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Nota di contenuto	I. Foundation of Biochemistry -- 1. Frameworks of Biochemistry -- II. Biomolecules -- 2. Amino Acids and Peptides -- 3. Proteins -- 4. Enzymes -- 5. Carbohydrates -- 6. Lipids and Membranes -- 7. Nucleic Acids -- III. Metabolism -- 8. Introduction to Metabolism -- 9. Bioenergetics -- 10. Carbohydrate Metabolism -- 11. The Citric Acid Cycle -- 12. Electron Transport and Oxidative Phosphorylation -- 13. Lipid Metabolism -- 14 Amino Acid and Nucleotide Metabolism -- 15. Photosynthesis -- IV. Transfer of Genetic Information -- 16. Introduction to Molecular Biology -- 17. Replication—The Synthesis of DNA -- 18. Transcription—The Synthesis of RNA -- 19. Translation—The Synthesis of Protein -- Appendix A. Acid—Base Calculations -- A. 1. Ionic Strength -- A.2. pH -- A.3. Henderson—Hasselbalch Equation -- A.4. Buffers -- Appendix B. Principles of Organic Chemistry -- B.1. Functional Groups -- B.2. Polar Reactions -- B.3. Chirality -- B.4. Optical Isomerism -- B.5. Conformation and Configuration -- Appendix C. Tools of Biochemistry -- C.1. Spectrophotometry -- C.2. Chromatography -- C.2.1. Adsorption Chromatography -- C.2.2. Ion-Exchange Chromatography -- C.2.3. Partition Chromatography -- C. 2.4. Gel-Filtration Chromatography -- C.3. Centrifugation -- C3.1.

Analytical Ultracentrifugation -- C.3.2. Density Gradient Centrifugation -- C.4. Electrophoresis -- C.5. Radioactivity -- C.6. Recombinant DNA Technology -- C.6.1. Selection of Target DNA Fragment -- C.6.2. Production of Recombinant DNA -- C.6.3. Insertion of Recombinant DNA into Host Cells -- C.6.4. Selection of Cells Containing Cloned DNA -- C.6.5. Polymerase Chain Reaction -- Appendix D. Oxidation—Reduction Reactions -- D.1. Half-Reactions -- D.2. Direction of Redox Reactions -- D.2.1. Standard Conditions -- D.2.2. Actual Conditions -- Answers to Problems.

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## Sommario/riassunto

This text is intended for an introductory course in bio- metabolism concludes with photosynthesis. The last sec- chemistry. While such a course draws students from vari- tion of the book, Part IV, TRANSFER OF GENETIC INFOR- ous curricula, all students are presumed to have had at MATION, also opens with an introductory chapter and then least general chemistry and one semester of organic chem- explores the expression of genetic information. Replica- istry. tion, transcription, and translation are covered in this or- My main goal in writing this book was to provide stu- der. To allow for varying student backgrounds and for pos- sible needed refreshers, a number of topics are included as dents with a basic body of biochemical knowledge and a thorough exposition of fundamental biochemical con- four appendixes. These cover acid-base calculations, principles of cepts, including full definitions of key terms. My aim has of organic chemistry, tools biochemistry, and been to present this material in a reasonably balanced oxidation-reduction reactions. form by neither deluging central topics with excessive de- Each chapter includes a summary, a list of selected tail nor slighting secondary topics by extreme brevity. readings, and a comprehensive study section that consists Every author of an introductory text struggles with of three types of review questions and a large number of the problem of what to include in the coverage. My guide- problems.

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