1. The oxidation of acetals by electrophilic ozone is known to be sensitive to structure. Two striking examples of different reactivity are detailed in the question below. Using clear three-dimensional drawings provide a rationale for the observation that rigid glycoside A readily undergoes oxidation but glycoside B does not. Be sure to indicate all relevant stereoelectronic interactions.


2. Provide a mechanism for the following reaction:


3. During the course of the Overman synthesis of pumilotoxin the indicated transformation was carried out with the expectation that the bicyclic ketone 2 would be enantiopure since the starting amine 1 was enantiomerically pure. Surprisingly, product 2 was obtained as a racemate.


Provide a mechanism for this transformation that accounts for the illustrated stereochemical outcome.