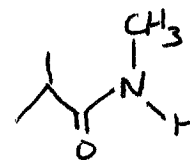
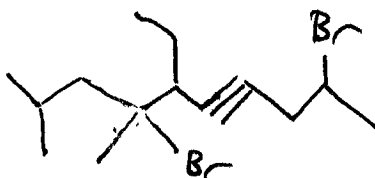
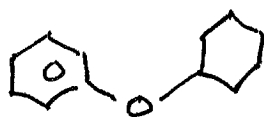
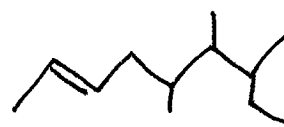
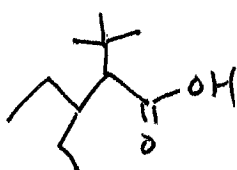
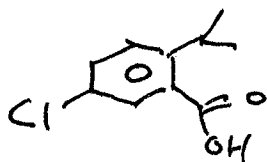
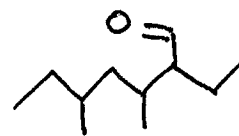
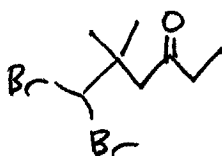
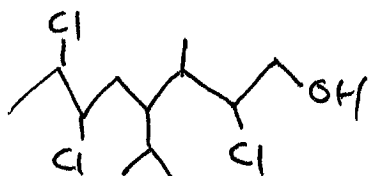


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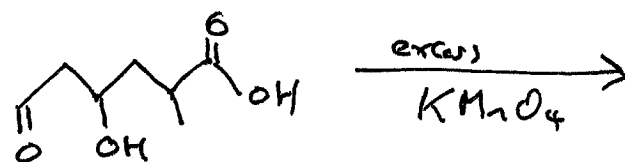
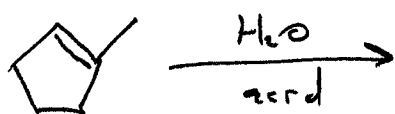
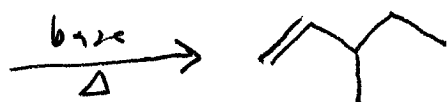
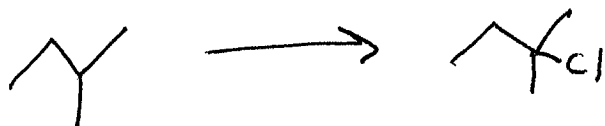
Name: _____

1. Name the following molecules:



- Circle all the chiral carbons in question 1.
- Suppose you were performing an esterification reaction with acetic acid and 2-butanol.
 - What is the name of the ester produced?
 - What catalyst is needed to speed up this reaction?
 - List ALL the things you could do to the equilibrium to favor the production of more ester.

4. Complete the following reactions:



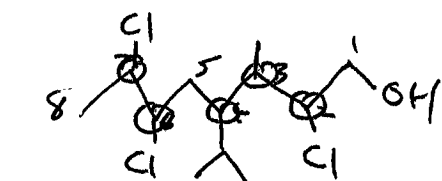
5. Suppose you had a large carboxylic acid mixed with some neutral junk impurities, neither of which were soluble in water. Suggest a method for separating out the carboxylic acid from the undesirable impurities.

6. Explain in general terms how a racemic mixture is resolved.

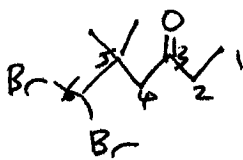
Tuesday, May 15th 2007
Exam #2

Name: Key

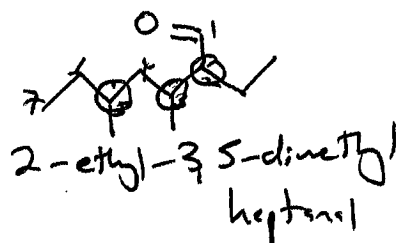
1. Name the following molecules:



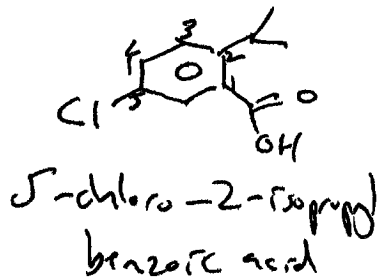
2,6,7-trichloro-4-isopropyl-3-methyl-1-octanol



