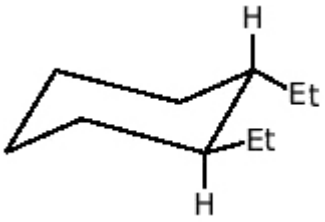
Description / Instructions: Kapittel 5, 6

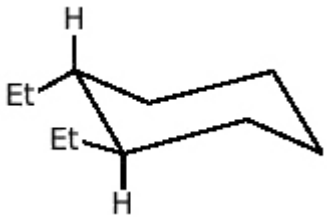
1. Problem 5.49

Select 2 correct structures for *trans*-1,2-diethylcyclohexane

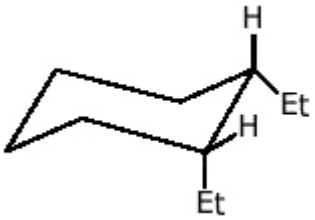
a.



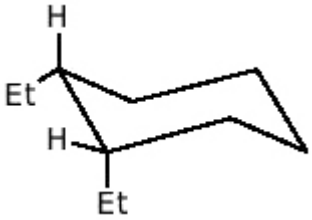
b.



c.



d.



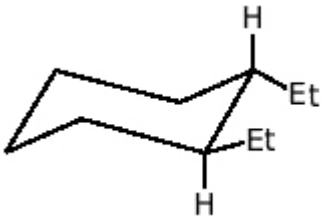
Answer: _____

Are these structures superposable?

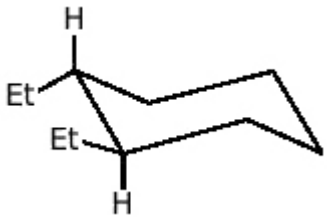
Are they interconvertable through a "ring flip"?

Select 2 correct structures for *cis*-1,2-diethylcyclohexane

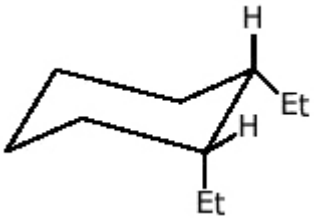
a.



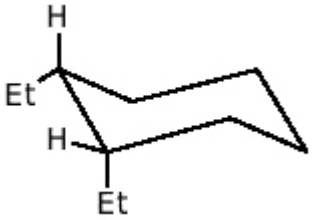
b.



c.



d.



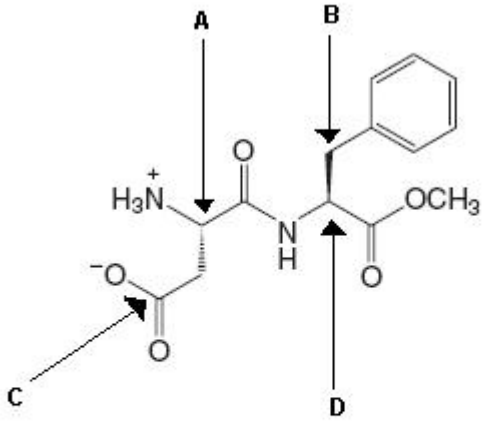
Answer: _____

Are these structures superposable?

Are they interconvertable through a "ring flip"?

2. Problem 5.46

Aspartame is an artificial sweetener. Give the (*R*, *S*) designation for each chirality center of apartame.



Aspartame

A:

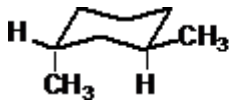
B:

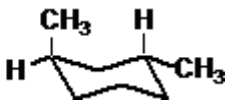
C:

D:

3. Testbank Question 46

The structures





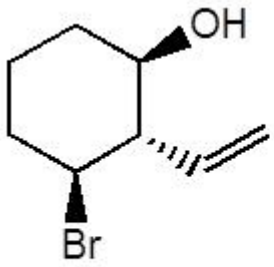
represent:

a. a single compound.
b. enantiomers.
c. meso forms.
d. diastereomers.
e. conformational isomers.

Answer: _____

4. Testbank Question 48

I and II are:



I

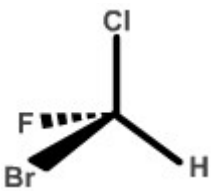
II

a. constitutional isomers.
b. enantiomers.
c. identical.
d. diastereomers.
e. not isomeric.

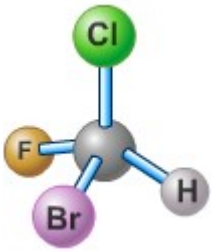
Answer: _____

5. Skill Building Exercise: Visualizing in 3D/ Problem 1

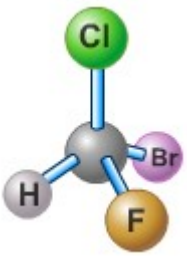
Find an orientation that is consistent with the perspective drawing.



