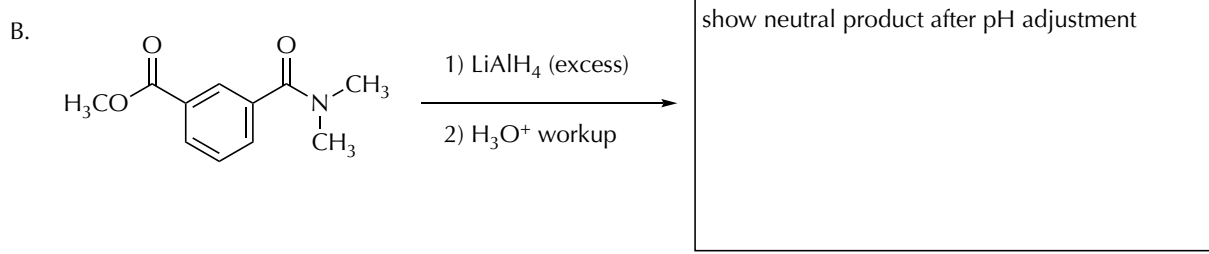
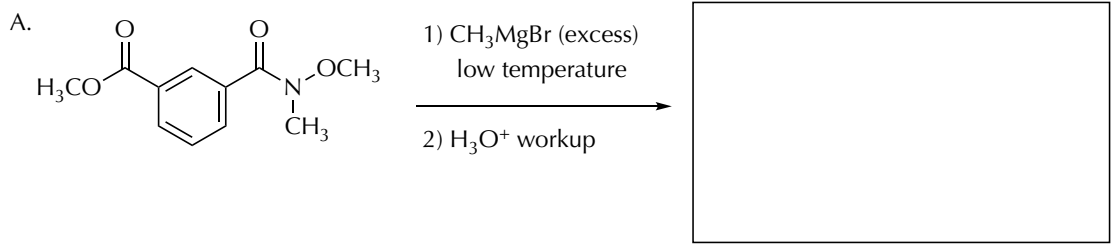
QUESTION A has the Weinreb amide, which react with organometallics to give ketones and not alcohols.



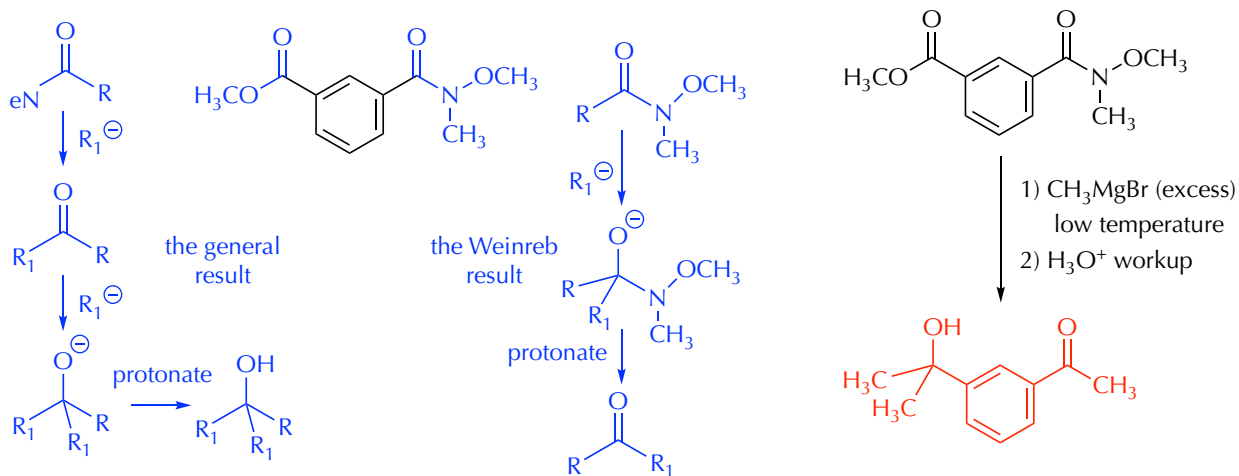
QUESTION B has an amide combined with LiAlH_4 , which react to give amines and not alcohols.



Provide the missing products in the following reaction schemes. In all cases, show only the major organic product. The byproducts of the reaction do not need to be shown.



[QUESTION A has the Weinreb amide, which react with organometallics to give ketones and not alcohols.](#)



[QUESTION B has an amide combined with \$\text{LiAlH}_4\$, which react to give amines and not alcohols.](#)

