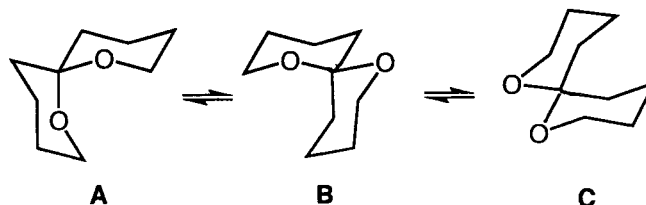


Week 4 Problem Set
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1. The 3 possible conformations of the spiroacetal are labeled **A**, **B**, and **C**, (Delongchamps, P. et al. *Can. J. Chem.* **1981**, *59*, 1105), Only one conformation exists.

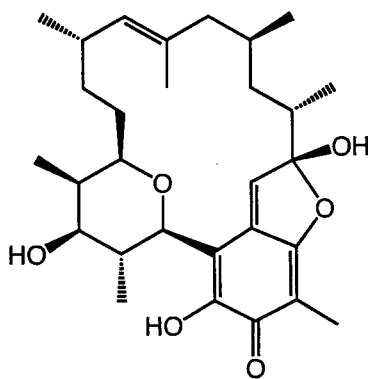


i) Circle which conformation is most likely to exist.

ii) Briefly explain why this is the prevalent conformation. Please include an orbital argument and a corresponding orbital picture.

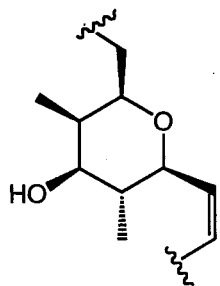
2. Kendomycin is an anti-osteoporotic agent that was recently synthesized by Lee and coworkers (*J. Am. Chem. Soc.* **2004**, *126*, 14720).

i) Designate each chiral center as *R* or *S*.

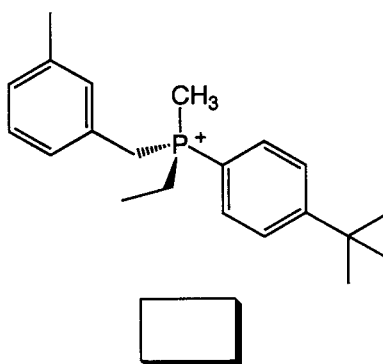
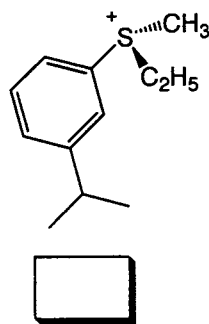


Kendomycin

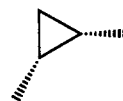
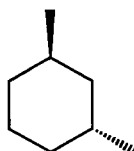
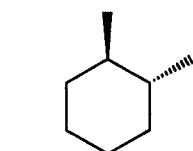
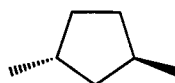
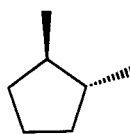
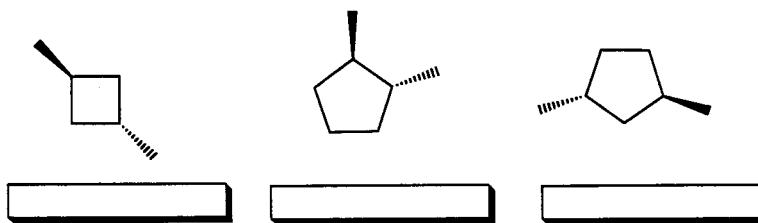
ii) Draw this portion of Kendomycin its most stable conformation.



3) Designate each chiral center *R* or *S*.



4) Designate each cycloalkane *chiral* or *achiral*.



5. Label each structure compared to the one in the box as *same*, *enantiomer*, *diastereomer* or *structural isomer*.