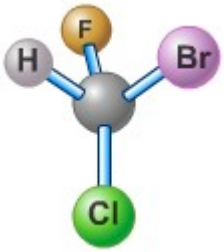
a.



b.



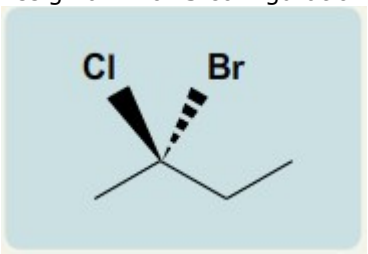
c.



Answer: _____

6. Skill Building Exercise: Stereocenters/ Problem 13

Assign an R or S configuration to the stereocenter in this compound.



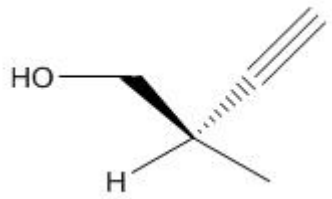
a. (S)-2-bromo-2-chlorobutane

b. (R)-2-bromo-2-chlorobutane

Answer: _____

7. Testbank Question 14

What is IUPAC name of the following compound?

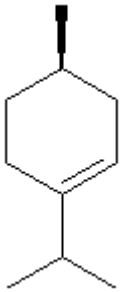


a. (R)-2-methyl-3-butyn-1-ol
b. (S)-2-methyl-3-butyn-1-ol
c. (R)-2-methyl-1-butyn-3-ol
d. (S)-2-methyl-1-butyn-3-ol
e. None of these choices

Answer: _____

8. Prelecture, Question 6

What is the configuration of the chiral carbon in the structure below?

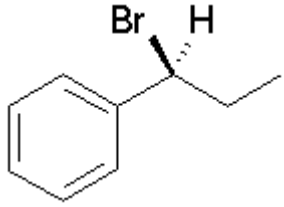


a. S
b. R

Answer: _____

9. Prelecture, Question 8

What is the configuration of the chiral carbon in the structure below?



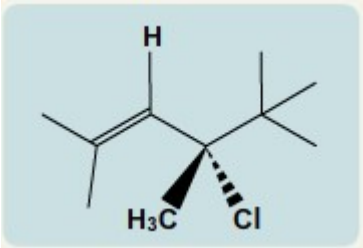
a. R

b. S

Answer: _____

10. Skill Building Exercise: Stereocenters/ Problem 15

Assign an R or S configuration to the stereocenter in this compound.



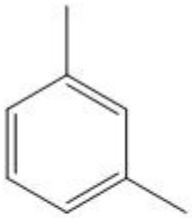
a. (S)-4-Chloro-2,4,5,5-tetramethylhex-2-ene

b. (R)-4-Chloro-2,4,5,5-tetramethylhex-2-ene

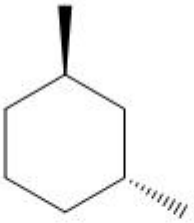
Answer: _____

11. Testbank Question 6

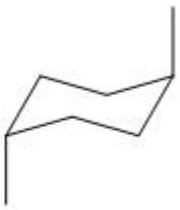
Which of the following compounds are chiral?



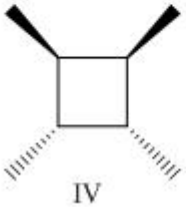
I



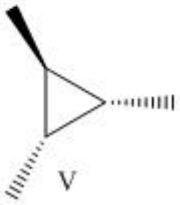
II



III



IV



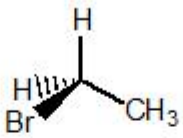
V

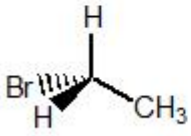
a. I, IV, and V
b. II only
c. II and III
d. III only
e. all compounds are achiral

Answer: _____

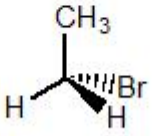
12. Testbank Question 16

Which of the following is the enantiomer of the following substance?

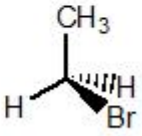




I



II



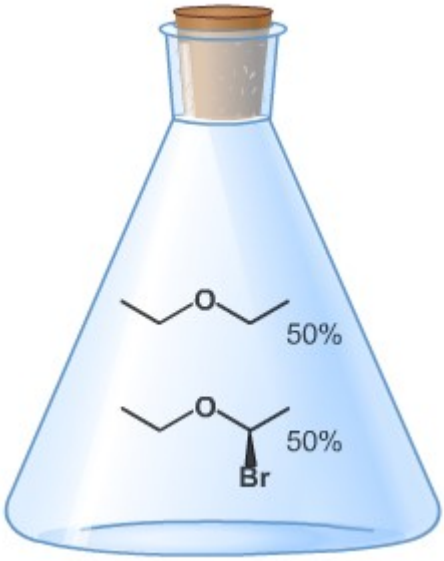
III

a. I
b. II
c. III
d. Both II and III.
e. It does not have a nonsuperposable enantiomer.

