Answer on Question #80520, Chemistry/ Organic Chemistry

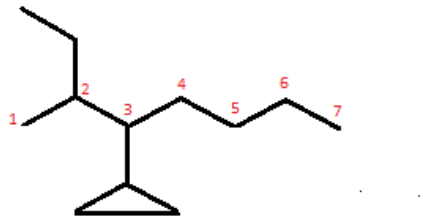
QUESTION 1: [ALKANES; CYCLOALKANES]

(a). Consider the molecule 2-ethyl-3-cyclopropylheptane. Sighting along the C4—C5 bond, answer the following questions. (i). Draw the Newman projection of a gauche conformation; (2) (ii). Draw the Newman projection of an anti-conformation. (2)

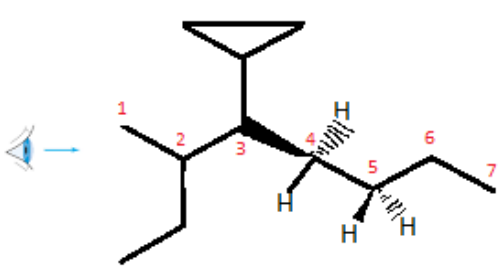
(b). Consider the molecule 1,4-dimethylcyclohexane. Answer the following questions. (i). Draw a chair conformation for the cis- and trans-isomers of 1,4-dimethylcyclohexane. (4) (ii). Name another conformation that the cyclohexane ring can adopt and use either the cis- or trans-isomer drawn in (i) above to represent this structure

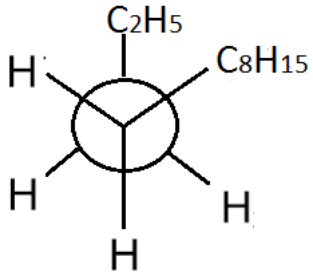
Answer

(a) 2-ethyl-3-cyclopropylheptane.

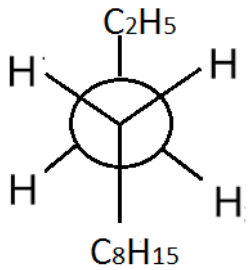


(i). Draw the Newman projection of a gauche conformation



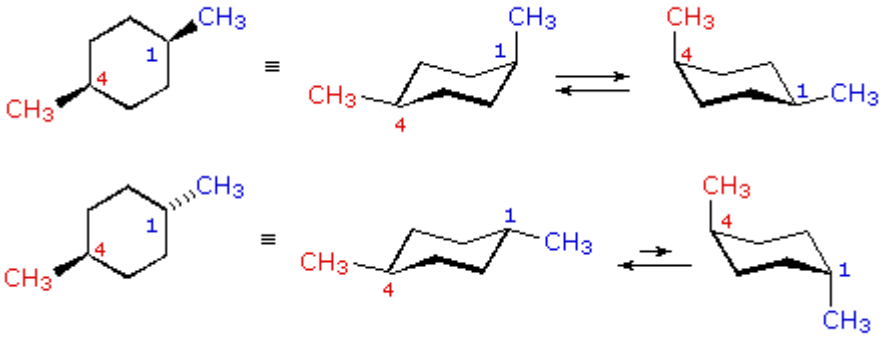


(ii). Draw the Newman projection of an anti-conformation.



(b) 1,4-dimethylcyclohexane

(i). Draw a chair conformation for the cis- and trans-isomers of 1,4-dimethylcyclohexane.



(ii). Name another conformation that the cyclohexane ring can adopt and use either the cis- or trans-isomer drawn in (i) above to represent this structure

Another conformation is a “boat”. For cis-isomer