

Unit 8 - Week 6

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Assignment Solution

Assignment 6

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2019-09-11, 23:59 IST.

1) Which of the following correctly lists the conformations of cyclohexane in order of increasing energy? 1 point

a. chair < boat < twist boat < half-chair
 b. half-chair < boat < twist boat < chair
 c. chair < twist boat < half-chair < boat
 d. chair < twist boat < boat < half-chair

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: d.

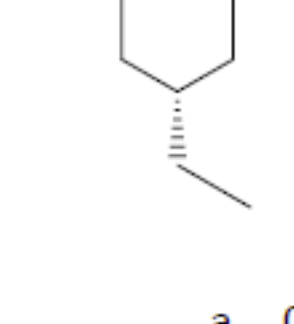
2) The energy difference between the axial and equatorial conformers of methyl cyclohexane is: (assume one gauche butane interaction energy to be 0.9 kcal/mol) 1 point

a. < 0.1 kcal/mol
 b. 0.9 kcal/mol
 c. 1.8 kcal/mol
 d. 2.5 kcal/mol

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: c.

3) In the lowest energy conformation of the compound below, how many alkyl substituents are axial? 1 point



a. 0
 b. 1
 c. 2
 d. 3

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: b.

4) Which of the statements below correctly describes the chair conformations of *trans*-1,3-diethylcyclohexane? 1 point

a. The two chair conformations are equal in energy.
 b. The higher energy chair conformation contains two axial ethyl groups.
 c. The lower energy chair conformation contains two equatorial ethyl groups.
 d. The two chair conformations have mirror image relationship.

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: a.

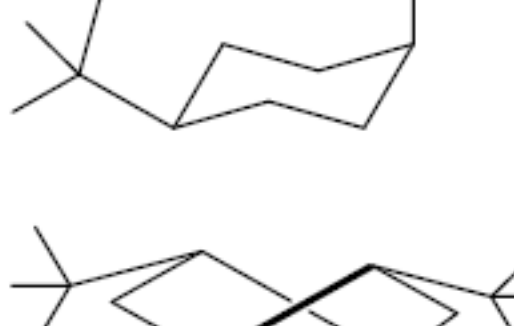
5) Which of the following statements is a correct description of the most stable conformation of 1,1,3-trimethyl cyclohexane? 1 point

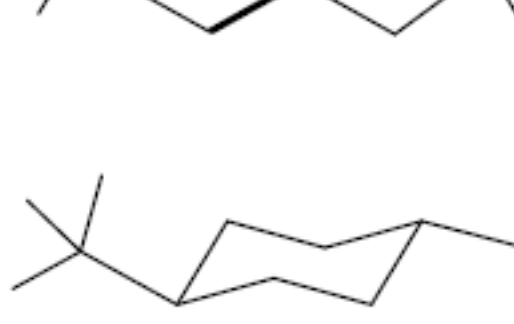
a. The methyl group at C-3 is equatorial.
 b. Both methyl groups at C-1 are equatorial.
 c. Two amongst the three methyl groups are axial.
 d. The methyl group at C-3 is axial.

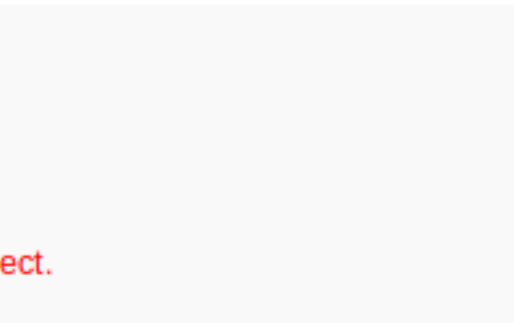
a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: a.

6) The preferred conformation of *cis*-1, 4-di-*t*-butylcyclohexane is 1 point

a. 

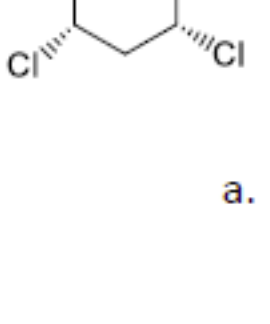
b. 

