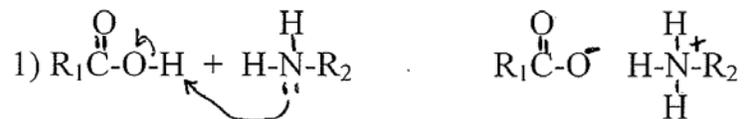
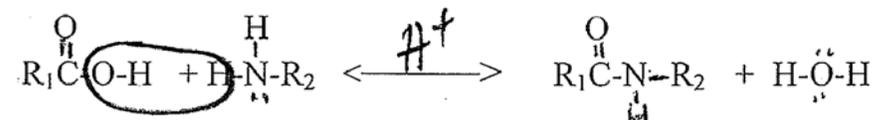


7.5 Reactions of Carboxylic Acids and Amines

1) at **low temperature** a simple acid-base reaction occurs

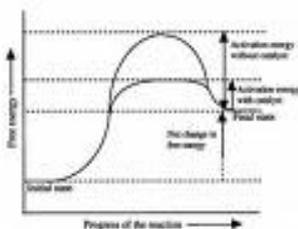


2) at **high temperatures** or with suitable enzymes they form an amide and water.



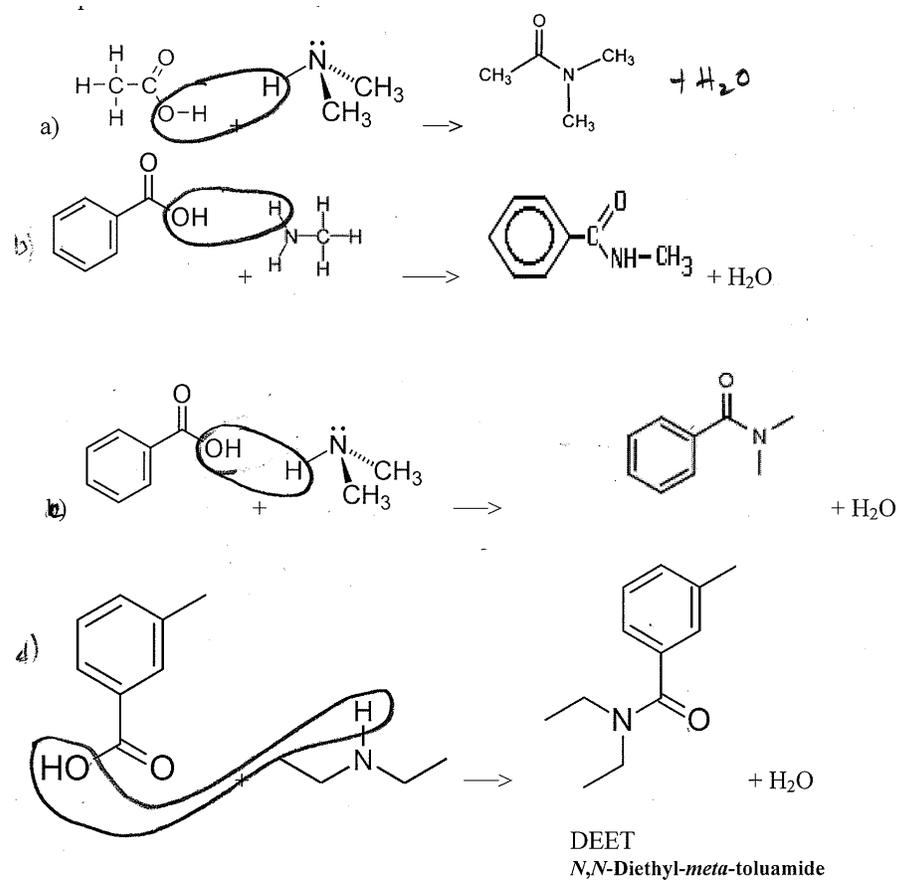
Notice that this second reaction is analogous to the formation of an ester from an alcohol and carboxylic acid in several ways:

- 1) A water molecule is “split out” when the two molecules react
- 2) The reaction is **endergonic reversible**.



Sample problems:

Write the structure of the **amide products** formed from the following molecules at high temperature:



Practice problems

