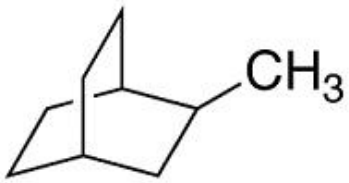
Description / Instructions: Repetisjon og Kap. 11

1. GO Tutorial: Naming bicyclo compound

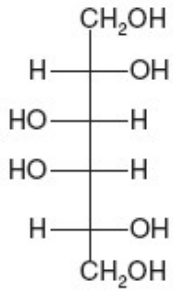
Give the systematic IUPAC name for the following.



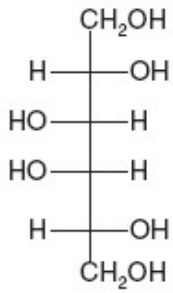
2. Learning Group Problem 5.2

D-Galactitol is one of the toxic compounds produced by the disease galactosemia. Accumulation of high levels of D-galactitol causes the formation of cataracts. A fischer projection for D-galactitol is shown below.

Draw a three-dimensional structure for D-galactitol.



Draw the 3-dimensional structure of the mirror image of D-galactitol and write its Fischer projection formula. Draw the horizontal substituents with solid wedges.



3-D Structure:

Fischer Projection:

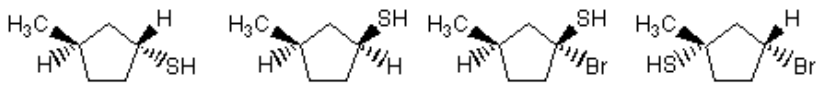
What is the stereochemical relationship between D-galactitol and its mirror image?

a. They are D and L forms of the same compound.
b. They share three of the four chiral centers.
c. They share two of the four chiral centers.
d. They share only one chiral center with each other.
e. They are identical.

Answer: _____

3. Testbank Question 100

What would be the major product obtained when trans-1-bromo-3-methylcyclopentane is allowed to react with NaSH at 25°C?



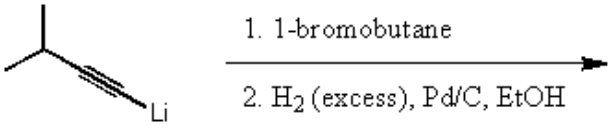
I II III IV

a. Equal amounts of I and II
b. I
c. II
d. III
e. IV

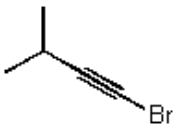
Answer: _____

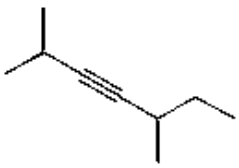
4. Testbank Question 110

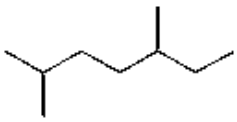
Predict the product(s) for the following reaction sequence.



a. 

b. 

c. 

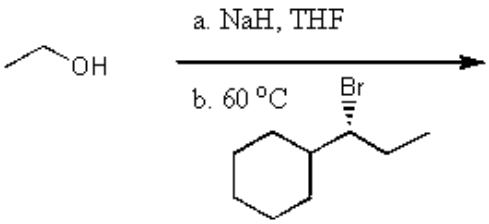
d. 

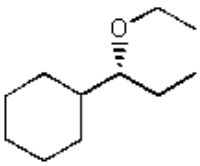
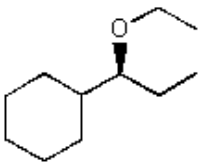
e. None of these choices.

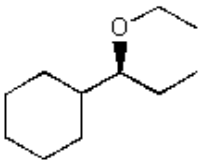
Answer: _____

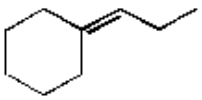
5. Testbank Question 121

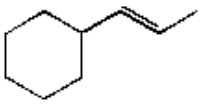
Predict the major product(s) for the following reaction sequence.



a. A mixture of  and 

b. 

c. 

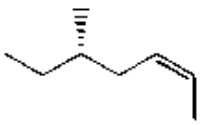
d. 

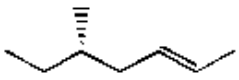
e. A mixture of two of these choices.

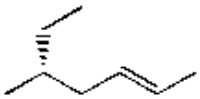
Answer: _____

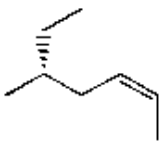
6. Testbank Question 15

Which structure represents (*R*,*Z*)-5-methylhept-2-ene?

a. 

b. 

c. 

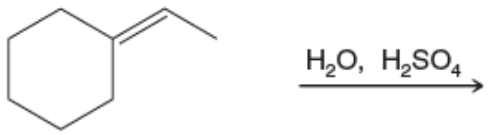
d. 

e. None of these choices.

Answer: _____

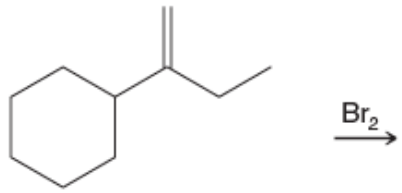
7. Problem 8.28a

Write structure(s) for the major organic product(s) from the following reaction. Show both stereoisomers if needed.