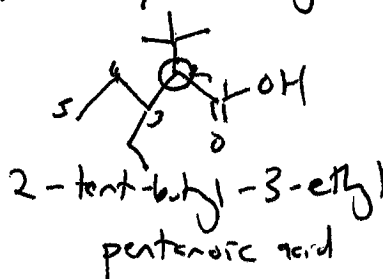
6,6-dibromo-5,5-dimethyl-3-hexanone



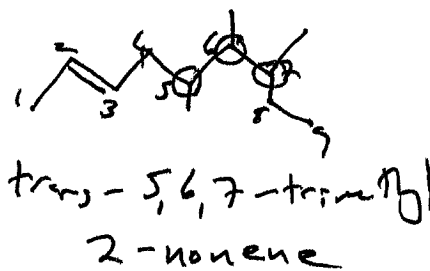
2-ethyl-3,5-dimethylheptanal



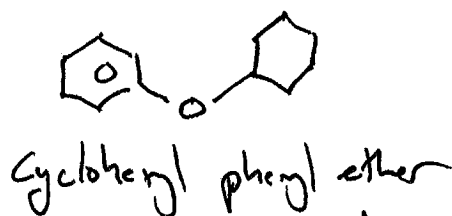
5-chloro-2-isopropylbenzoic acid



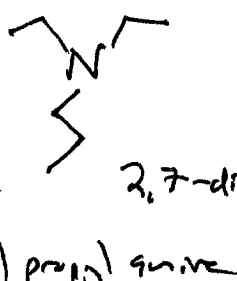
2-tert-butyl-3-ethylpentanoic acid



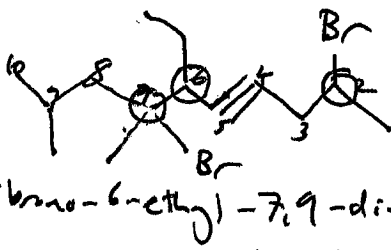
trans-5,6,7-trimethyl-2-nonene



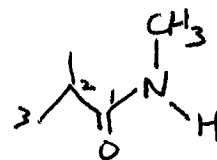
cyclohexyl phenyl ether



diethyl propyl amine



2,7-dibromo-6-ethyl-7,9-dimethyl-4-decyne



N,2-dimethyl propanamide

2. Circle all the chiral carbons in question 1.

3. Suppose you were performing an esterification reaction with acetic acid and 2-butanol.

(a) What is the name of the ester produced?

sec-butyl acetate (sec-butyl ethanoate)

(b) What catalyst is needed to speed up this reaction? H^+

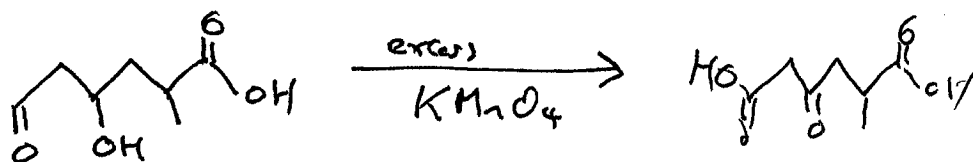
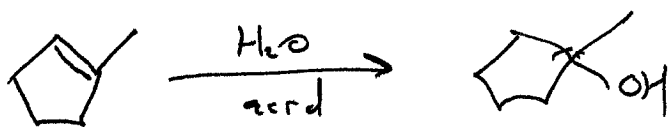
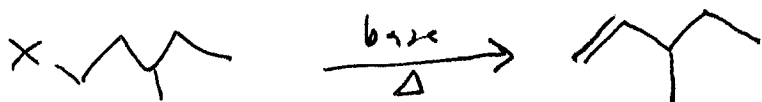
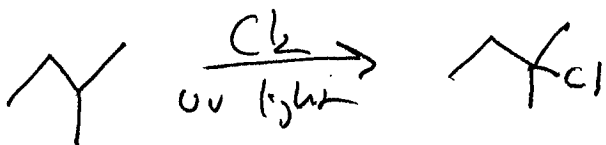
(c) List ALL the things you could do to the equilibrium to favor the production of more ester.

Add more of a reactant

Remove a product

Heat if endo, cool if exo

4. Complete the following reactions:



5. Suppose you had a large carboxylic acid mixed with some neutral junk impurities, neither of which were soluble in water. Suggest a method for separating out the carboxylic acid from the undesirable impurities.

