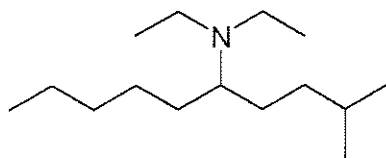
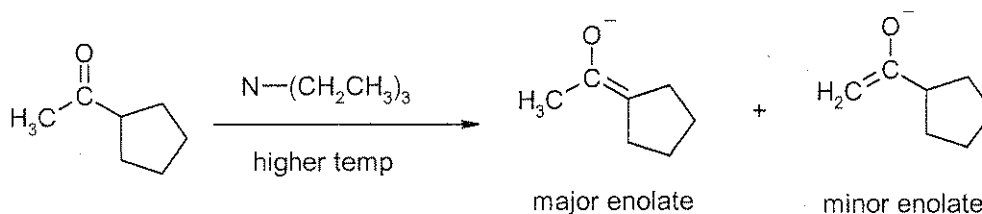


1. (3 pts) Give the **IUPAC** name of the following compound.

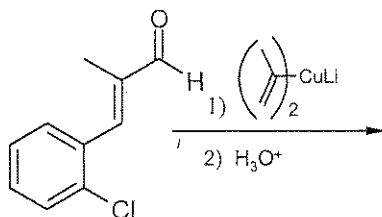


2. (7 pts) Explain why triethylamine and higher temperatures favor the formation of the major enolate shown below.

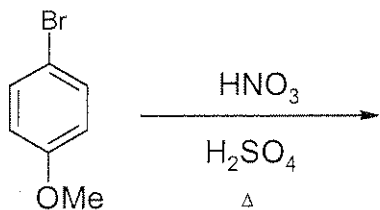


3. (48 pts, 4 each) Give the **major product(s)** or the **reagents needed** or **starting material** for the following transformations. Be sure and indicate stereochemistry where necessary.

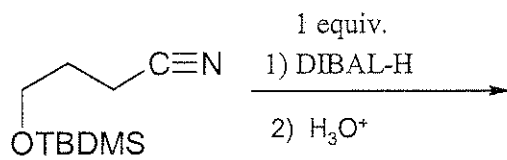
a)



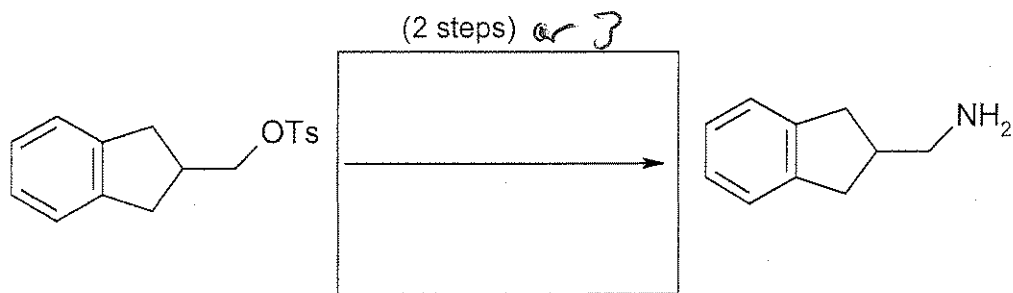
b)



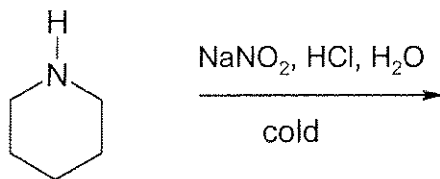
c)



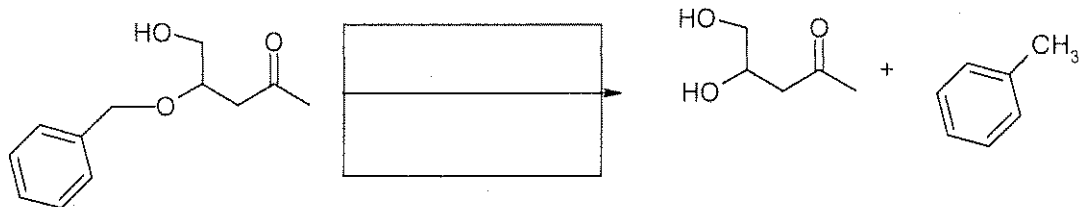
d)



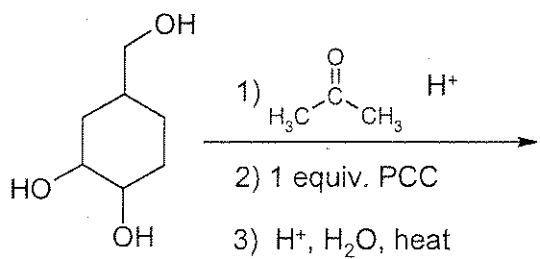
e)



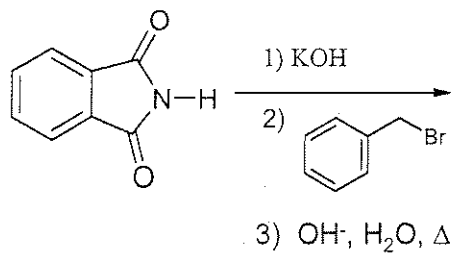
f)

