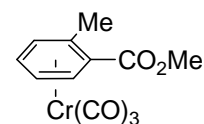
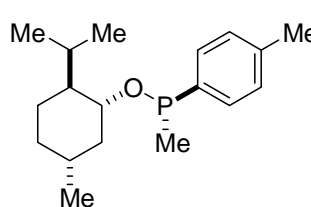
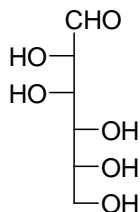
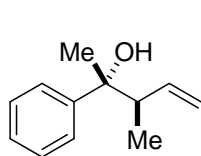
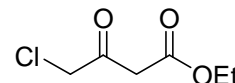
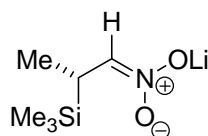
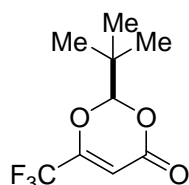


Problem Set No. 2 (24.4.2012)

1. Specify the absolute configuration of all stereocenters.



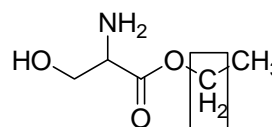
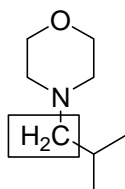
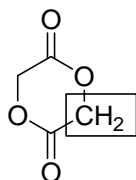
2. a) Specify the configurations of the shown (front) side using Re/Si-nomenclature.



b) Draw (*R*)-2-(ethylthio)cyclopentanone and define the Re and Si faces of this compound!

c) Draw 2,3-dihydrofuran and define the Re and Si faces of this compound!

3. Provide the topicity of the highlighted methylene groups.



4. Draw propane in its most stable conformation

a) with the C-C bonds in plane!

b) as Newman-projection!

c) Why has the staggered conformation the lowest energy?

5. Draw the complete energy profile of butane (rotation around 360°) with the corresponding energies of relative and absolute minima and maxima!

6. a) Draw a bisected and two eclipsed conformations of 1-butene as Newman-projections!

b) Give an example of a compound where allylic 1,3-strain is operating!

7. a) Why shows N,N-dimethylformamide (DMF) two methyl signals in the NMR spectrum?

b) What is the C-N rotation barrier in compounds such as N,N-benzylmethylthioformamide?