Answer: _____

13. Skill Building Exercise: Recognizing optically active samples/ Problem 20

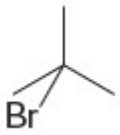
Determine whether the sample shown in the flask will rotate plane polarized light.



a. Optically active.
b. Optically inactive.

Answer: _____

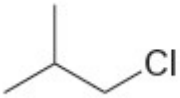
14. Problem 6.20

(a)  or 

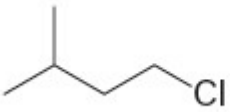
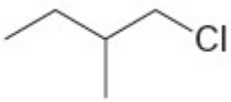
[ ] is more reactive in an S_N2 reaction because [ ] and is therefore [ ].

(b)  or 

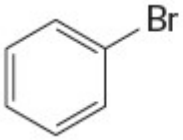
[ ] is more reactive in an S_N2 reaction because [ ].

(c)  or 

[ ] is more reactive in an S_N2 reaction because [ ].

(d)  or 

[ ] is more reactive in an S_N2 reaction because [ ].

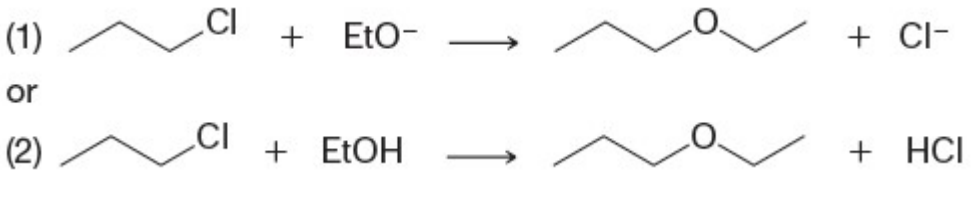
(e)  or 

[ ] is more reactive in an S_N2 reaction because [ ] and [ ].

15. Problem 6.21

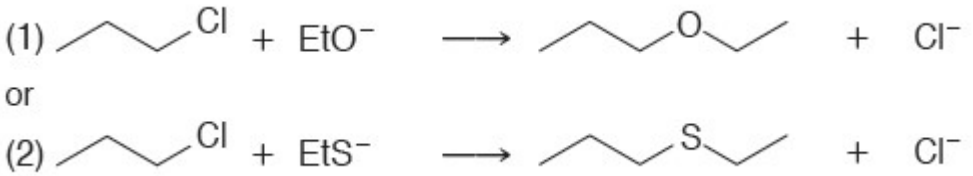
For each of the following pairs of reactions, identify which reaction would react more rapidly in an S_N2 reaction. Explain your choice in each case.

(a)



[ ] is more reactive in an S_N2 reaction because [ ] .

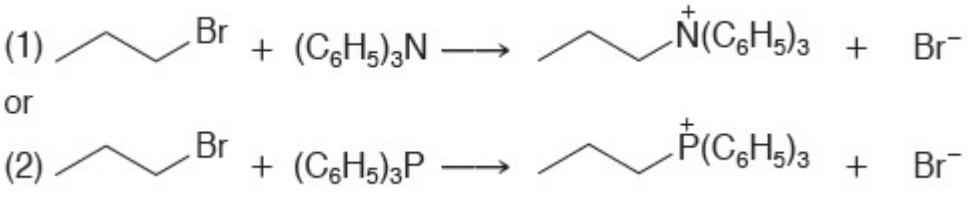
(b)



[ ] is more reactive in an S_N2 reaction because [ ]

because [ ] .

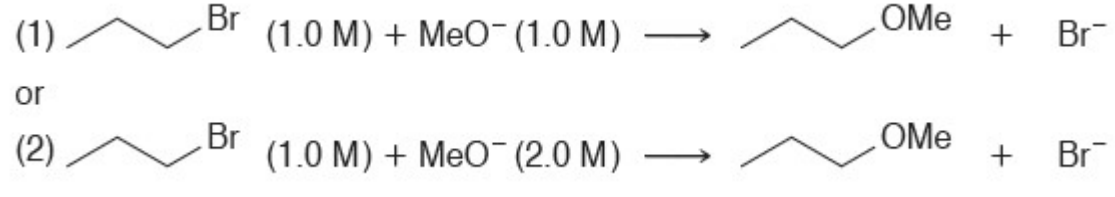
(c)



[ ] is more reactive in an S_N2 reaction because [ ]

because [ ] .

