

Contents

1	Chemistry: Methods and Measurement	1
2	The Composition and Structure of the Atom	17
3	Elements, Atoms, Ions, and the Periodic Table	29
4	Structure and Properties of Ionic and Covalent Compounds	39
5	Calculations and the Chemical Equation	55
6	States of Matter: Gases, Liquids, and Solids	67
7	Reactions and Solutions	83
8	Chemical and Physical Change: Energy, Rate, and Equilibrium	99
9	Charge-Transfer Reactions: Acids and Bases and Oxidation-Reduction	111
10	The Nucleus, Radioactivity, and Nuclear Medicine	125
11	An Introduction to Organic Chemistry: The Saturated Hydrocarbons	139
12	The Unsaturated Hydrocarbons: Alkenes, Alkynes, and Aromatics	157
13	Alcohols, Phenols, Thiols, and Ethers	177
14	Aldehydes and Ketones	191
15	Carboxylic Acids and Carboxylic Acid Derivatives	205
16	Amines and Amides	221
17	Carbohydrates	235
18	Lipids and Their Functions in Biochemical Systems	249
19	Protein Structure and Function	267
20	Enzymes	283
21	Carbohydrate Metabolism	297
22	Aerobic Respiration and Energy Production	311
23	Fatty Acid Metabolism	325
24	Introduction to Molecular Genetics	335
Appendix A	Solutions to the Odd-Numbered Problems	351
Appendix B	Answers to Self Tests	555
Appendix C	Answers to Vocabulary Quizzes	575