

CONTENTS

PART I THE FUNDAMENTALS

1. Structure and Properties	1
2. Methane Energy of Activation. Transition State	43
3. Alkanes Free-Radical Substitution	79
4. Stereochemistry	123
5. Alicyclic Compounds Cycloalkanes	165
6. Alkyl Halides Nucleophilic Aliphatic Substitution	193
7. Alkenes I. Structure and Preparation Elimination	267
8. Alkenes II. Reactions of the Carbon-Carbon Double Bond Electrophilic and Free-Radical Addition	325
9. Conjugation and Resonance Dienes	395
10. Alcohols I. Preparation and Physical Properties	455
11. Alcohols II. Reactions	485
12. Ethers and Epoxides	533
13. Alkynes	555
14. Aromaticity Benzene	573
15. Electrophilic Aromatic Substitution	593
16. Aromatic-Aliphatic Compounds Arenes and Their Derivatives	625
17. Spectroscopy and Structure	675
18. Aldehydes and Ketones Nucleophilic Addition	733
19. Carboxylic Acids	775
20. Functional Derivatives of Carboxylic Acids Nucleophilic Acyl Substitution	813
21. Carbanions I Aldol and Claisen Condensations	859
22. Amines I. Preparation and Physical Properties	887
23. Amines II. Reactions	911
24. Phenols	957
25. Aryl Halides Nucleophilic Aromatic Substitution	991
26. Carbanions II Malonic Ester and Acetoacetic Ester Syntheses	1019

PART II BIOMOLECULES

27. Fats	1039
28. Carbohydrates I. Monosaccharides	1055
29. Carbohydrates II. Disaccharides and Polysaccharides	1097
30. Amino Acids and Proteins	1117
31. Biochemical Processes Molecular Biology	1147

PART III SPECIAL TOPICS

32 α,β -Unsaturated Carbonyl Compounds Conjugate Addition	1171
33. Molecular Orbitals. Orbital Symmetry	1191

34. Polynuclear Aromatic Compounds	1231
35. Heterocyclic Compounds	1267
Suggested Readings	1293
Answers to Problems	1303
Index	1321