Add a base like NaOH . The carboxylic acid will dissolve, but not the neutral junk (filter off and discard). Then add acid (like HCl) to precipitate the carboxylic acid. Filter + keep!

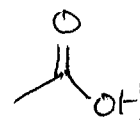
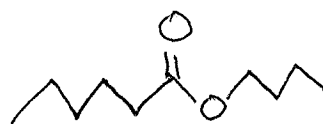
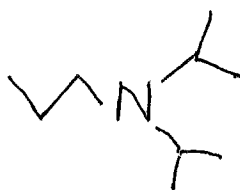
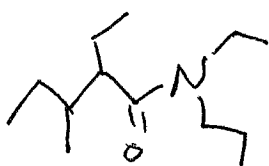
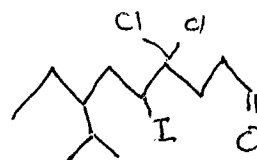
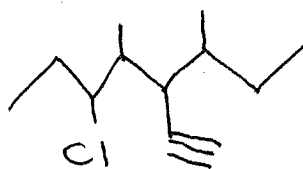
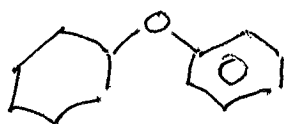
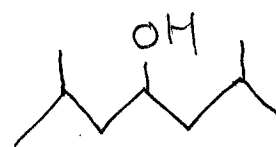
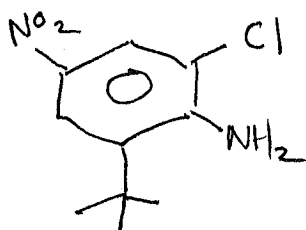
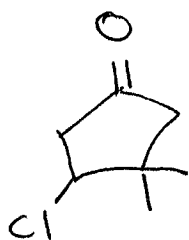
6. Explain in general terms how a racemic mixture is resolved.

Add another chiral compound (R^* , for example) to form diastereomers. Now separate according to the most convenient physical properties. Lastly, remove the R^* that you added to get back to the original enantiomers.

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Exam #2

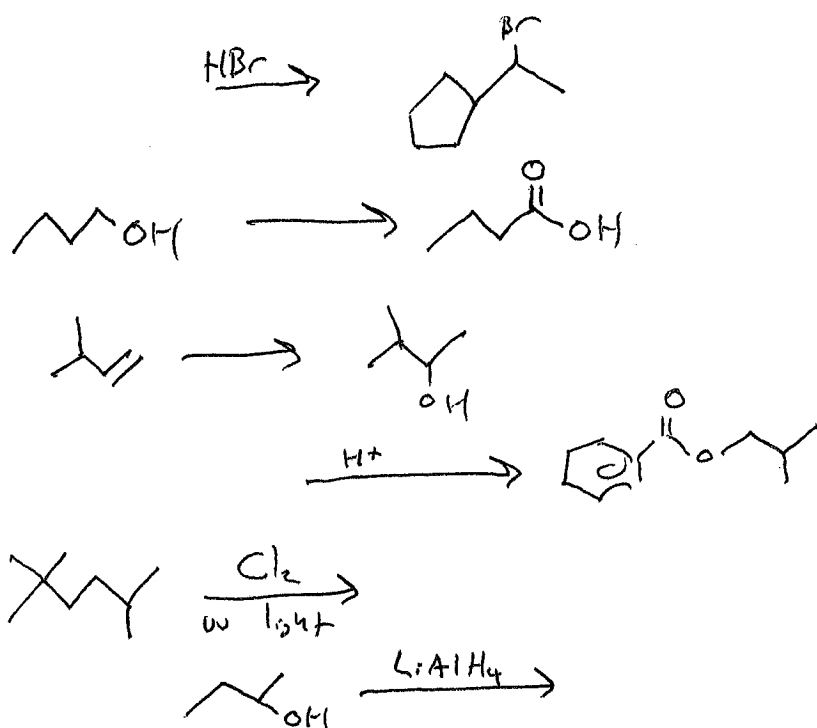
Name: _____

1. Name the following:



2. For all the molecules in question 1, indicate the number of chiral carbons.

3. Complete the following reactions:



4. Consider the molecule ethyl methyl amine.

(a) Draw an isomer that is more basic:

(b) Draw an isomer that is less basic.

5. Consider the molecule 3-chloropropanoic acid.

(a) Draw an isomer that is more acidic.

