II. Draw all the possible chair conformations for 1,4-dimethylcyclohexane. Arrange the order of stability for these chair conformations. Briefly explain your reason. (10 points)

*Trans* isomers:

![Diagram](image)

*Cis* isomers:

![Diagram](image)

Stability:

\[ B > C \ (D) > A \] (compounds C and D are identical)

Methyl group at axial position creates unfavorable 1,3-diaxial interaction.

1,3-diaxial interaction

![Diagram](image)