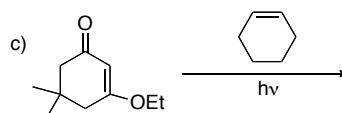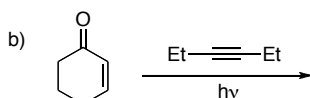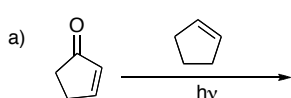# Problem set 5 (for discussion on May 30, 2007)

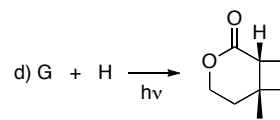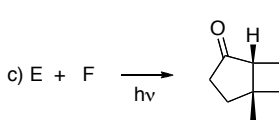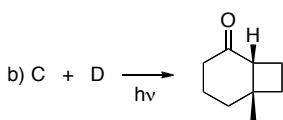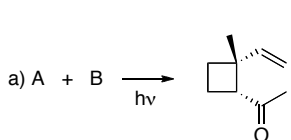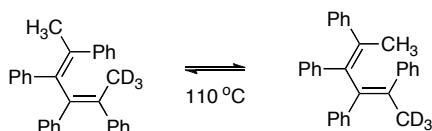## Exercise 1

Predict product(s)

a)   b)   c)

Exercise 2

Write structures for the two reagents used in the following [2+2] cycloaddition reactions. [In a) none of the reagents are ethene]

a) A + B $\xrightarrow{hv}$ b) C + D $\xrightarrow{hv}$ c) E + F $\xrightarrow{hv}$ d) G + H $\xrightarrow{hv}$
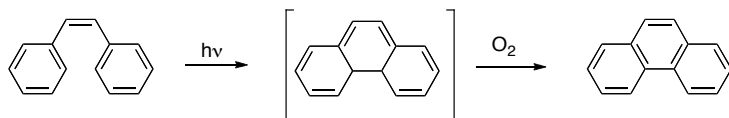
Exercise 3

The following equilibrium has been observed. How do you account for this isomerization? Note that no other stereoisomers are formed.
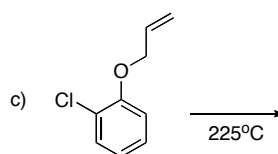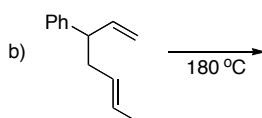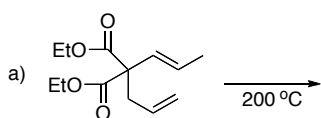

Exercise 4

How would you classify this reaction according to the Woodward-Hoffmann rules? What is the expected stereochemistry of the intermediate?
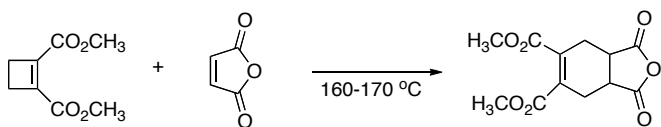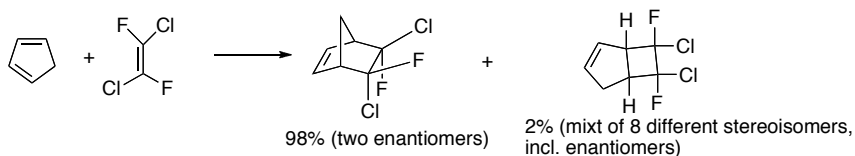

Exercise 5

Predict product(s)

a)   b)   c)

Exercise 6

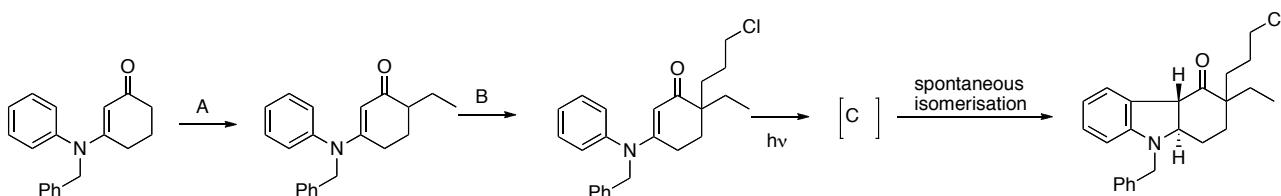Write a mechanism for the following observed transformation

Exercise 7

How do you explain the following results

98% (two enantiomers)

2% (mixt of 8 different stereoisomers, incl. enantiomers)

Exercise 8

Write structures of reagents and products designated by letters

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Exercises 2, 4 and 6 from problem set 4 will be discussed if time. If not, suggested solutions will be posted on the web