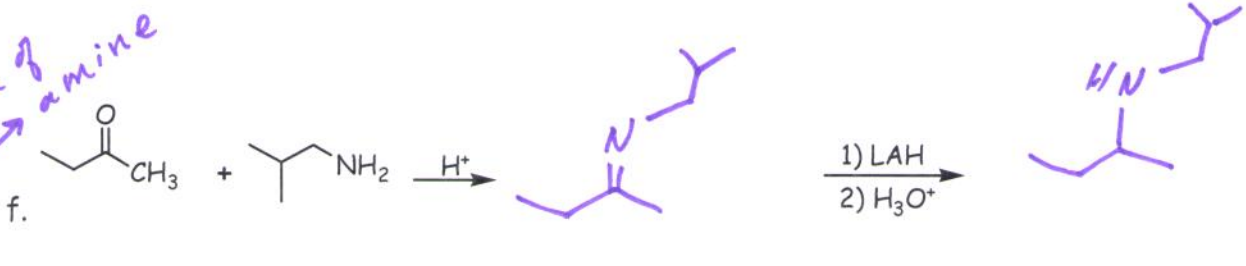
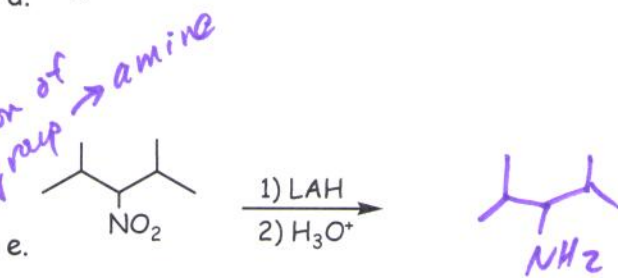
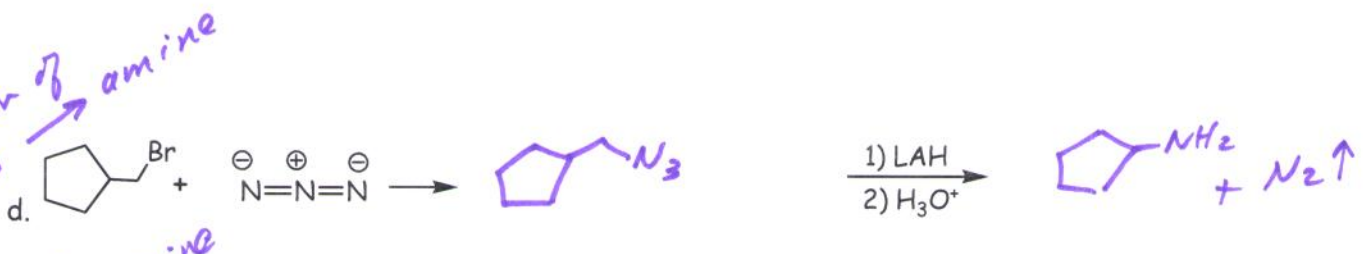
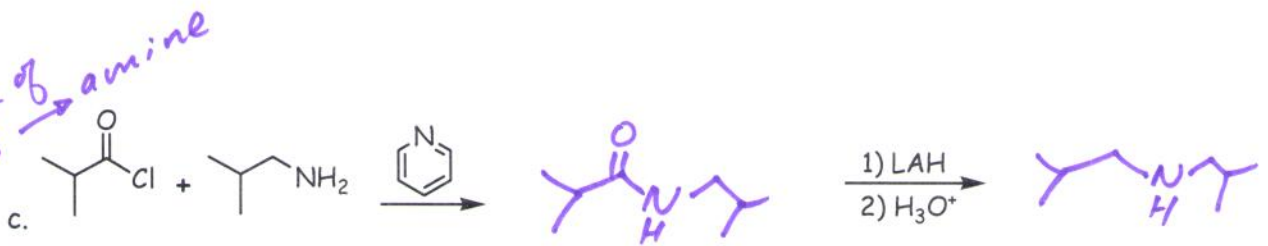
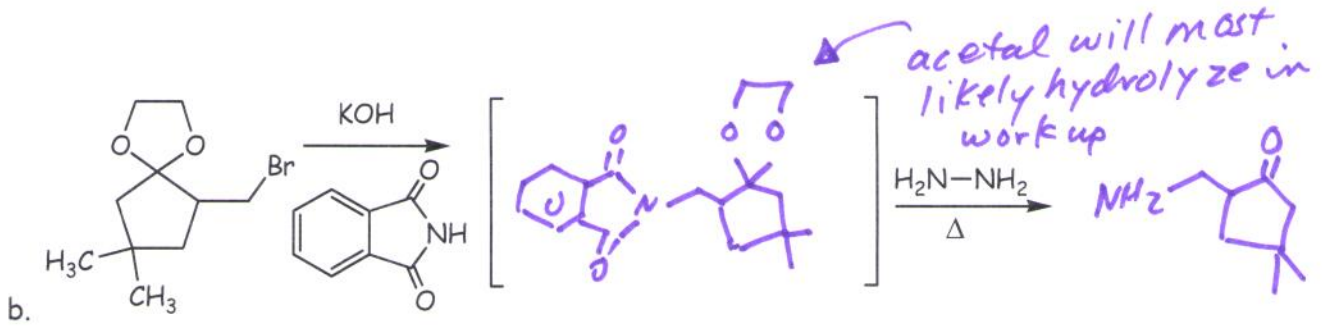
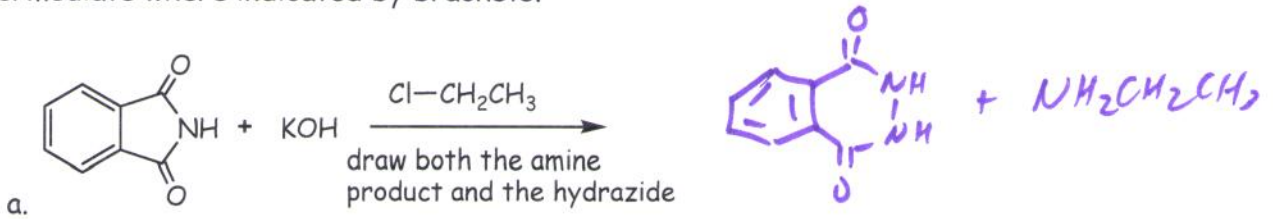


