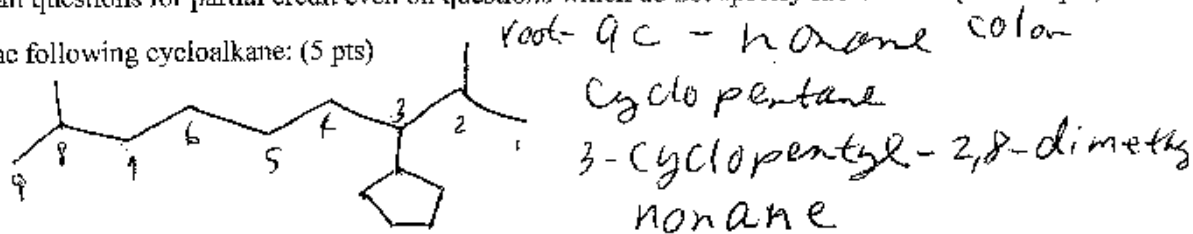


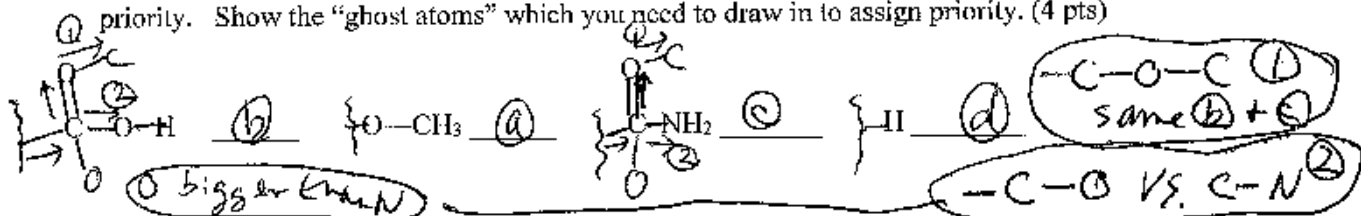
Name Key Print Name \_\_\_\_\_

Show work on all questions for partial credit even on questions which do not specify show work. (25 total pts)

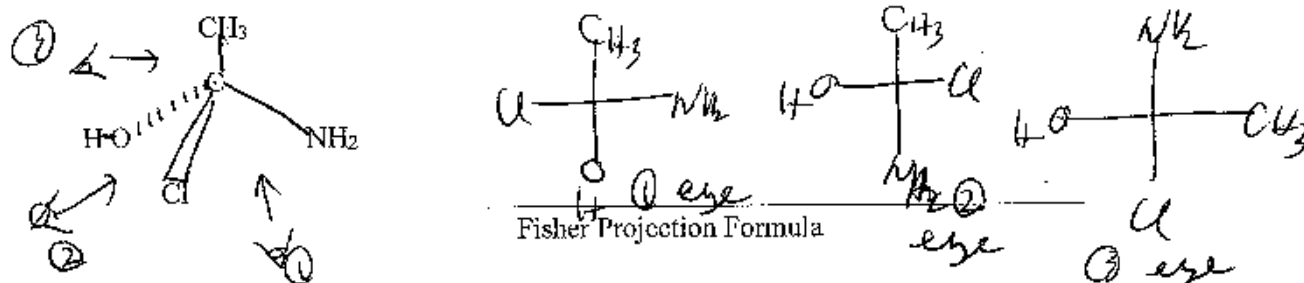
1. Name the following cycloalkane: (5 pts)



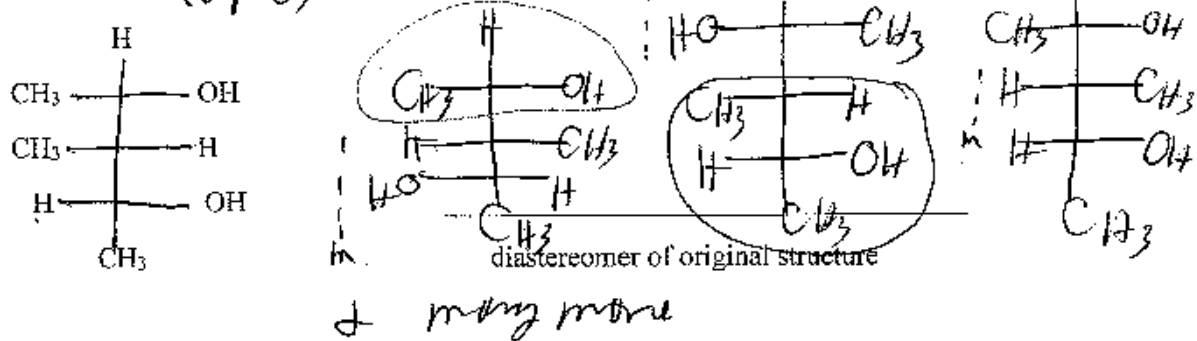
2. Given the following groups attached to a chiral carbon, put in order of (a) highest priority to (d) lowest priority. Show the "ghost atoms" which you need to draw in to assign priority. (4 pts)



