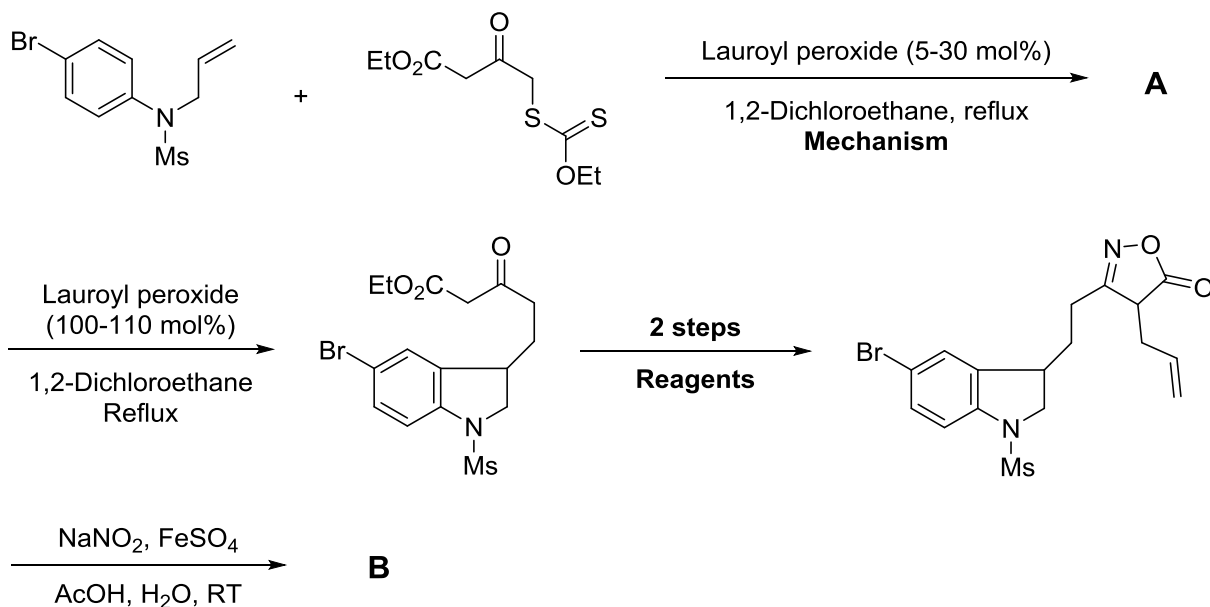


Problems for October 8th

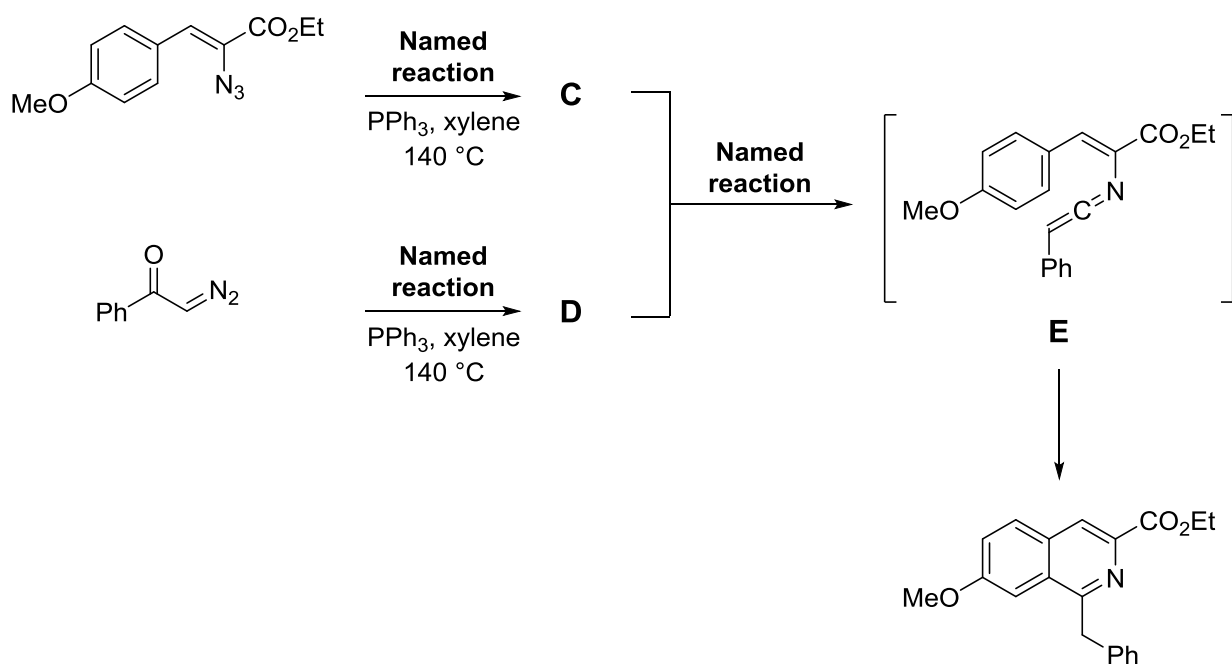
Problem 1

Please show the mechanism for formation of intermediate **A**, the structure of **A** and **B**, and suggest reagents for the two-step transformation as indicated.



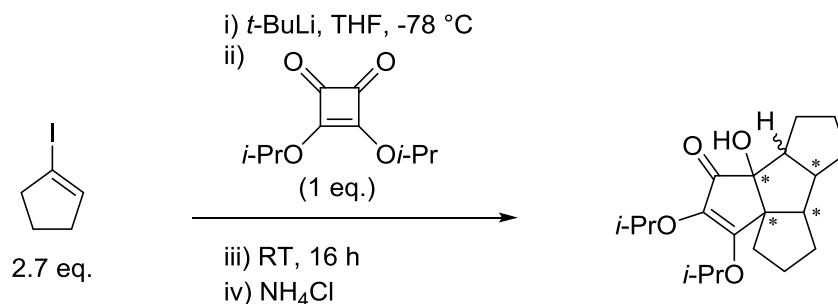
Problem 2

Please suggest a mechanism for the one-pot tandem transformation below. Also please provide the names of the named reactions leading to the formation of intermediate **E**.



Problem 3

Please provide the mechanism for the transformation below. Also please show the relative stereochemistry of the four indicated stereogenic centers.



Problem 4

In the below synthesis of the natural product (+)-taylorione, please provide the structures of intermediates **F** and **G**, suggest a short route from **F** to the next shown intermediate, and provide mechanisms where indicated.