(b) Draw an isomer that is less acidic.

6. What is the difference between...

(a) Constitutional isomers and stereoisomers

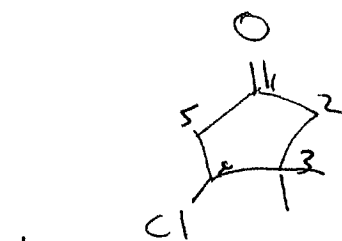
(b) Enantiomers and diastereomers

(c) Enthalpy (ΔH) and activation energy

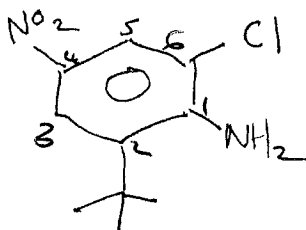
Tuesday, Nov. 3rd, 2009
Exam #2

Name: Key

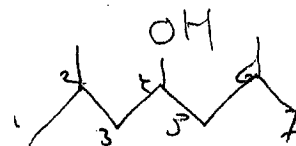
1. Name the following:



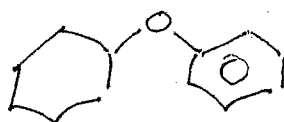
4-chloro-3,3-dimethyl cyclopentanone



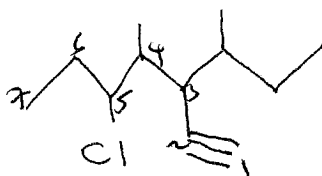
2-tert-butyl-6-chloro-4-nitro aniline



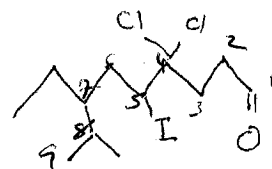
2,6-dimethyl-4-heptanol



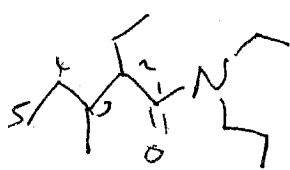
cyclohexyl phenyl ether



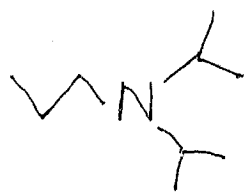
3-sec-butyl-5-chloro-4-methyl-1-heptyne



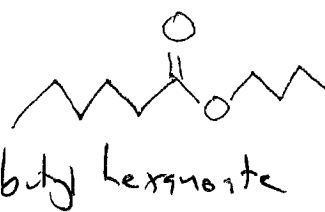
4,4-dichloro-7-ethyl-5-iodo-8-methyl nonanal



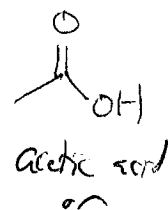
N,2-diethyl-3-methyl-N-propyl pentanamide



diisopropyl propyl amine



butyl hexanoate

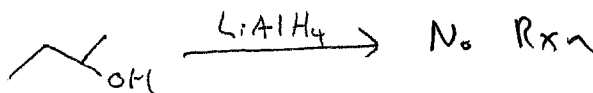
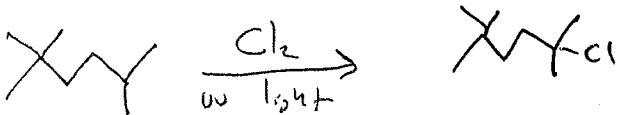
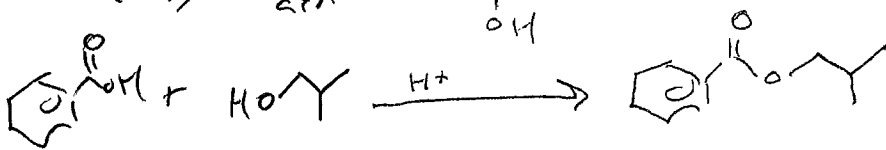
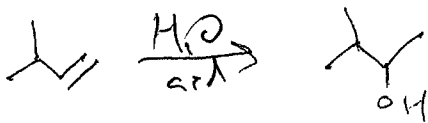
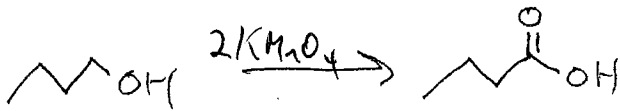


acetic acid
or
ethanoic acid

2. For all the molecules in question 1, indicate the number of chiral carbons.

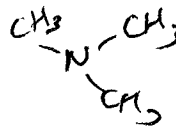
1	0	0
0	4	2
2	0	0

3. Complete the following reactions:



4. Consider the molecule ethyl methyl amine.

(a) Draw an isomer that is more basic:

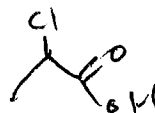


(b) Draw an isomer that is less basic.