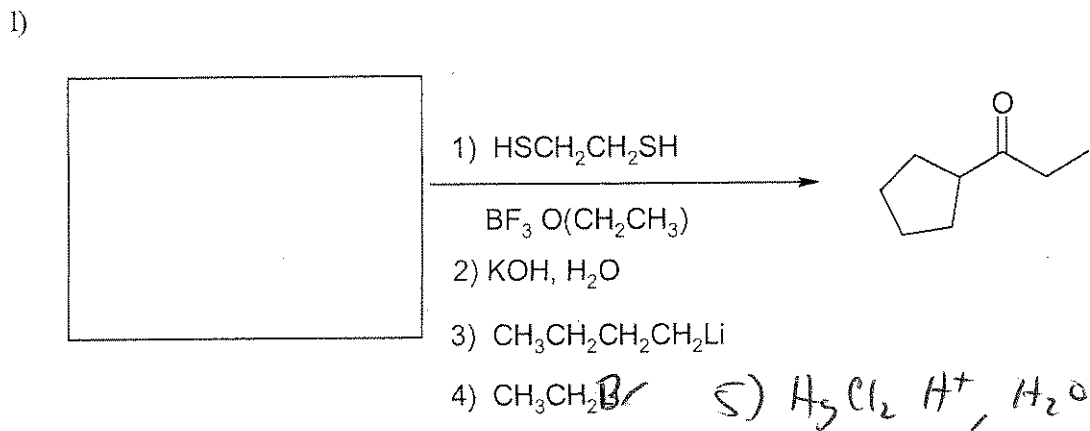
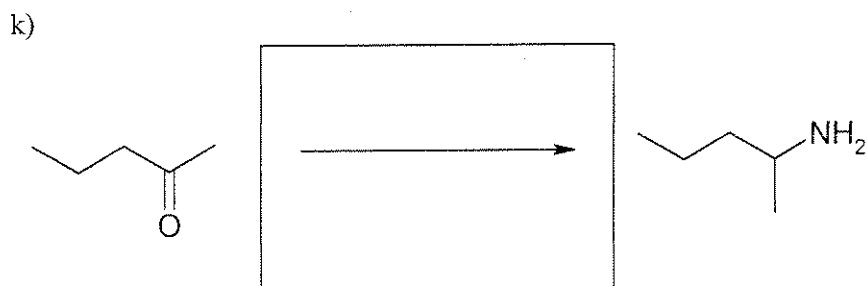
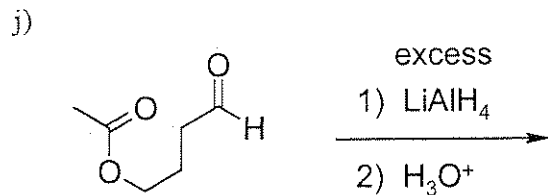
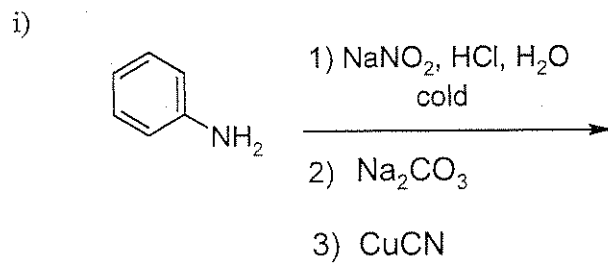


g)

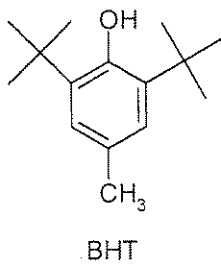


h)



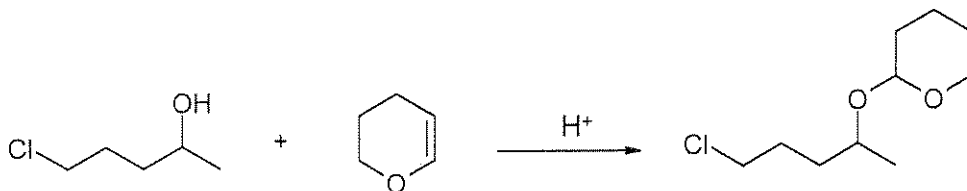


4. (5 pts) Explain how BHT acts as an inhibitor to autooxidation in foods.



5. (8 pts) a) Give the complete mechanism for the following reaction.

b) What conditions are used to remove this protecting group in the product to go back to the original alcohol?

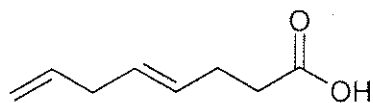


6. (4 pts, 2 each) Give the autooxidation products of:

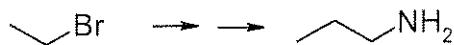
Autooxidation product

a) $\text{CH}_3\text{CH}_2\text{CHO}$

b)



7. (6 pts) Show how you could make the 1-propanamine from bromoethane.



8. (11 pts) Prepare



Show all reagents and the structure of the product after each step.

9. (8 pts) Design a synthesis using the given starting materials and any other needed reagents to make the compound shown below. Show all reagents and the structure of the product after each step.

