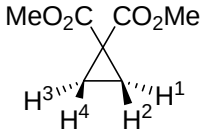
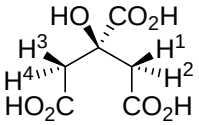
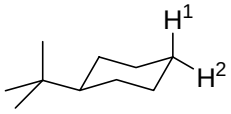
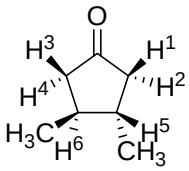
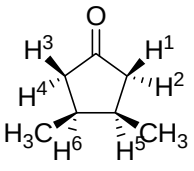
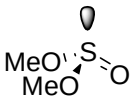
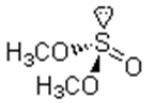
210451 Stereochemie und stereoselektive Synthese
Wintersemester 2014/15
2. Übungsblatt

1. Topizität. Bestimmen Sie, ob die entsprechenden Gruppen homotop, heterotop, enantiotop oder diastereotop sind.

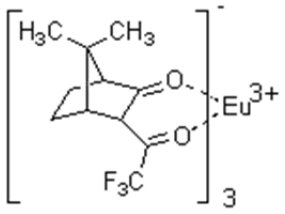
a)  H^1/H^2 H^1/H^4 H^2/H^4	b)  H^1/H^2 H^1/H^4 H^2/H^4 $CH^1H^2CO_2H$ / $CH^3H^4CO_2H$	c)  H^1/H^2
d)  H^1/H^2 H^1/H^4 H^1/H^3 H^5/H^6 H^2/H^4	e)  H^1/H^2 H^1/H^4 H^1/H^3 H^5/H^6 H^2/H^4	f)  Methylgruppen Welches NMR-Spektrum erwarten Sie in a) achiralem Lösungsmittel b) in Gegenwart eines chiralen Shiftreagens



Dimethylsulfit

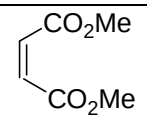
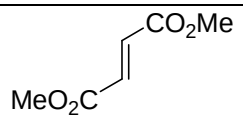
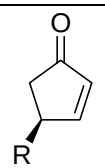
0.1 M in CCl_4
mit 0.05 M "FACAM"

Tris-[3-trifluormethylhydroxymethylen-(+)-campherato]-europium(III)

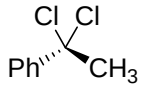
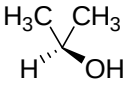
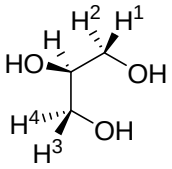


^1H: $\Delta\delta(CH_3) = 0.06$ ppm
^{13}C: $\Delta\delta(CH_3) = 0.20$ ppm

2. Bestimmen Sie, ob die entsprechenden Halbräume homotop, enantiotop oder diastereotop sind. Welche Produkte entstehen daraus bei der Epoxidierung ? Welche Symmetrie haben diese? Welche Produkte entstehen bei der Ringöffnung der Epoxide mit Nucleophilen?

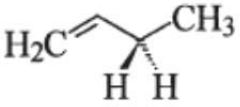
a) 	b) 	c) 

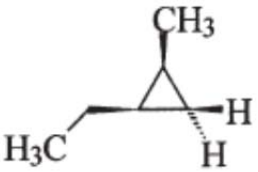
3. Prochiralität. Klassifizieren Sie folgende prochiralen Substituenten nach dem pro-R/pro-S – System und nach dem Re/Si – System

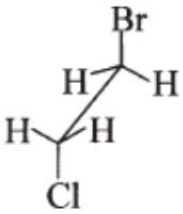
a)  Cl/Cl	b)  CH_3/CH_3	c)  CH^1H^2OH / CH^3H^4OH H^1 / H^2

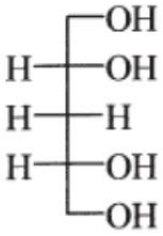
4.

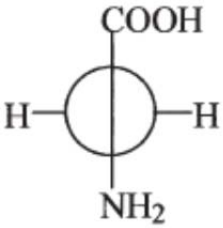
Kennzeichnen Sie in den folgenden Formeln die Wasserstoffatome an den Prochiralitätszentren mit *pro-R* und *pro-S*.

a) 

b) 

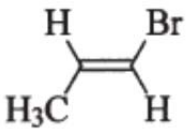
c) 

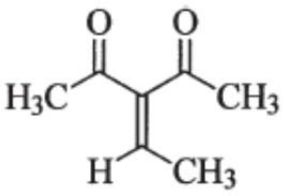
d) 

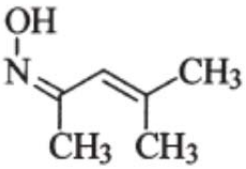
e) 

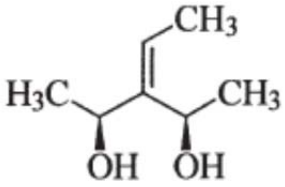
5.

Sind die beiden Seiten der Doppelbindungen folgender Verbindungen homotop, enantiotop oder diastereotop? Geben Sie, wenn möglich, geeignete Deskriptoren für die Ihnen zugewandte Seite an.

a) 

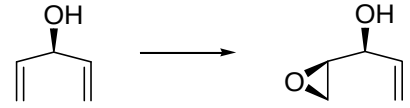
b) 

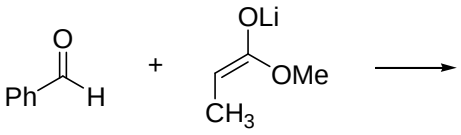
c) 

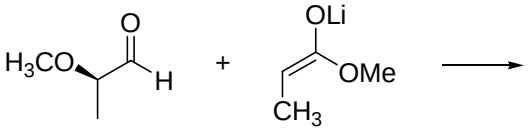
d) 

6. Izumi-Tai-Klassifizierung

Erläutern Sie, um welche Art der Differenzierung nach Izumi-Tai es sich bei folgenden Reaktionen handelt:

a) 

b) 

c) 

d)