

## Chem 345 – Organic Reactions

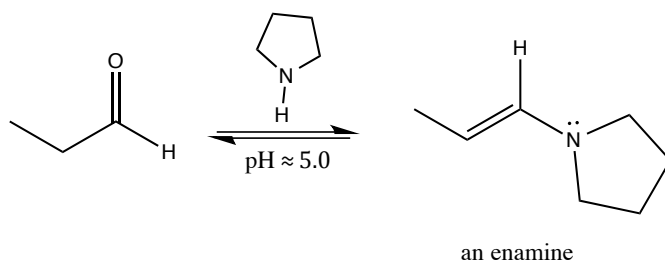
### Chapter 19

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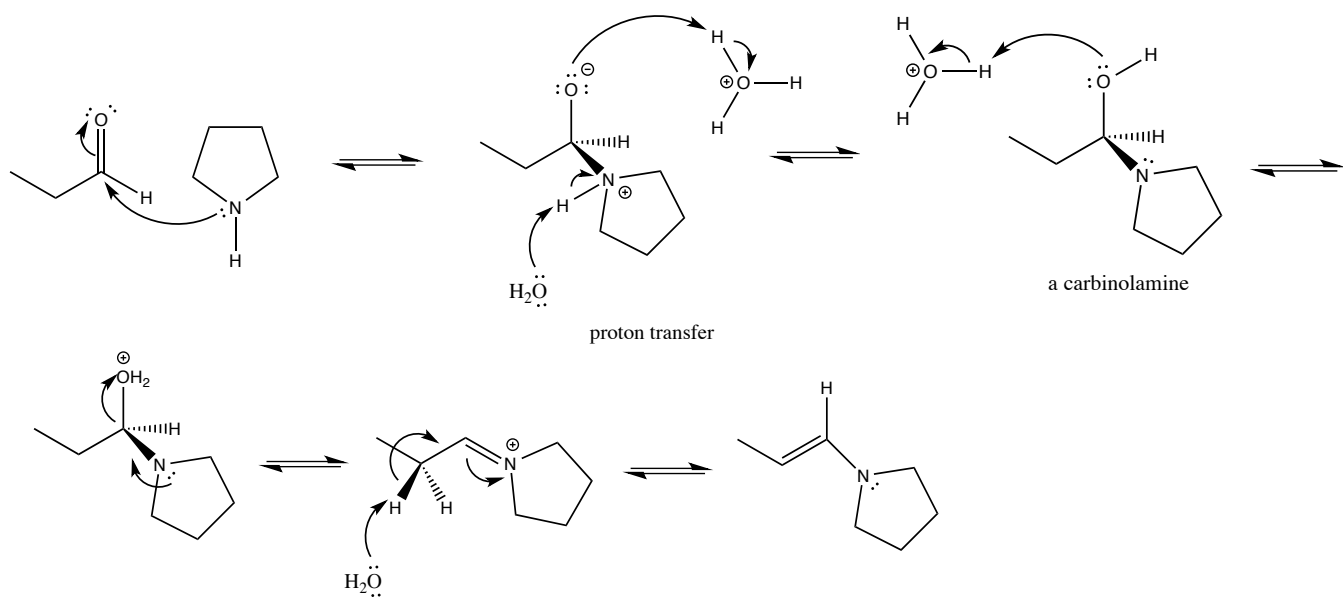
<http://www.chem.wisc.edu/areas/clc> (Resource page)

#### Secondary Amine Derivatives of Aldehydes and Ketones

Reaction:



Mechanism:



Enamines are masked carbonyl compounds. They're very useful in synthesis. As with acetals water is part of the condensation reaction. The more stable the enamine product the greater the equilibrium shift toward products.

If the reaction is carried out in an inert neutral solvent, no acid present, the nitrogen being a good nucleophile will attack the carbonyl and eventually a hydroxide is kicked out and acting as a base abstracts a proton to produce the enamine. The mechanism for this neutral reaction is shown below.