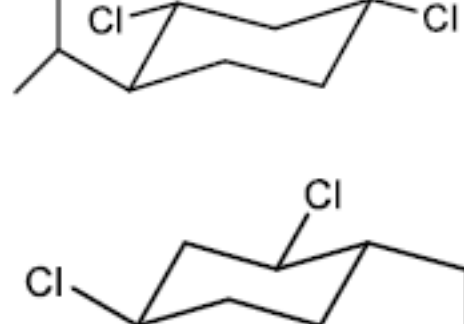
c. 

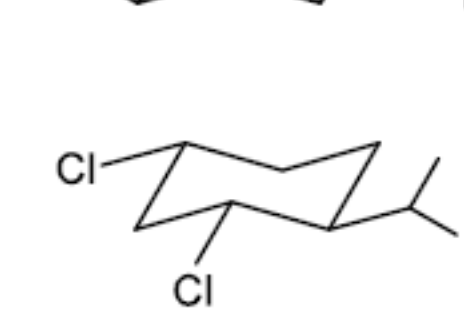
a.
 b.
 c.

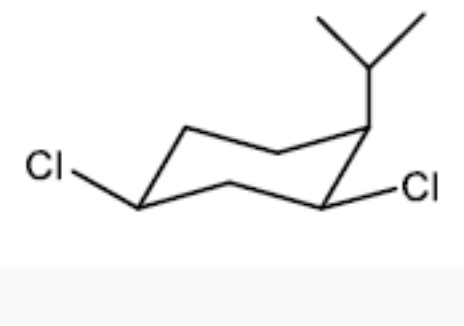
No, the answer is incorrect.
 Score: 0
 Accepted Answers: b.


7) Which structure is different from the following? 1 point



a. 

b. 

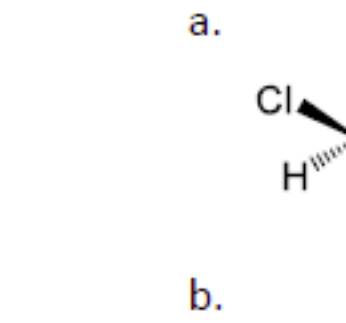
c. 

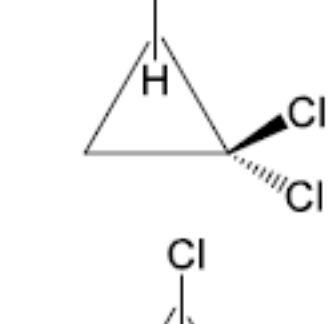
d. 

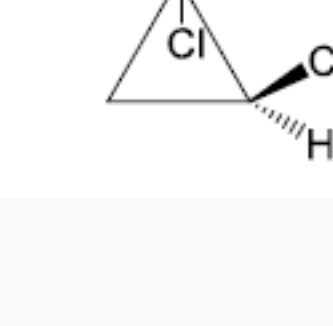
a.
 b.
 c.
 d.

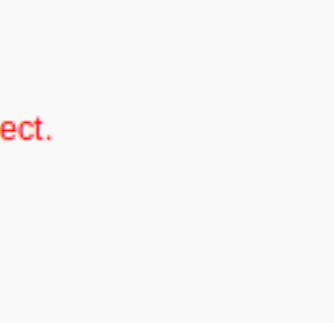
No, the answer is incorrect.
 Score: 0
 Accepted Answers: d.

8) Which structure is same with the following? 1 point



a. 

b. 

c. 

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: b.

9) The ratio of populations of equatorial to axial methyl cyclohexane at 27 °C is approximately equal to (assuming no entropy difference between the two conformations) 1 point

a. 20 : 1
 b. 10 : 1
 c. 15 : 1
 d. 25 : 1

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: a.

10) The difference in energy between the preferred conformations of 9,10-dimethyl *cis* and *trans* decaline is 1 point

a. 0 kcal/mol
 b. 0.9 kcal/mol
 c. 1.8 kcal/mol
 d. 2.7 kcal/mol

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: a.

11) The energy difference between the preferred conformations of *cis* and *trans*-1,2-dimethylcyclohexane is 1 point

a. 2.7 kcal/mol
 b. 1.8 kcal/mol
 c. 3.6 kcal/mol

a.
 b.
 c.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: b.

12) The relationship between the flipped forms of *cis*-1, 2-dimethylcyclohexane is 1 point

a. Identical
 b. Mirror images
 c. Conformational diastereomers
 d. They are neither Identical nor Mirror images of each other.

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: b.