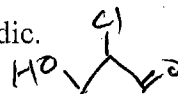


5. Consider the molecule 3-chloropropanoic acid.

(a) Draw an isomer that is more acidic.



(b) Draw an isomer that is less acidic.



6. What is the difference between...

(a) Constitutional isomers and stereoisomers

atoms connected differently \uparrow atoms connected the same but arranged spatially differently \leftarrow

(b) Enantiomers and diastereomers

Perfect (non-superimposable) mirror images \uparrow Partial mirror images (partly the same) \leftarrow

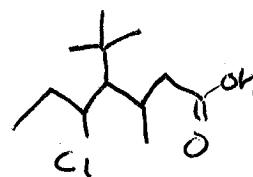
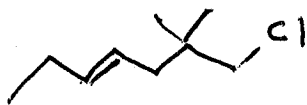
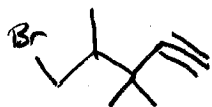
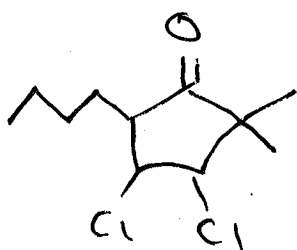
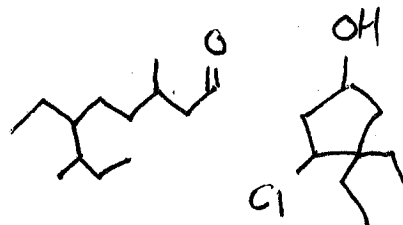
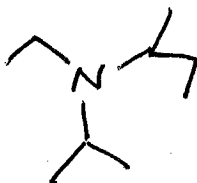
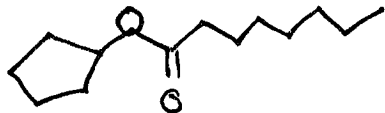
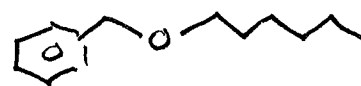
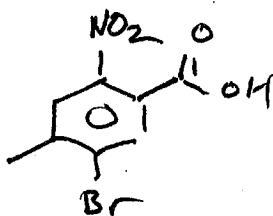
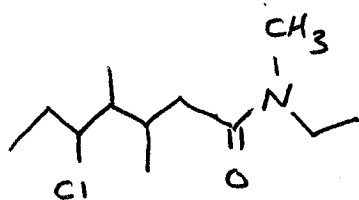
(c) Enthalpy (ΔH) and activation energy

difference in energy \uparrow between products + reactants \uparrow
energy required to "start" a rxn

Wednesday, May 9th, 2012
Exam #2

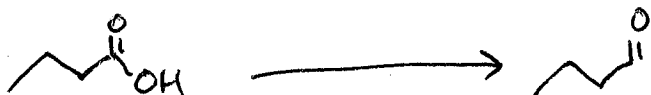
Name: _____

1. Name the following:



2. For the molecules in question 1, indicate the number of chiral carbons.

3. Complete the following reactions:



4. Imagine a molecule that had four chiral carbons adopted the RRSR configuration.
(a) What is the enantiomer?
(b) List ALL the diastereomers of this molecule.

5. Enantiomers generally have identical properties, with what two exceptions?

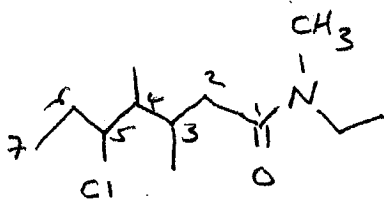
6. How are oxidation and reduction defined in organic chemistry?

7. Isomers are broadly split into two categories. What are they? One of these categories is further split into two more categories. What are they?