(a) 

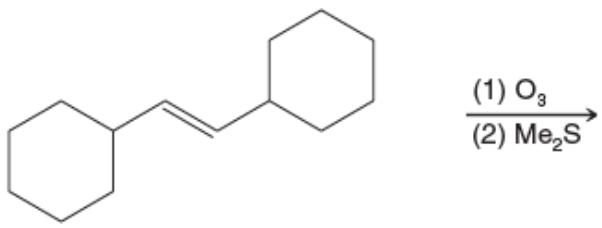
8. Problem 8.28d

Write structure(s) for the major organic product(s) from the following reaction. Show both stereoisomers if needed.

(d) 

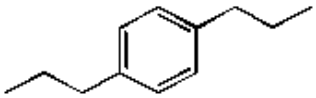
9. Problem 8.28e

Write structure(s) for the major organic product(s) from the following reaction. Show both stereoisomers if needed. If both products are identical, you only need to draw it once.

(e) 

10. Testbank Question 14

For the following compound how many different signals would you see in the proton NMR? (Assume that you can see them all.)



a. 7

b. 8

c. 4

d. 5

e. 6

Answer: _____

11. Testbank Question 16

For the following compound how many different signals would you see in the proton NMR? (Assume that you can see them all.)

a. 6

b. 4

c. 7

d. 8

e. 5

Answer: _____

12. Problem 11.32b

Using the reagents below, list in order (by letter, no period) those necessary to prepare chlorocyclohexane from cyclohexene.
Note: Not all spaces provided may be needed. Type "na" in any space where you have no reagent.

a. Cl_2
b. (1) BH_3:THF, (2) H_2O_2/OH^-
c. NaI(S_N2)
d. $SOCl_2$
e. HCl
f. H_2, Ni_2B (P-2)
g. NH_4NO_3

Step #1 Step #2

13. Problem 11.32c

Using the reagents below, list in order (by letter, no period) those necessary to prepare 1-bromo-1-methylcyclohexane from 1-methylcyclohexene.
Note: Not all spaces provided may be needed. Type "na" in any space where you have no reagent.

a. Cl_2
b. (1) BH_3:THF, (2) H_2O_2
c. HBr (no peroxides)
d. $SOCl_2$
e. NaOEt, EtOH, heat
f. Br_2, heat, light
g. HBr, ROOR

Step #1 Step #2

14. Problem 11.32d

Using the reagents below, list in order (by letter, no period) those necessary to prepare *trans*-2-methylcyclohexanol from 1-methylcyclohexene.
Note: Not all spaces provided may be needed. Type "na" in any space where you have no reagent.

a. NaI(S_N2)
b. (1) BH_3:THF, (2) H_2O_2
c. PBr_3
d. $SOCl_2$
e. HCl
f. *t*-BuOK, *t*-BuOH
g. HBr (no peroxides)

Step #1 Step #2

15. Problem 11.32e

Using the reagents below, list in order (by letter, no period) those necessary to prepare cyclohexylmethanol from 1-bromo-1-methylcyclohexane.
Note: Not all spaces provided may be needed. Type "na" in any space where you have no reagent.

a. *t*-BuOK, *t*-BuOH
b. HBr (no peroxides)
c. PBr_3
d. $SOCl_2$
e. HCl

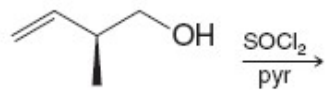
f. HA, heat
g. (1) BH_3:THF, (2) H_2O_2

Step #1	Step #2

16. Problem 11.39

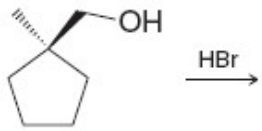
Predict the major product from each of the following reactions.

(a)



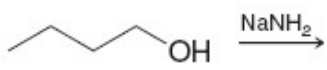
Draw the product:

(b)



Draw the product:

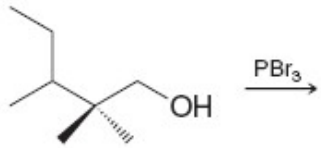
(c)



Draw the organic product:

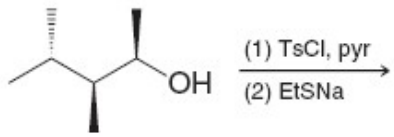
Draw the inorganic product:

(d)



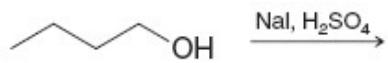
Draw the product:

(e)



Draw the product:

(f)

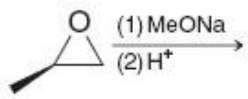


Draw the product:

17. Problem 11.40

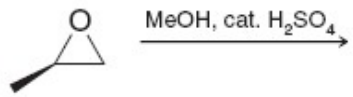
Predict the products from each of the following reactions.

