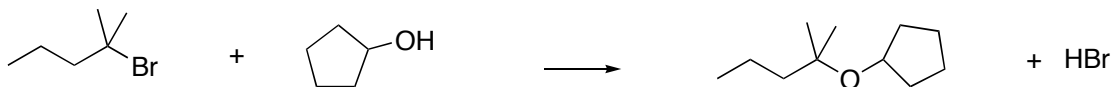


4. (15) (a) Provide a detailed curved arrow **Mechanism** for the reaction below. Hint: the starting halide is 3°. Add lone pairs where necessary.



(b) Label (a, b, etc.) each curved arrow above and briefly explain what each arrow means.

5. (15 pts) Draw a stereochemically correct **NEWMAN** and **PERSPECTIVE** of (2S,3R)-3-phenyl-2-butyl tosylate in the conformation necessary for **E2** reaction, and draw a stereochemically correct representation of the major E2 product.

**NEWMAN**  
( C-2 in front)

**PERSPECTIVE**

**PRODUCT**