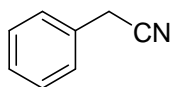
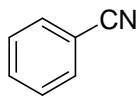
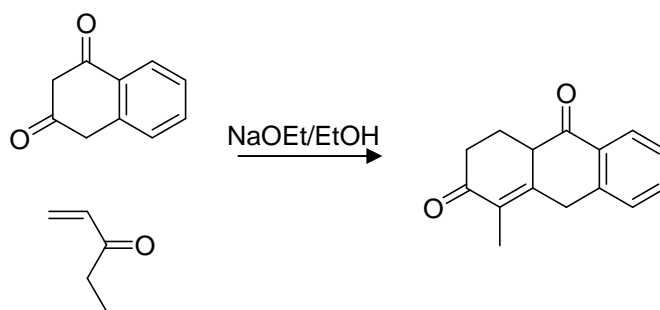
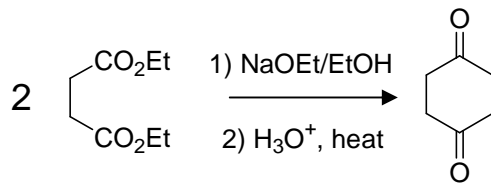


List all the ways you can think of to make the following compound.

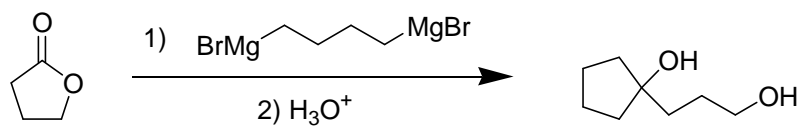


Draw a detailed mechanism for the Claisen condensation between two molecules of ethyl phenylacetate. Clearly indicate which steps are reversible and which are essentially irreversible.

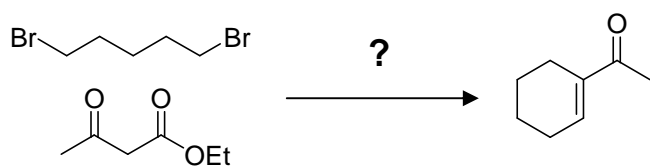
Draw detailed mechanisms for the following reactions:

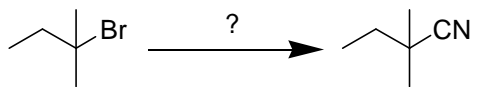


Draw a detailed mechanism for the following reaction:



Propose efficient synthetic routes for the following transformations





(It's harder than it looks: Why can't you just do an  $S_N2$  substitution with  $^-\text{CN}$ ?)

