## WORKSHOP 7

## Stereochemistry

1. a. Identify if the following pairs of compounds as identical, constitutional isomers, enantiomers, or diastereomers.
b. Assign configuration ( $\mathbf{R}$ or $\mathbf{S}$ ) to all stereocenters.
c. For the following pairs of compounds, pick one and draw a constitutional isomer, its enantiomer and a diastereomer.

It may help to make molecular models of these compounds to confirm your assignments.
a


b



C


d


e


2. Name the following compounds in IUPAC. Use absolute stereochemistry.




3. For each of the following reactions, predict whether the product will be optically active, a racemic mixture or achiral. Explain your choice.
a. $(+)$-2-chlorobutane $\xrightarrow{\mathrm{Br}_{2} \text {, heat }}$ 2-bromo-2-chlorobutane

d. (+)-1,3-dimethylcyclopentene $\xrightarrow[\text { in } \mathrm{CCl} 4]{\mathrm{NBS} \mathrm{h} \nu}$

