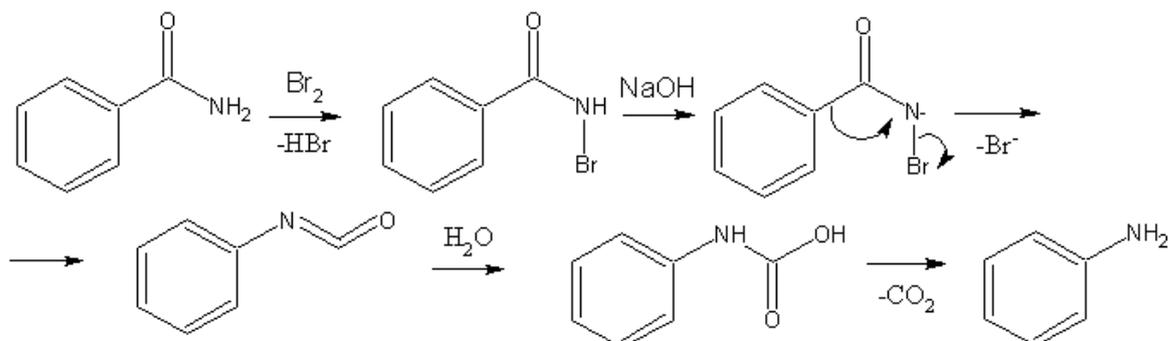


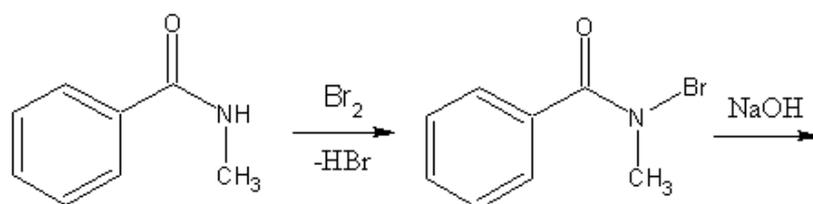
1. Why benzamide undergo H.r. and not N-methylbenzamide?

Solution:

The first compound undergoes Hoffman rearrangement because it has H-atom connected with nitrogen atom. The mechanism is following:



The second compound doesn't undergo the same rearrangement due to the absence of H-atom in the same position as the first one has. (NaOH is a base and it takes away H-atom to form the negative charge on the nitrogen atom.) The reaction stops at the second stage, as shown below:



2. How it can be called an rearrangement?

Solution: It is called the rearrangement, because during it the position of carbon atom from the carbonyl group is changed: before it is connected with the radical and nitrogen atom and after (the product before the decarboxylation) it is connected only with nitrogen. It can also be said, that that carbon becomes *terminal*. So, despite the last step is decarboxylation, the whole reaction is called rearrangement.