(a)



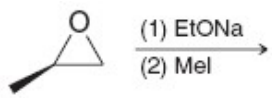
Draw the product:

(b)



Draw the product:

(c)



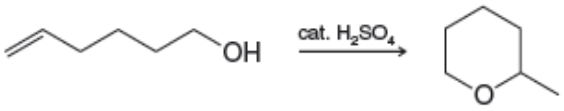
Draw the product:

(d)

Draw the product:

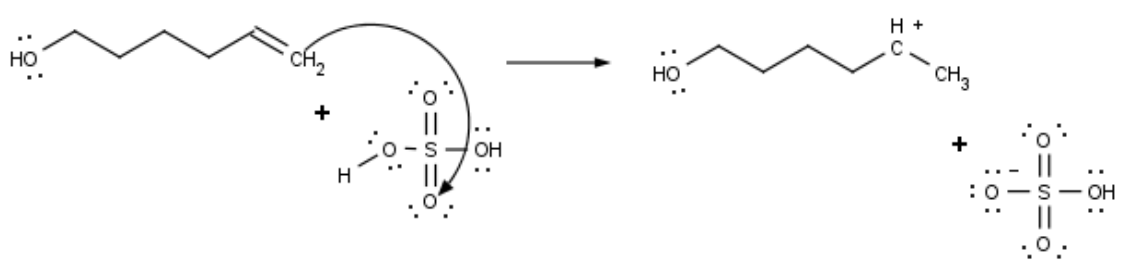
18. Problem 11.45

Propose a reasonable and detailed mechanism for the following transformation:

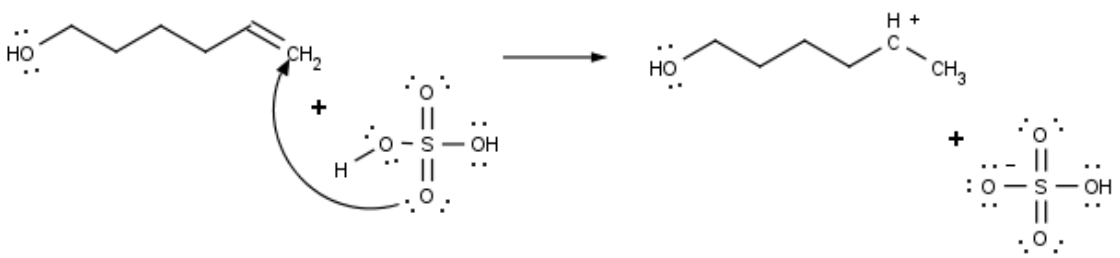


Choose the correct mechanism for step one of this reaction.

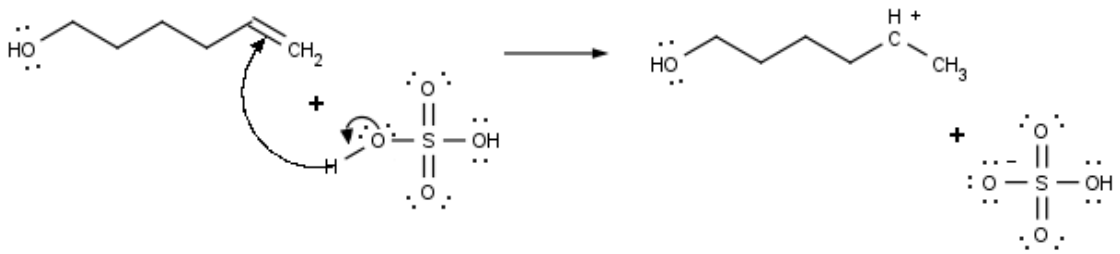
a.



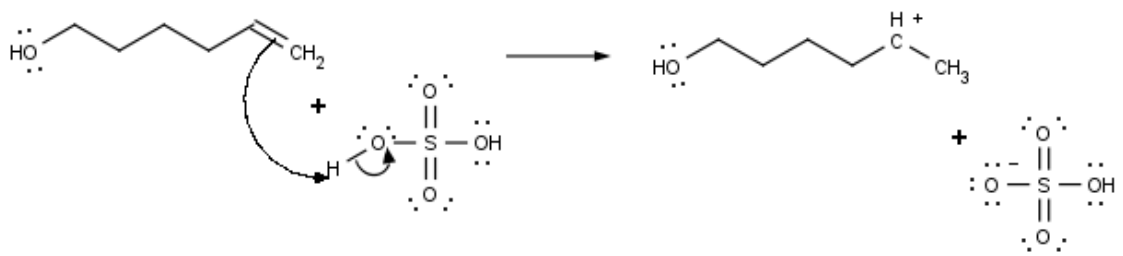
b.



c.



d.



Answer: _____

Write the mechanism for step two of this reaction. Show lone pairs and formal charges. No hydrogen should be shown drawn out with a covalent bond in this step.

Write the mechanism for step three of this reaction. Show lone pairs and formal charges. Only the acidic hydrogen should be drawn out with a covalent bond. Use HSO_4^- as the base.