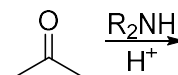
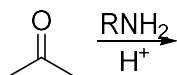
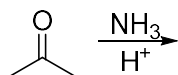


Experiment 22

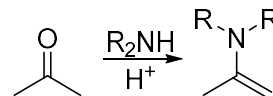
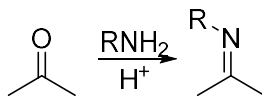
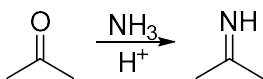
Liquid Crystals: Synthesis of a Chiral Dopant

Study Questions

1) Show the products of the following reactions.



Answer:



- 2) These dopants contain an imine group, which is sensitive to hydrolysis – it breaks down over time in the presence of water. What is the mechanism for this reaction? **Answer:** The reverse of the imine formation mechanism.
- 3) What properties would you expect the two dopant molecules to share? What properties would you expect them not to share? How would you measure any properties that were different between them? **Answer:** all physical properties between molecules should be identical except their interaction with polarized light. This could be measured using a polarimeter – one enantiomer should be levorotatory or (-), and one should be dextrorotatory or (+).
- 4) A cholesteric phase was seen to reflect blue light exclusively. Estimate the pitch of this phase. **Answer:** Blue light falls into the wavelengths of 435-480 nm, so the pitch is likely somewhere in this range.