NAME KEY

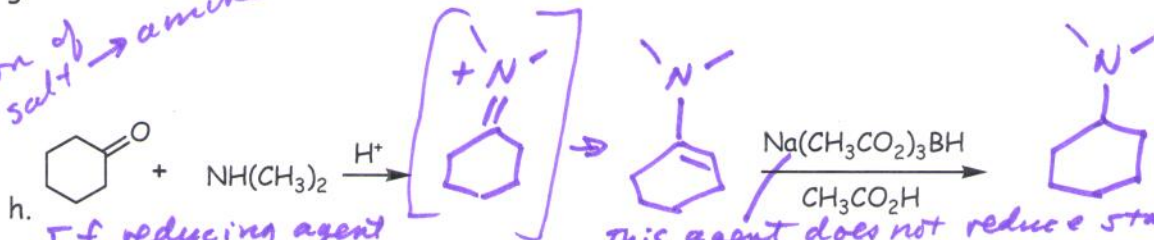
1. Some of these are two-step transformations; draw the product of each reaction. Include the intermediate where indicated by brackets.



*reduction of oxime → amine*



*reduction of iminium salt → amine*

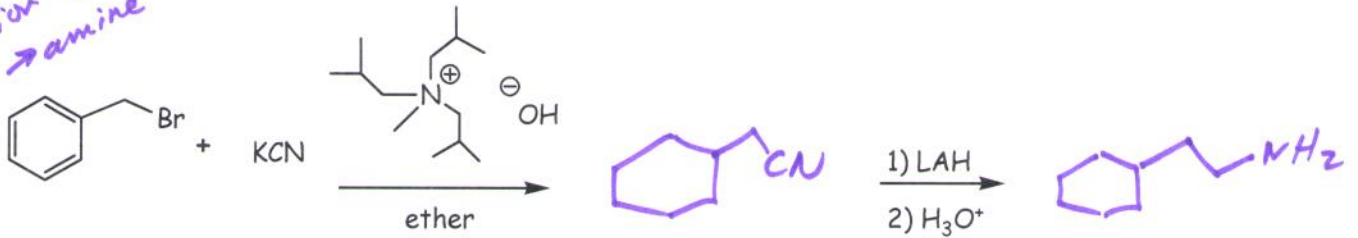


*If reducing agent is present, the iminium salt is reduced directly to amine*

*This agent does not reduce starting ketone*

2. Draw both products in this 2-step sequence.

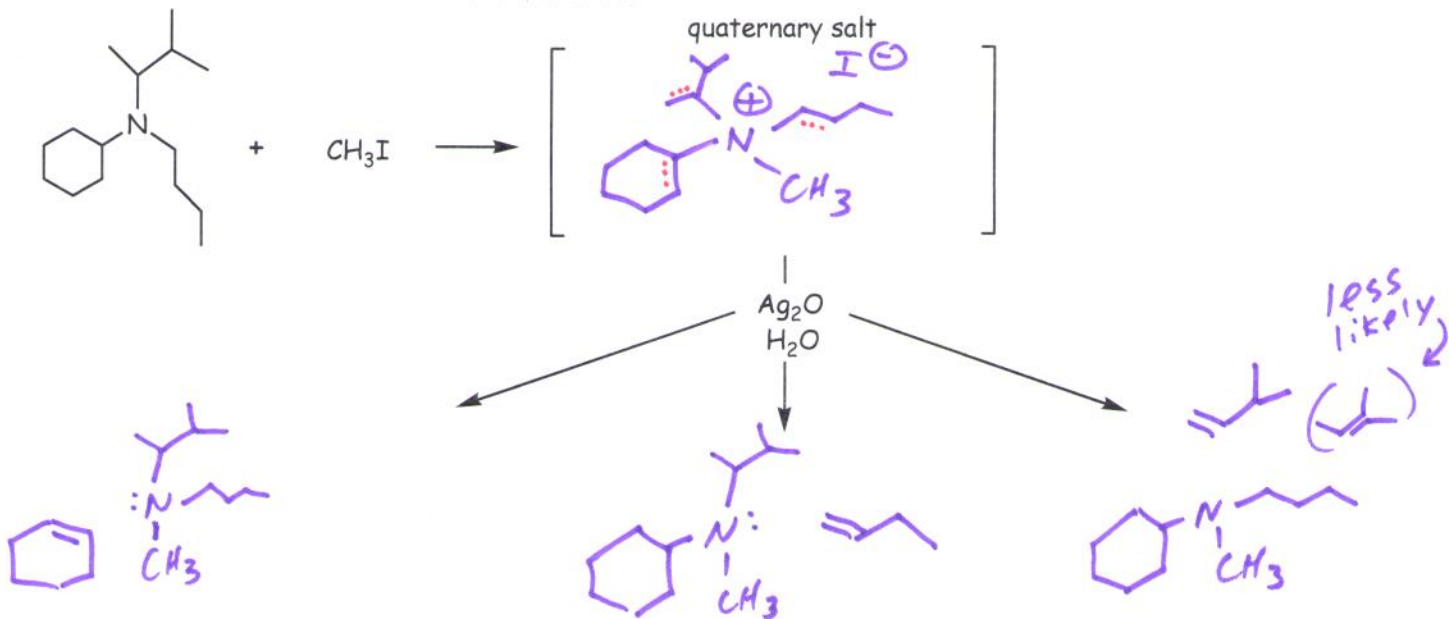
*reduction of nitrile → amine*



What is the purpose of the quaternary salt in the first step?

*facilitate transfer of CN(aq) to organic phase*

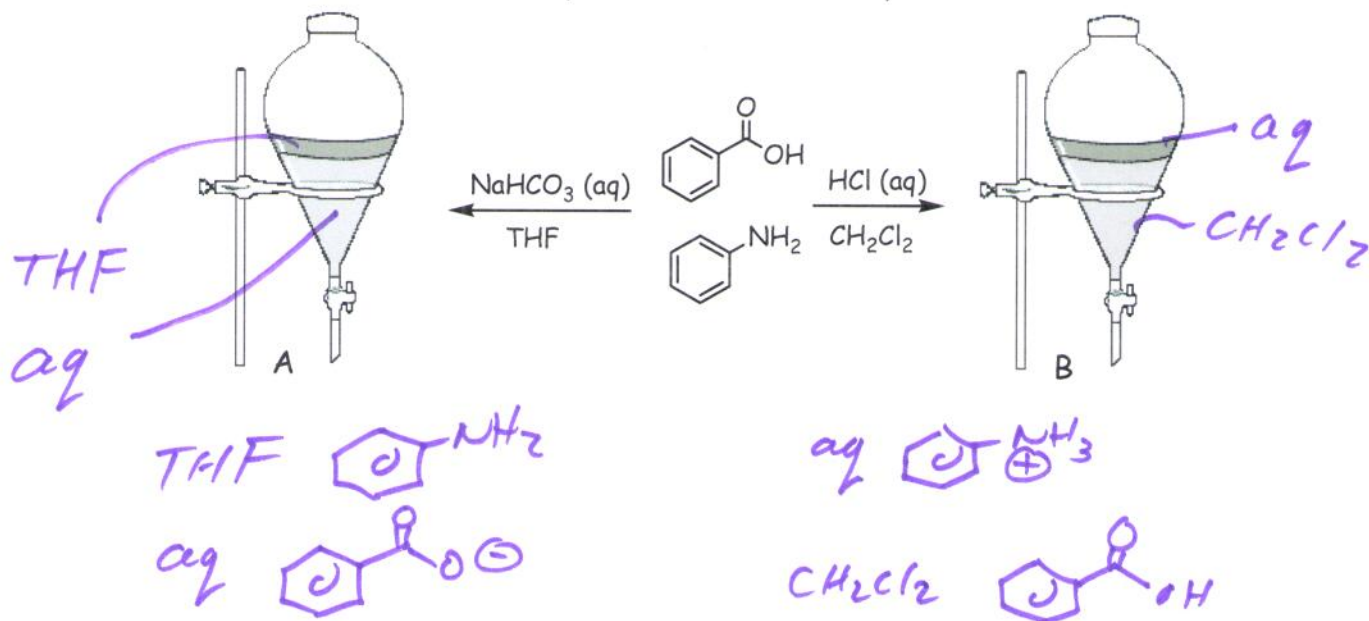
3. Draw the intermediate in brackets then draw all possible alkenes formed by Hofmann elimination. Predict which alkene is favored.



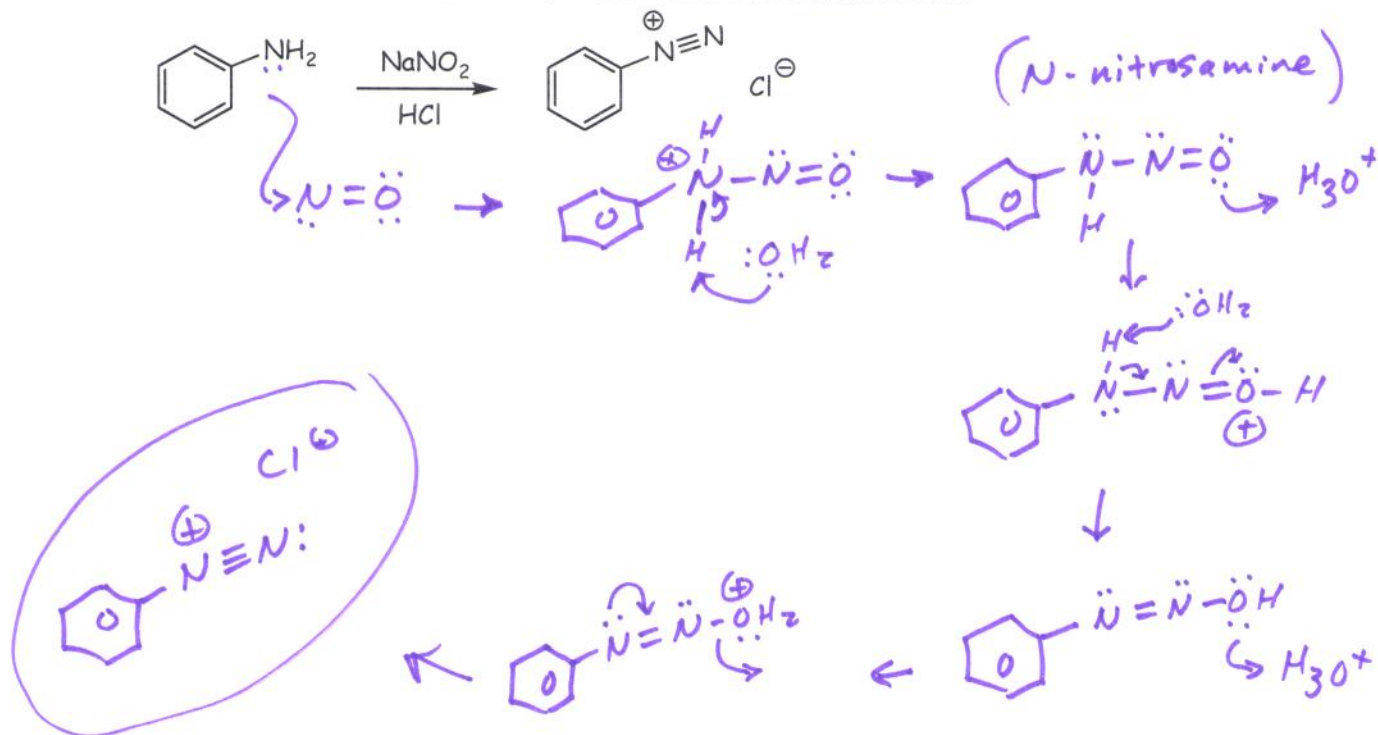
4. A mixture (A) of benzoic acid and aniline is dissolved in THF and treated with sodium bicarb. Another sample (B) of this mixture was dissolved in methylene chloride and treated with HCl.

For each sep funnel:

- identify the top layer (organic or aq.)
- draw the structure of the component in the top layer
- draw the structure of the component in the bottom layer



5. Draw the mechanism for the formation of the diazonium salt:



6. Draw the structures for A-D

