



Fill in the Blank Questions on Conformation Isomers

1. Conformation isomers, also known as conformers, are different spatial arrangements of atoms that can be interconverted by _____ about single bonds.
2. The most common type of conformational analysis is performed on _____ alkanes.
3. Conformers differ in energy due to _____ strain, _____ strain, and _____ strain.
4. In ethane, the staggered conformation is _____ stable than the eclipsed conformation.
5. The energy difference between the staggered and eclipsed conformations of ethane is approximately _____ kJ/mol.
6. The most stable conformation of butane is the _____ conformation.
7. In cyclohexane, the chair conformation is _____ stable than the boat conformation.
8. The energy barrier to rotation about the carbon-carbon single bond in ethane is called _____ energy.
9. Conformational isomerism is most significant in molecules with _____ bonds.
10. The _____ conformation of cyclohexane has no torsional strain.
11. Axial and equatorial positions are terms used to describe the positions of substituents in _____ conformation of cyclohexane.
12. The _____ interaction in butane occurs when the methyl groups are 60 degrees apart.
13. Conformational analysis is useful in understanding the _____ and _____ of molecules.
14. The _____ conformation of butane occurs when the two methyl groups are 180 degrees apart.
15. In cyclohexane, the _____ positions are generally more favorable for larger substituents due to reduced steric hindrance.

Answer Key

1. Rotation
2. Acyclic
3. Torsional, steric, angle
4. More
5. 12.5
6. Anti-periplanar
7. More
8. Torsional
9. Single
10. Chair
11. Chair
12. Gauche
13. Stability, reactivity
14. Anti
15. Equatorial