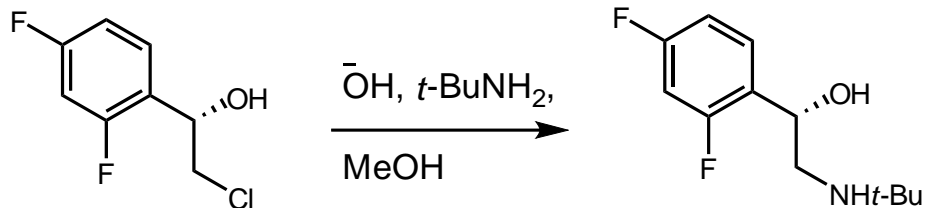


Problem 10

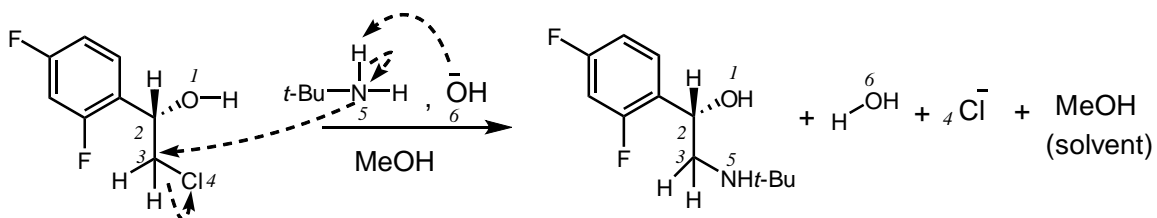


Ref.: J. Y. L. Cheung, R. Cvetovich, J. Amato, J. C. McWilliams, R. Reamer and L. DiMichaele, *J. Org. Chem.*, 2005, 70, 3592-3601.

1. Draw all of the bonds near the reactive atoms in the starting materials
2. Draw all of the H-atoms at or near the reactive sites of the starting materials and the products
3. Balance the equation
4. Number the non-H atoms
5. Identify bonds made and broken

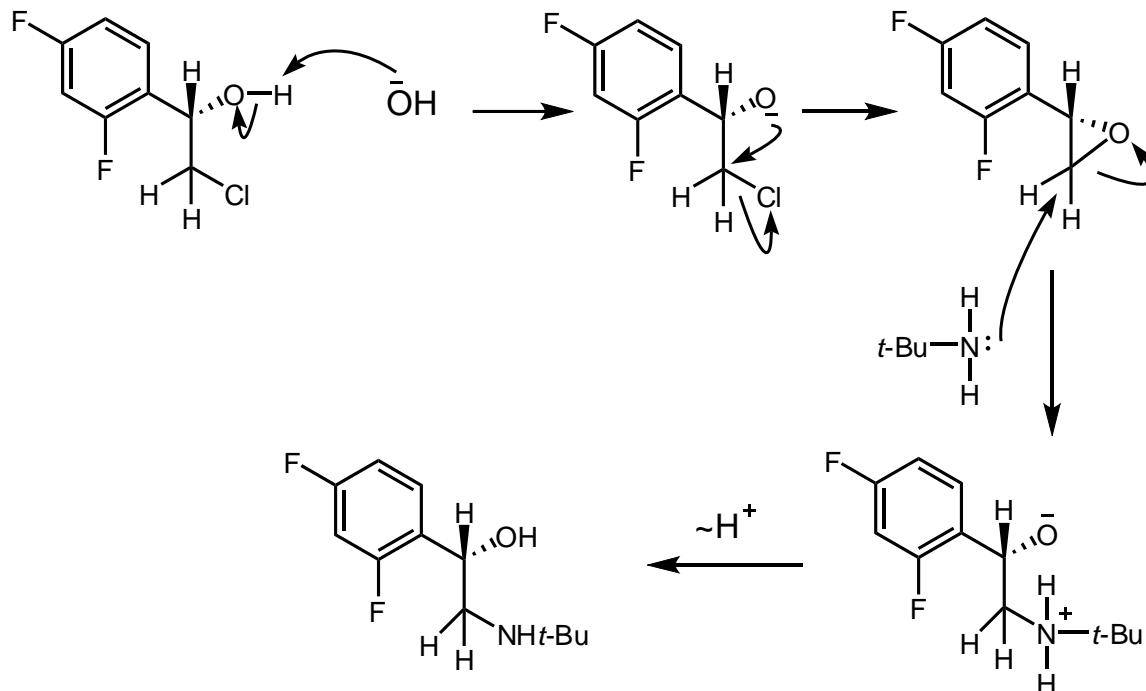
Bonds made: 3-5, 6-H

Bonds broken: 3-4, 5-H



6. Conditions

Basic (does not generate strong acids)

Mechanism**Discussion**

A shorter mechanism which is more compatible with our analysis is shown below. However, the mechanism shown above is more reasonable. This is because NaOH is likely to deprotonate the alcohol first. The resulting alkoxide is in the vicinity of a good leaving group. Hence, the formation of epoxide is more likely to occur. As such, this problem is a reminder that the analysis is only to help you to solve the problem and that it has its shortcomings. Basic principles should not be ignored if they contradict with the analysis of the problem.

Incorrect: