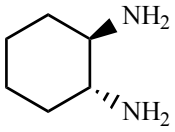
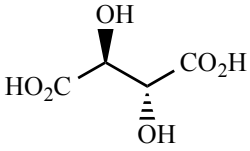
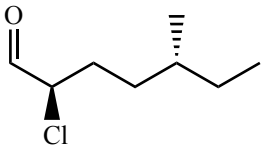
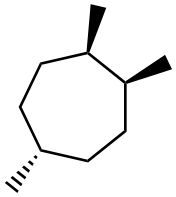
Structure: Stereochemistry
Chem 14C S17
(Not due)

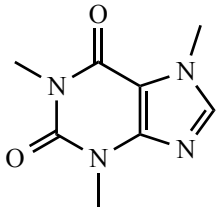
1. Identify any chiral centers in the following molecules. Also indicate if the molecule is chiral.



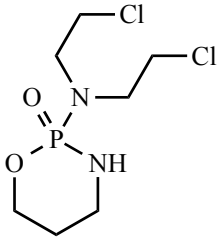




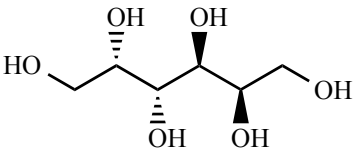




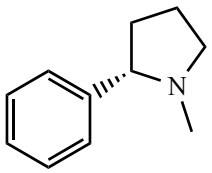
Caffeine



Cyclophosphamide
(Chemotherapy drug)

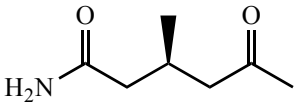


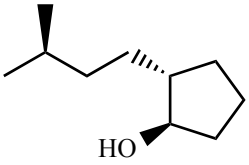
Galactitol
(Buildup can cause cataracts)

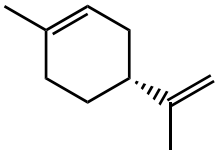


Nicotine

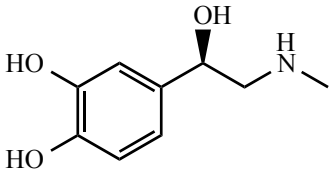
2. Assign the absolute configurations in the following molecules.



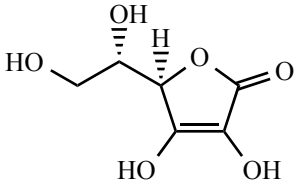




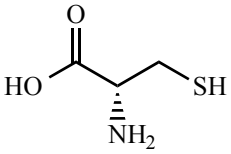
Limonene



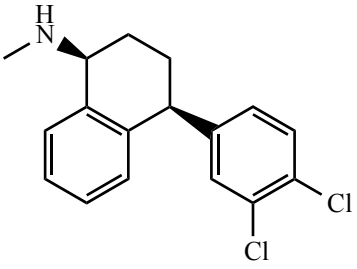
Adrenaline



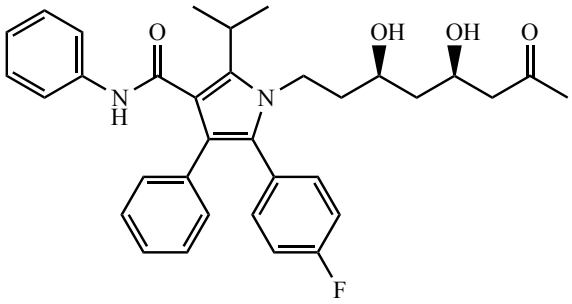
Vitamin C



Cysteine
(Amino acid)



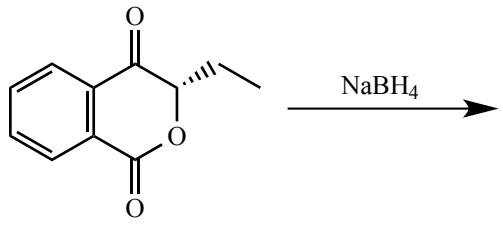
Sertraline
(Active ingredient in Zoloft)



Atorvastatin
(Active ingredient in Lipitor)

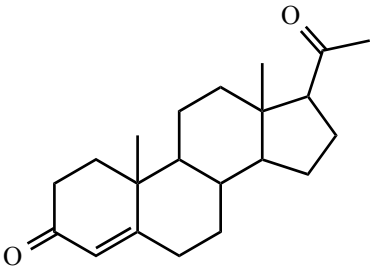
3. Answer the following questions.

a. Sodium borohydride, $NaBH_4$, reacts with the ketone in the molecule below to give an alcohol. Draw all the possible stereoisomers of the product.



b. What is the stereochemical relationship between the products in part a?

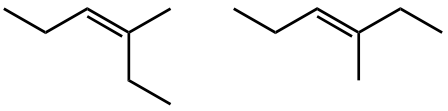
c. One of the stereoisomers of the molecule below is the steroid progesterone. How many stereoisomers of the molecule are possible?



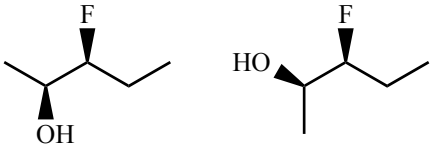
d. How many of the stereoisomers are the enantiomer(s) of progesterone? Diastereomer(s)?

4. Are the following pairs of molecules isomers? If so, what kind?

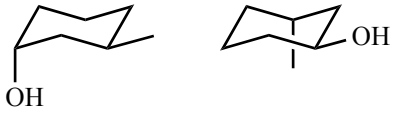
a.



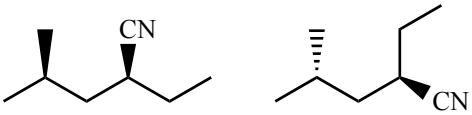
b.



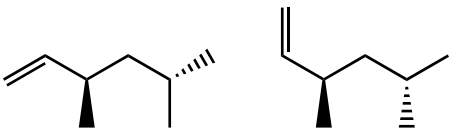
c.



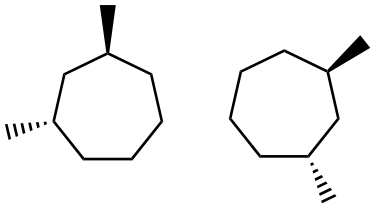
d.



e.

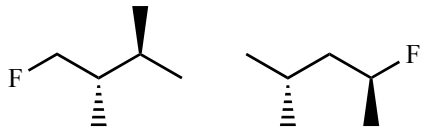


f.

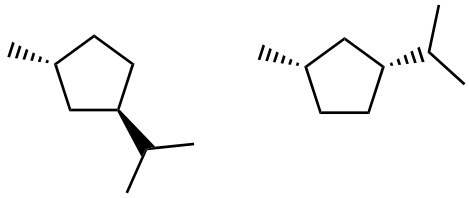


4. Continued

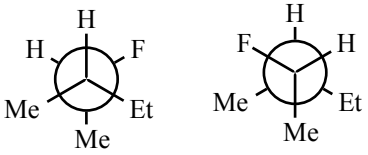
e.



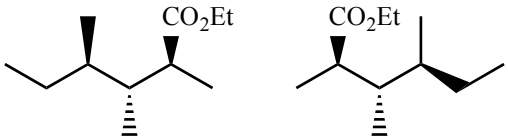
f.



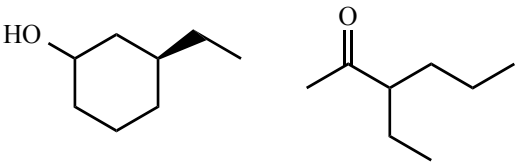
g.



h.



i.



j.