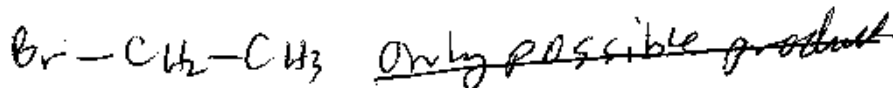
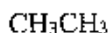
3. Given the 3D structure below, convert it to the correct Fisher Projection using the "eye" and any rotation arrows. Show the eye and any rotation arrows. (work showing eye & rotation counts 4 pts, 8 pts total)



4. For the given Fisher projection formula shown, draw one Fisher projection diastereomer of the original structure. (8 pts)



Extra Credit: (a) In the free radical monohalogenation of the molecule below, give all possible products.

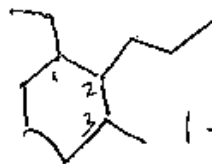


(b) is this reaction synthetically useful [(yes), (no)] (circle one)

Name Key Print Name \_\_\_\_\_

Show work on all questions for partial credit even on questions which do not specify show work. (25 total pts) *white*

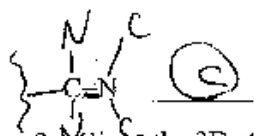
1. Name the following cycloalkane: (5 pts) *Cyclohexane = root*



*ethyl propyl methyl*  
1-ethyl-3-methyl-2-propylcyclohexane

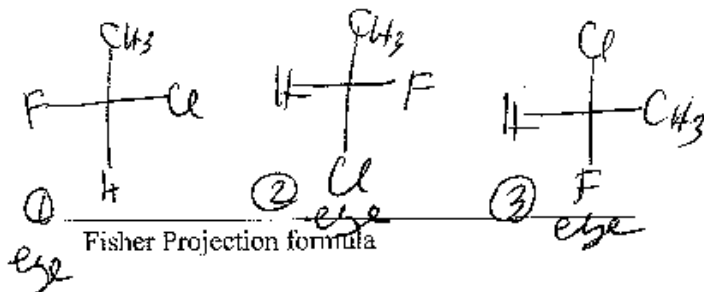
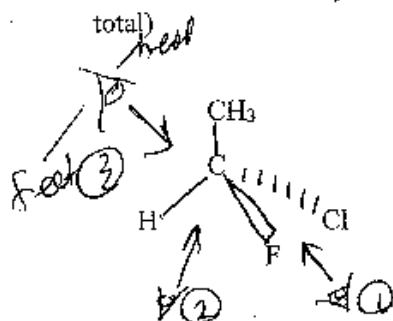
2. Given the following groups attached to a chiral carbon, put in order of (a) highest priority to (d) lowest priority. Show the "ghost atoms" which you need to draw to assign priority. (4 pts)

*N bigger than C*

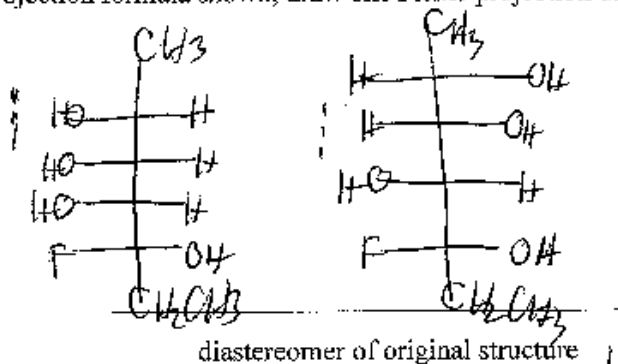
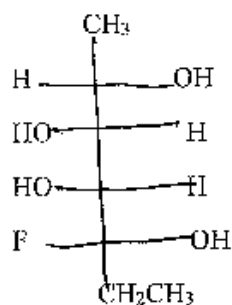


*{-N(CH3)2} (b) {F} (a) {-H} (d)*

3. Given the 3D structure below, convert it to the correct Fisher Projection using the "eye" and any rotation arrows. Show the eye and any rotation arrows. (work showing cyc & rotation counts. 4 pts, 8 pts total)



4. For the given Fisher projection formula shown, draw one Fisher projection diastereomer of the original structure. (8 pts)



Extra Credit: (a) In the free radical monohalogenation of the molecule below, give all possible products.



