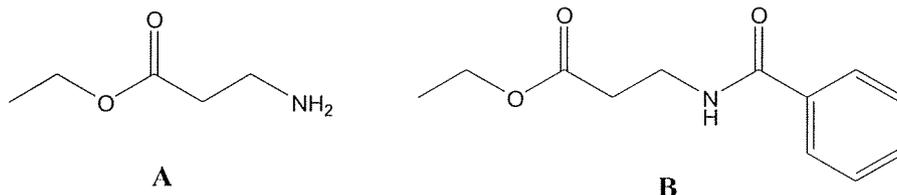
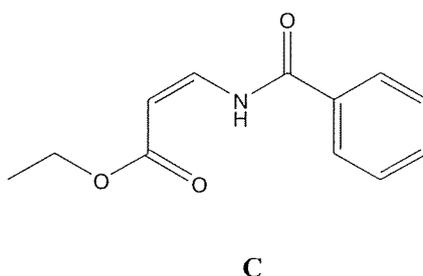


Problem 22: Oxidation and reduction in organic synthesis

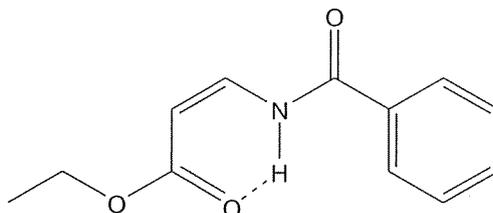
22-1.



22-2.



22-3. The *cis*-conformation of the olefin allows the strong hydrogen bonding between the proton of the amide and the carbonyl oxygen of the ester as shown in the following structure.



The strong hydrogen bonding moved the chemical shift of the amide proton toward further down-field.

次の図に示すように、このオレフィンのシス-配座はアミドのプロトンとエステルのカルボニル酸素の間に強い水素結合を作らせることになる。

この強い水素結合によってアミド基のプロトンは大きく低磁場側に移動した。