WORKSHOP 7

Stereochemistry

1. Tell whether the compounds in each of the following pairs are **non-isomeric**, **identical**, **constitutional isomers**, **enantiomers**, or **diastereomers**. Also, assign **configuration** (**R or S**) to all stereocenters. Identify the **optically active** (**chiral**) compounds. Identify any meso compounds. Make molecular models of these compounds to confirm your assignments.

2. 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 $\xrightarrow{\text{Br}_2}$ 2-bromo-2-chlorobutane hv

- b. (+)-2-chlorobutane SO₂Cl₂, CCl₄ 1,2-dichlorobutane
 Several other products are formed.
 This one is separated by gas chromatography.
- c. (+)-3-methylcyclopentene PtO_2 methylcyclopentane