INTOCHEMISTRY / ORGANIC CHEMISTRY

SN1 Product Stereochemistry

STUDENT WORKSHEET

Name: _____ Date: _____

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

1. Benzylic SN1 with water: Analyze the substitution pathway of optically enriched 1-phenylethyl bromide in aqueous solvolysis. What intermediate allows attack from two faces?

2. Must the two configurations be exactly 50:50?

3. Solvolysis of tert-butyl bromide: Consider tert-butyl bromide reacting by SN1 in water. What cationic intermediate forms?

4. Which conclusion about SN1 is illustrated?

5. SN1 and E1 competition: A secondary benzylic halide reacts in hot protic solvent. What do SN1 and E1 share?

6. How should a product prediction be reported?

7. Ion-pair memory: An SN1 substitution gives unequal enantiomer proportions instead of 1:1. Does this observation prove SN2?

8. What language is the safest for students?