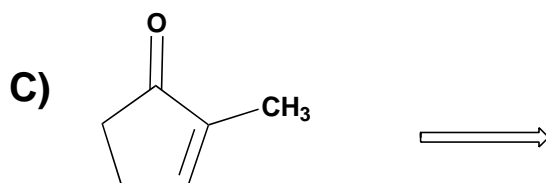
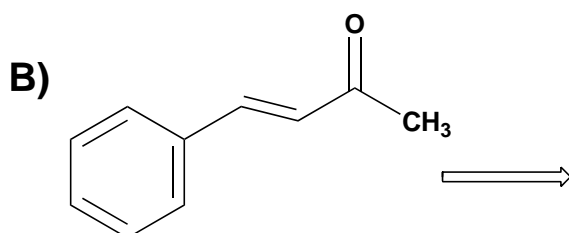
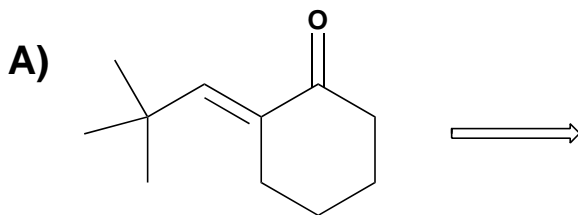
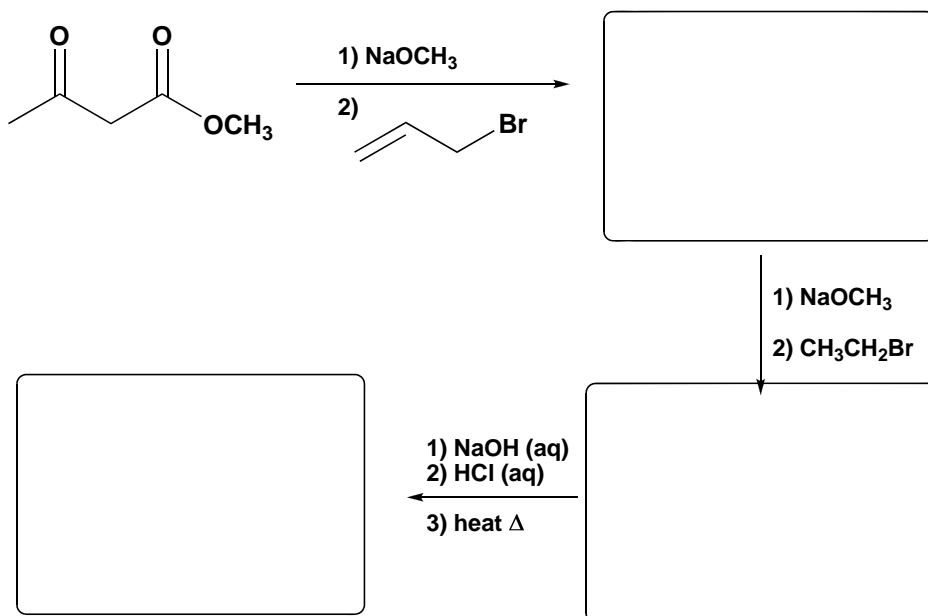


## "Free Style" problem sets for O-Chem 2

1) **Retrosynthesis:** Each of the following  $\alpha,\beta$ -unsaturated ketones can be produced from an aldol condensation-dehydration reaction. Provide the starting material(s) for the preparation of each compound.

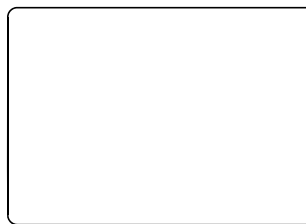
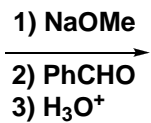
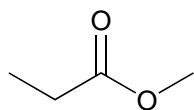


2) **Multi-step synthesis:** Provide products or the reagents for the following sequence of reactions. Draw each product or reagent in the box provided.

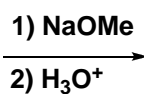
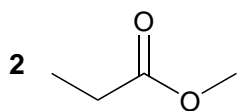


**3) Reactions:** Draw the structure of the products of the following reactions. Include any stereo or regiochemistry, if necessary.

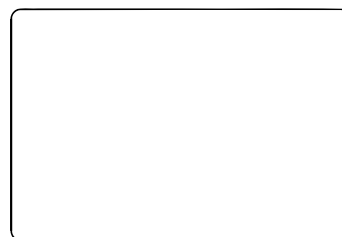
A)



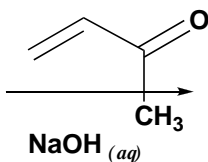
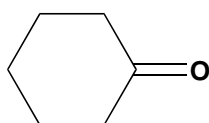
B)



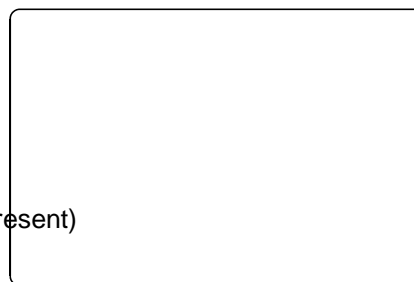
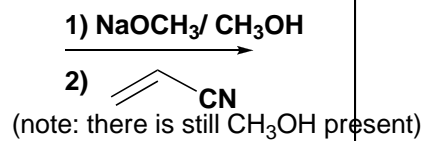
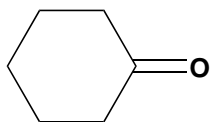
(It reacts with itself)



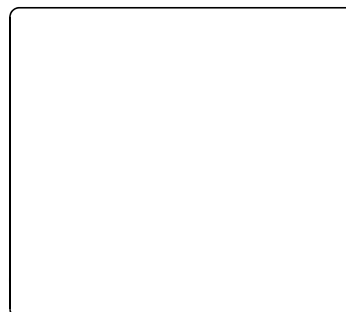
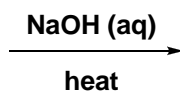
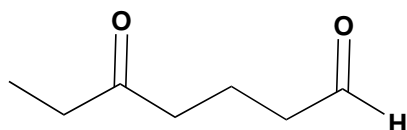
C)



D)



E)



**4) Mechanism:** Provide a mechanism for the following transformation. Show all important flows of electrons, charges and intermediates. Where indicated, (in the structure-n-a- box)- draw the intermediates.