(b) is this reaction synthetically useful [(yes), (no)] (circle one)

Name Key Print Name \_\_\_\_\_

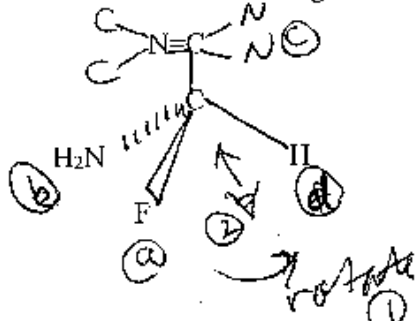
Show work on all questions for partial credit even on questions which do not specify show work. (25 total pts) white

1. Name the following cycloalkane: (5 pts)

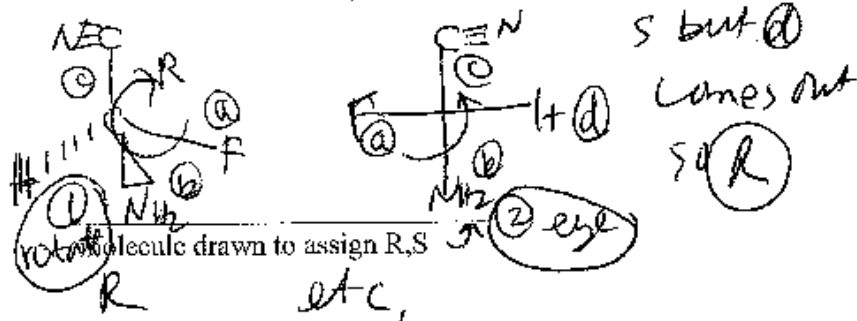


*cyclopentyl*  
*root - hexane*

2. Given the following 3 D structure,

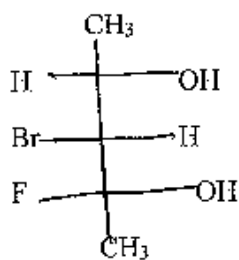


*3-cyclopentylhexane*

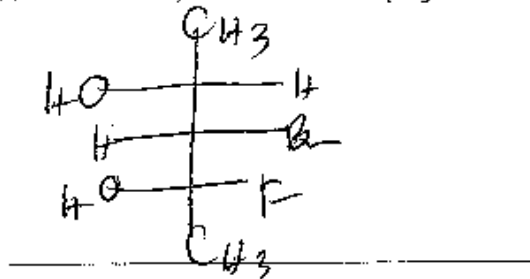


- a) Assign Cahn – Ingold – Prelog priority using the letter (a) for highest priority and (d) for lowest priority by labeling the 4 substituents attached to the chiral center in the molecule shown (on original drawing) (4 pts)
- b) Either show rotation of the 3 D molecule to another 3D molecule to allow assignment of R,S or convert the 3D molecule to a Fisher projection molecule. Please show the “eye” and any rotation arrows. (showing work counts 4 points) Draw the revised structure next to the original structure (6 pts)
- c) The molecule is (R) or (S) (circle one) (2 pts)

3. For the given Fisher projection formula shown, draw one Fisher projection enantiomer of the original structure. (8 pts)



*mirror*



enantiomer of original structure

Extra Credit: Considering reaction mechanism electron pushing arrows,

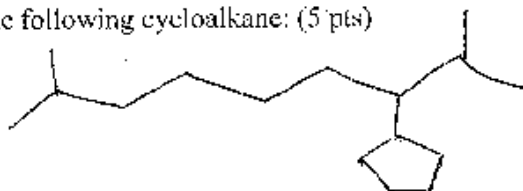
(a) draw a radical (homolytic) electron pushing arrow (2 pts)  $\longrightarrow$

(b) draw a polar reaction (heterolytic) electron pushing arrow  $\longrightarrow$

Name \_\_\_\_\_ Print Name \_\_\_\_\_

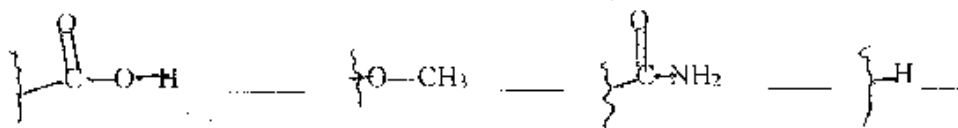
Show work on all questions for partial credit even on questions which do not specify show work. (25 total pts)

1. Name the following cycloalkane: (5 pts)

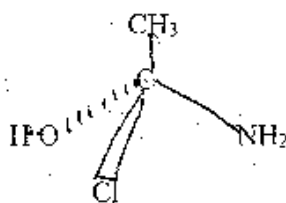


*cyclopentane*

2. Given the following groups attached to a chiral carbon, put in order of (a) highest priority to (d) lowest priority. Show the "ghost atoms" which you need to draw in to assign priority. (4 pts)

