

Brief Contents

PREFACE xi

Unit 1

Introduction

- 1 The Chemical Basis of Life 1
- 2 Aqueous Chemistry 24

Unit 2

Biomolecules: Structure and Functions

- 3 Flow of Genetic Information 52
- 4 Structure of Proteins 85
- 5 Functions of Proteins 119
- 6 How Enzymes Work 154
- 7 Enzyme Kinetics and Inhibition 183
- 8 Lipids and Biological Membranes 215
- 9 Transport Through Membrane 235
- 10 Biochemical Signaling 260
- 11 Carbohydrates 283

Unit 3

Metabolism

- 12 Metabolism and Bioenergetics 301
- 13 Glucose Metabolism 329

- 14 The Citric Acid Cycle 362

- 15 Oxidative Phosphorylation 385

- 16 Photosynthesis 411

- 17 Lipid Metabolism 432

- 18 Nitrogen Metabolism 464

- 19 Mammalian Fuel Metabolism: Regulation 497

Unit 4

Gene Replication and Expression

- 20 DNA Replication and Repair 519
- 21 Transcription and RNA 551
- 22 Synthesis of Proteins 580

GLOSSARY G-1

ODD-NUMBERED SOLUTIONS S-1

INDEX I-1