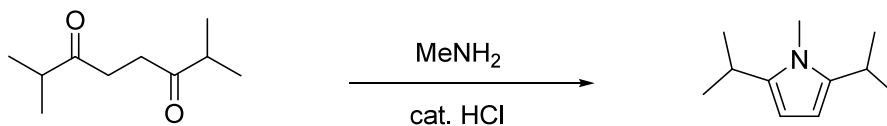
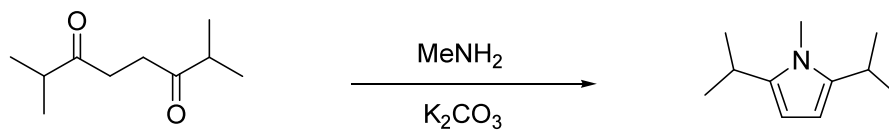


PS #9 Practice Questions – Synthesis of Aromatic Heterocycles; Condensations and 1,3-Dipolar Cycloadditions

Part I. Pyrrole rings are commonly formed ring by condensing a primary amine (nucleophile) with a 1,4-dicarbonyl compound. Show the detailed mechanism for the acid catalyzed formation of the pyrrole ring (including all proton transfer steps).



Part II. Show the detailed mechanism for the base catalyzed formation of the pyrrole ring (including all proton transfer steps).



Part III. Complete the following heterocycle forming reactions by filling in the boxes with the appropriate product or reagent(s). Refer to pages 1185 – 1191, 1195 – 1198, and 1202 – 1203 in Clayden and Greeves.