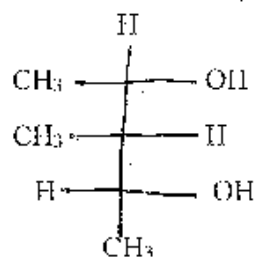


3. Given the 3D structure below, convert it to the correct Fisher Projection using the "eye" and any rotation arrows. Show the eye and any rotation arrows. (work showing eye & rotation counts 4 pts, 5 pts total)



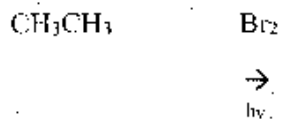
Fisher Projection Formula

4. For the given Fisher projection formula shown, draw one Fisher projection diastereomer of the original structure. (8 pts)



diastereomer of original structure

Extra Credit: (a) In the free radical monohalogenation of the molecule below, give all possible products.

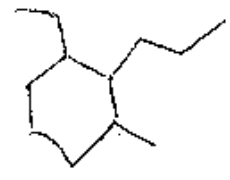


(b) is this reaction synthetically useful [(yes), (no)] (circle one)

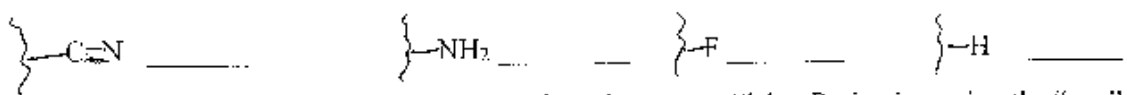
Name \_\_\_\_\_ Print Name \_\_\_\_\_

Show work on all questions for partial credit even on questions which do not specify show work. (25 total pts) *white*

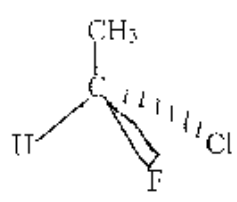
1. Name the following cycloalkane: (5 pts)



2. Given the following groups attached to a chiral carbon, put in order of (a) highest priority to (d) lowest priority. Show the "ghost atoms" which you need to draw in to assign priority. (4 pts)

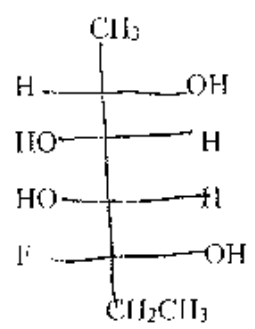


3. Given the 3D structure below, convert it to the correct Fisher Projection using the "eye" and any rotation arrows. Show the eye and any rotation arrows. (work showing eye & rotation counts. 4 pts, 8 pts total)



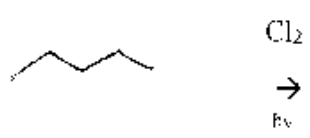
\_\_\_\_\_   
 Fisher Projection formula

4. For the given Fisher projection formula shown, draw one Fisher projection diastereomer of the original structure. (8 pts)



\_\_\_\_\_   
 diastereomer of original structure

Extra Credit: (a) In the free radical monohalogenation of the molecule below, give all possible products.



(b) is this reaction synthetically useful [(yes), (no)] (circle one)

Name \_\_\_\_\_ Print Name \_\_\_\_\_

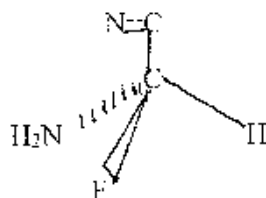
Show work on all questions for partial credit even on questions which do not specify show work. (25 total pts)

white

1. Name the following cycloalkane: (5 pts)

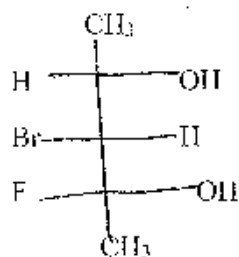


2. Given the following 3D structure,



\_\_\_\_\_ molecule drawn to assign R,S

- a) Assign Cahn – Ingold – Prelog priority using the letter (a) for highest priority and (d) for lowest priority by labeling the 4 substituents attached to the chiral center in the molecule shown (on original drawing) (4 pts)
- b) Either show rotation of the 3D molecule to another 3D molecule to allow assignment of R,S or convert the 3D molecule to a Fisher projection molecule. Please show the “eye” and any rotation arrows. (showing work counts 4 points) Draw the revised structure next to the original structure (6 pts)
- c) The molecule is [(R) or (S)] (circle one) (2 pts)
3. For the given Fisher projection formula shown, draw one Fisher projection enantiomer of the original structure. (8 pts)



\_\_\_\_\_ enantiomer of original structure

Extra Credit: Considering reaction mechanism electron pushing arrows,

- (a) draw a radical (homolytic) electron pushing arrow (2 pts)
- (b) draw a polar reaction (heterolytic) electron pushing arrow