

Preface viii

1. The Foundations of Biochemistry

I STRUCTURE AND CATALYSIS

2. Water, the Solvent of Life
3. Amino Acids, Peptides, and Proteins
4. The Three-Dimensional Structure of Proteins
5. Protein Function
6. Enzymes
7. Carbohydrates and Glycobiology
8. Nucleotides and Nucleic Acids
9. DNA-Based Information Technologies
10. Lipids
11. Biological Membranes and Transport
12. Biochemical Signaling

II BIOENERGETICS AND METABOLISM

13. Introduction to Metabolism
14. Glycolysis, Gluconeogenesis, and the Pentose Phosphate Pathway
15. The Metabolism of Glycogen in Animals
16. The Citric Acid Cycle
17. Fatty Acid Catabolism
18. Amino Acid Oxidation and the Production of Urea
19. Oxidative Phosphorylation
20. Photosynthesis and Carbohydrate Synthesis in Plants
21. Lipid Biosynthesis
22. Biosynthesis of Amino Acids, Nucleotides, and Related Molecules
23. Hormonal Regulation and Integration of Mammalian Metabolism

III INFORMATION PATHWAYS

24. Genes and Chromosomes
 25. DNA Metabolism
 26. RNA Metabolism
 27. Protein Metabolism
 28. Regulation of Gene Expression
- Abbreviated Solutions to Problems
Glossary