(d)



[ ] is more reactive in an S_N2 reaction because [ ] .

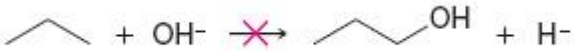
16. Problem 6.25

Listed below are several hypothetical nucleophilic substitution reactions. None is synthetically useful because the product indicated is not formed at an appreciable rate. In each case, provide an explanation for the failure of the reaction to take place as indicated.

a.) 

The reaction will not take place because the leaving group would have to be a

(n) [ ], a [ ], and a very poor leaving group.

b.) 

The reaction will not take place because the leaving group would have to be a

(n) [ ], a [ ], and a very poor leaving group.

c.) 

The reaction will not take place because the leaving group would have to be

a [ ], a [ ], and a very poor leaving group.

d.) 

The reaction will not take place by an S_N2 mechanism because the substrate is a

(n) [ ], and is, therefore, not susceptible to S_N2 attack

because [ ]. Instead, the reaction that will occur will

be [ ].

e.) 

The reaction will not take place because the leaving group would have to be a

_____.

a. CH_3^-

b. CH_2^-

c. CH_3OH

d. CH_3O^-

Answer: _____

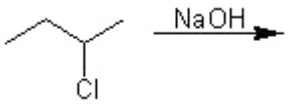
This is [ ], and a very poor leaving group.

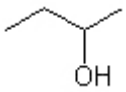
f.) 

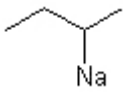
The reaction will not take place because the first reaction that would take place would be [ ] that would convert ammonia to [ ], which is not nucleophilic because [ ].

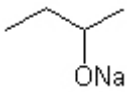
17. GO Tutorial: Predicting products of substitution reactions 1.3

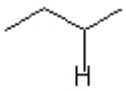
What would be the product of the following substitution reaction?



a. 

b. 

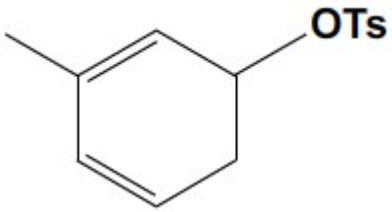
c. 

d. 

Answer: _____

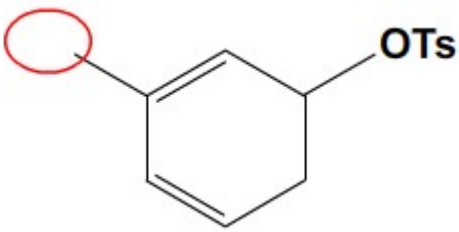
18. Skill Building Exercise: Factors that affect Leaving Groups/ Problem 1

Consider the following compound: (OTs = *p*-toluenesulfonate)

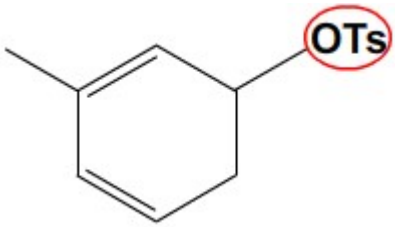


Identify the leaving group.

a.



b.



Answer: _____

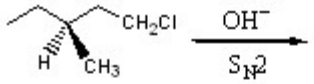
Indicate whether the leaving group is excellent, good or bad:

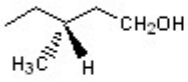
a. Bad
b. Good
c. Excellent

Answer: _____

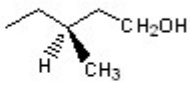
19. Testbank Question 86

What would be the major product of the following reaction?

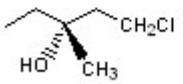




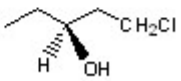
I



II



III



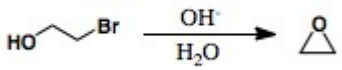
IV

a. An equimolar mixture of I and II
b. I
c. II
d. III
e. IV

Answer: _____

20. Problem 6.34 a

Draw the mechanism for the following reaction.

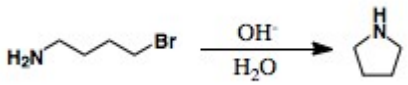


Part A: Draw part 1 of the mechanism. Include charges and lone pairs on your mechanism.

Part B: Draw part 2 of the mechanism. Include charges and lone pairs on your mechanism.

21. Problem 6.34 b

Draw the mechanism for the following reaction.



Part A: Draw part 1 of the mechanism. Include charges and lone pairs on your mechanism.

Part B: Draw part 2 of the mechanism. Include charges and lone pairs on your mechanism.