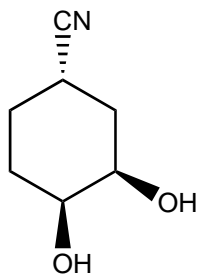
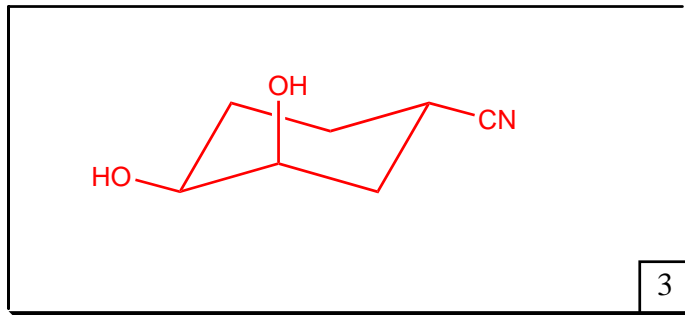


1. The following molecule was reported recently as an example of a new, stereoselective dihydroxylation catalyst (*Org. Biomol. Chem.* **2004**, 2, 1116-1124).

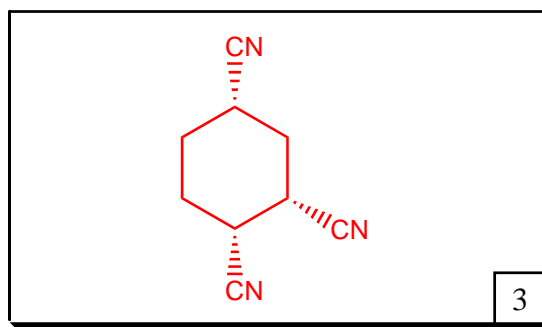
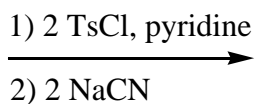
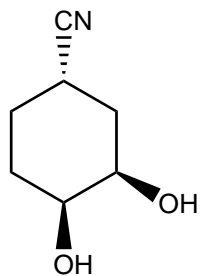


a) Draw the most stable chair conformation of this molecule.



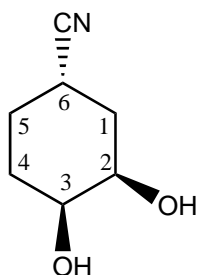
3

b) What is the product of the following reaction?



3

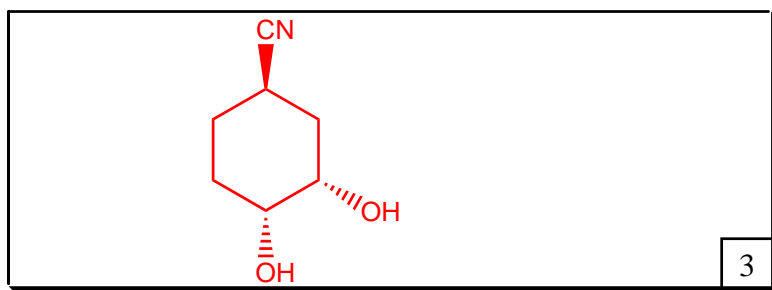
c) Give the stereochemical designation (*R*, *S*, or *none*) of each carbon on the cyclohexane ring: (4 pts.)



1	none
2	R
3	S
4	none
5	none
6	S

(1*S*,3*R*,4*S*)-3,4-dihydroxycyclohexanecarbonitrile

d) Draw the enantiomer of the molecule above.

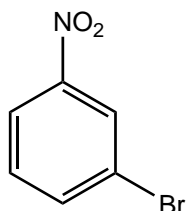
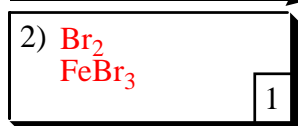
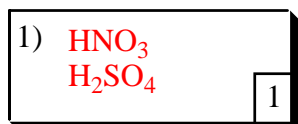
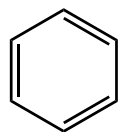


3

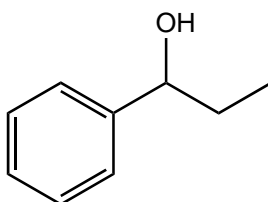
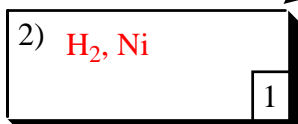
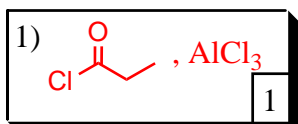
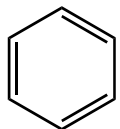
continued on back...

2. Complete the following syntheses:

a)



b)



c)

