Advanced Organic Chemistry

Part B: Reactions and Synthesis

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Preface to Part B

In Part A, the structural and mechanistic groundwork of organic chemistry was considered. Part B assumes that the student possesses a mastery of these areas and emphasizes the synthetic application of organic reactions. Mechanisms are discussed in sufficient detail to allow the student to understand the basis for the selectivity of the reaction and its stereochemistry, but fine points of mechanistic detail are not emphasized. Many of the most general synthetic reactions are illustrated by referenced examples included in the schemes.

The organization is along the lines of reaction type rather than functional groups. The first nine chapters discuss most of the important reactions presently in use in organic synthesis. Although the emphasis here is on synthesis, the reactions that are discussed in each chapter are usually members of related mechanistic families. Chapter 10 discusses synthetic tactics and strategy in general. Chapter 11 considers some of the special features of macromolecular synthesis.

As in Part A, the majority of the references are to English language journals that are widely accessible. References have been chosen primarily because they are illustrative of a given point or are useful leading references. No attempt has been made to consider authors' priority in the selection of references.

A number of problems are given with each chapter. An attempt has been made in those dealing with synthesis to make the problems cumulative in the sense that reactions discussed in preceding chapters may be involved, while reactions that have yet to be discussed are avoided. Of course, synthetic problems have numerous "correct answers"; therefore, although literature references to the synthetic problems are given, there may in many instances be other, perhaps preferable, alternatives. Many of the problems will be quite challenging, and the student should not feel discouraged at not being able to match the solutions to synthetic challenges reported in the literature. Indeed, it may be most useful to treat the more difficult problems as takeoff points for in-class discussion and analysis.

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