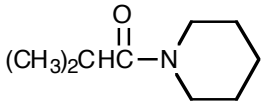
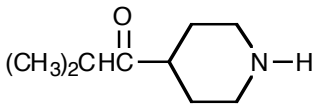
Names: _____
Chem 227 / Dr. Rusay

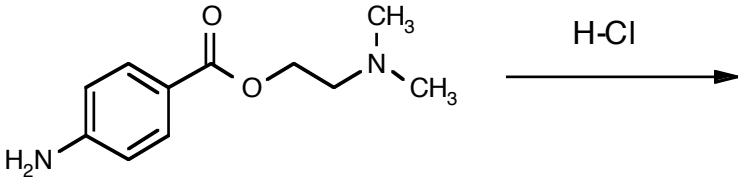
Amines: Reactions & Syntheses

1. The following compounds are liquids, which were stored in two unlabeled bottles. Both compounds are insoluble in water. Using pH as a controlling feature, provide a simple solubility test that can determine which bottle contains which compound. Give the chemical reaction and the pH for the positive test (a homogeneous solution). Briefly explain which spectroscopic method could most easily be used to distinguish the two compounds and what exact information would be applied.





2. Provide the structure of Novocain, which is the salt formed from Procaine (structure shown) and one equivalent of hydrogen chloride. Show arrows to indicate electron movements in forming the product.

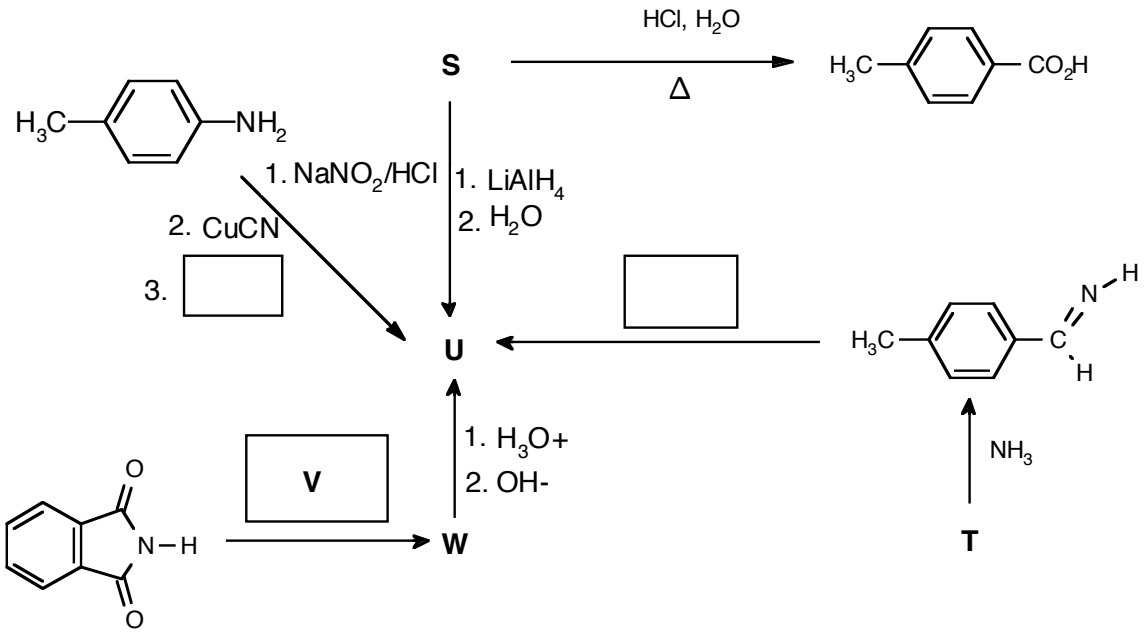


Briefly explain the basis for which nitrogen you chose to react.

3. Briefly explain, the conceptual basis for the separation of a racemic mixture into its enantiomeric components.
SEE: *http://chemconnections.org/organic/chem226/Presentations/Stereochemistry/Optical%20resolutions-12.htm*

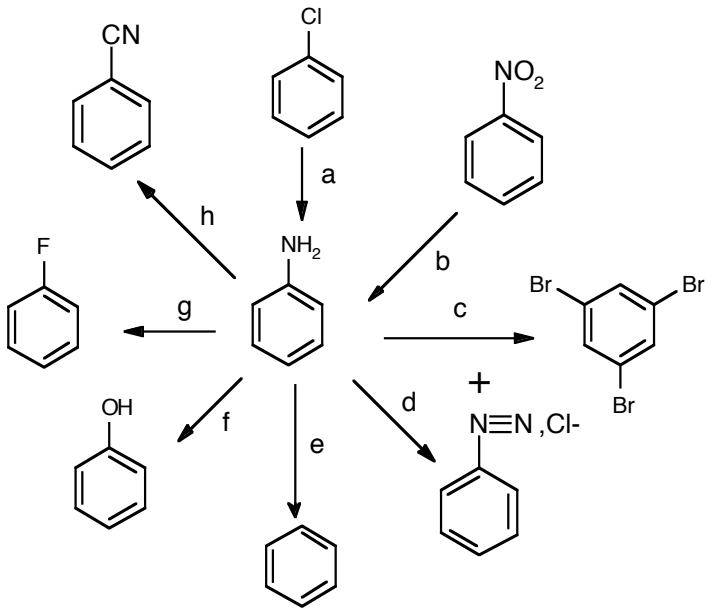
Draw a complete flow chart showing reagents, structures, and reactions that employ a generic optically active amine, (+)–RNH_2, to resolve a racemic mixture of (±)–lactic acid.

4. Give structures for compounds **S** through **W** and specify missing reagents in the boxes of the following scheme.



S	
T	
U	
V	
W	

5. Provide reagents necessary to bring about each of the conversions indicated by an arrow. More than one reagent and more than one step may be necessary.



a	
b	
c	
d	
e	
f	
g	
h	