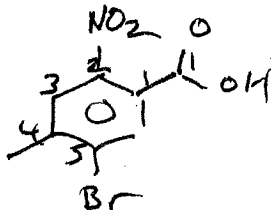
Wednesday, May 9th, 2012
Exam #2

Name: Kay

1. Name the following:

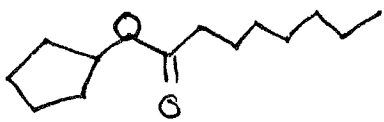
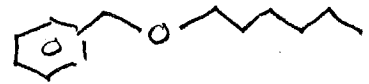


5-chloro-N-ethyl-N,3,4-trimethyl heptamide

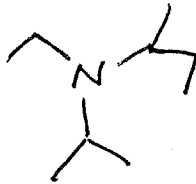


5-bromo-2-methyl-2-nitro benzoic acid

benzyl hexyl ether



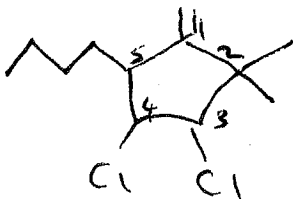
Cyclopentyl octanoate



sec-butyl ethyl isopropyl amine

6-ethyl-3,7-dimethyl nonane

4-chloro-3,3-diethyl cyclopentane

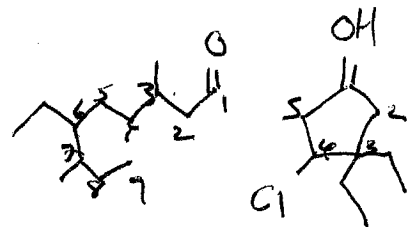


5-butyl-3,4-dichloro-2,2-dimethyl cyclopentane

5-bromo-3,3,4-trimethyl-1-pentyne

trans-7-chloro-6,6-dimethyl-3-heptene

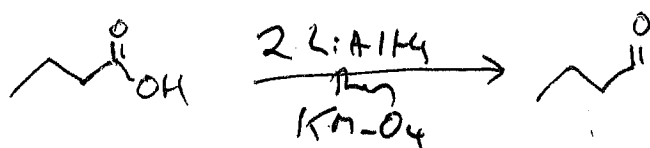
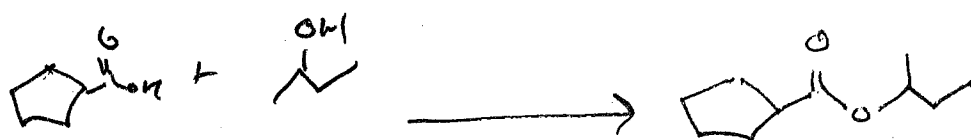
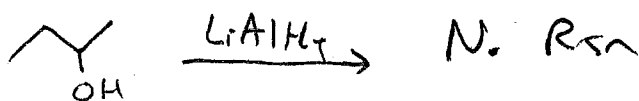
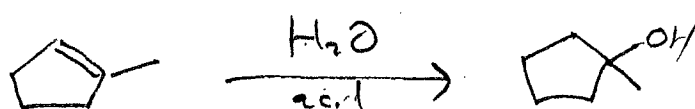
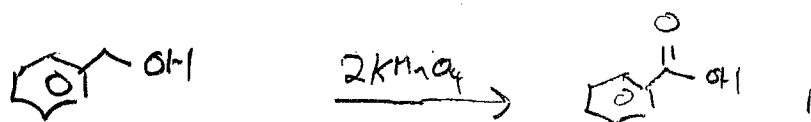
4-tert-butyl-5-chloro-3-methyl heptanoic acid



2. For the molecules in question 1, indicate the number of chiral carbons.

3	0	0	
0	1	3	1
3	1	0	3

3. Complete the following reactions:



4. Imagine a molecule that had four chiral carbons adopted the RRSR configuration.

(a) What is the enantiomer? **SSRS**

(b) List ALL the diastereomers of this molecule.

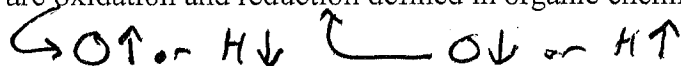
RRRR	RRSS	SRSR	RSSS
RRRS	RSSR	SRRS	SSSS
RSRR	SSRR	SSSR	
SRRR	RSRS	SRSS	

5. Enantiomers generally have identical properties, with what two exceptions?

Rotation of plane-polarized light

Interaction w/ other chiral molecules

6. How are oxidation and reduction defined in organic chemistry?



7. Isomers are broadly split into two categories. What are they? One of these categories is further split into two more categories. What are they?

