#  EXERCISE #2: Chem 4524 Organic Chem II Alfred State

**One center chiral molecules**

**2.0** **In-class 3 D model assignment**

**2.1. Inspection Exercise**



**A B C D**

A=C, B=D

By inspection and without assigning R or S character, decide which of the Fischer projections A-D are the same or mirror images of each other. Remember that you horizontal line comes out of page; vertical line goes into the page which means you may only turn the crosses flat on the page 180o left or right.

**2.2. R/S Assignment Exercise**

Given Br=80, Cl=35 O=16 and C=12 assign the R/S character of A-D above. (Use models or brain or the Fong organo-gymnastics method)

|  |  |  |  |
| --- | --- | --- | --- |
| **A** | **B** | **C** | **D** |
|  R |  S |  R |  S |

**2.3. One center stereo reaction predictions (see also : powerpt on one-chiral centers)**

Suppose the molecule below undergoes SN2 substitution of a Cl radical for one of the two H (A or B) . Predict the final R/S character of the product for both cases , e.g. assume the HA or HB is the leaving radical group opposite the attacking Cl. (hint : draw the expected 5-coordinate complex with Cl and either HA or HB opposite each other on a line with the Br, OH and HB or HA on a trigonal plane separating them consistent with the Fischer structure drawn here. Remember that the `trigonal plane’ flexes away from Cl

.

***A***

***B***



 leaving HA or HB attacking Cl

A leaves=> product is: R S

Cl substitutes (backside)

B leaves => product is: R S

Cl substitutes (backside)

 Br, OH and HB or HA flexing away