INTOCHEMISTRY / ORGANIC CHEMISTRY

SN2 Inversion and Product Configuration

STUDENT WORKSHEET

Name: _____ Date: _____

Explain the reasoning behind every answer. Show stereochemical drawings when asked.

1. SN2 on (S)-2-bromobutane: For the substitution product of (S)-2-bromobutane with HO- under SN2-favoring conditions. Where does HO- approach?

2. What is the configuration of the substitution alcohol?

3. SN2 iodo substitution: For the substitution product of (R)-2-bromobutane with I- in acetone under conditions favoring SN2. What changes during the elementary step?

4. What is the CIP descriptor of the substitution product?

5. Primary substrate and stereochemistry: Bromoethane reacts with azide under conditions favoring SN2. Is the electrophilic carbon a stereogenic center?

6. How should the product be labeled?

7. Geometry versus letter descriptors: An SN2 substrate has a chiral center, and the entering group changes CIP priority ordering. What is always true for a genuine SN2 at that carbon?

8. Can the letter designation remain R despite geometric inversion?