

BRIEF CONTENTS

PART ONE Fundamentals of Microbiology

- 1 The Microbial World and You 1
- 2 Chemical Principles 26
- 3 Observing Microorganisms through a Microscope 54
- 4 Functional Anatomy of Prokaryotic and Eukaryotic Cells 76
- 5 Microbial Metabolism 113
- 6 Microbial Growth 156
- 7 The Control of Microbial Growth 184
- 8 Microbial Genetics 210
- 9 Biotechnology and Recombinant DNA 246

PART TWO A Survey of the Microbial World

- 10 Classification of Microorganisms 273
- 11 The Prokaryotes: Domains Bacteria and Archaea 299
- 12 The Eukaryotes: Fungi, Algae, Protozoa, and Helminths 329
- 13 Viruses, Viroids, and Prions 367

PART THREE Interaction between Microbe and Host

- 14 Principles of Disease and Epidemiology 399
- 15 Microbial Mechanisms of Pathogenicity 428
- 16 Innate Immunity: Nonspecific Defenses of the Host 449
- 17 Adaptive Immunity: Specific Defenses of the Host 476
- 18 Practical Applications of Immunology 500
- 19 Disorders Associated with the Immune System 522
- 20 Antimicrobial Drugs 553

PART FOUR Microorganisms and Human Disease

- 21 Microbial Diseases of the Skin and Eyes 584
- 22 Microbial Diseases of the Nervous System 610
- 23 Microbial Diseases of the Cardiovascular and Lymphatic Systems 637
- 24 Microbial Diseases of the Respiratory System 674
- 25 Microbial Diseases of the Digestive System 705
- 26 Microbial Diseases of the Urinary and Reproductive Systems 743

PART FIVE Environmental and Applied Microbiology

- 27 Environmental Microbiology 766
- 28 Applied and Industrial Microbiology 793

Answers to Review and Multiple Choice Study Questions AN-1

Appendix A Metabolic Pathways AP-1

Appendix B Exponents, Exponential Notation, Logarithms, and Generation Time AP-7

Appendix C Methods for Taking Clinical Samples AP-8

Appendix D Pronunciation of Scientific Names AP-9

Appendix E Word Roots Used in Microbiology AP-13

Appendix F Classification of Bacteria According to *Bergey's Manual* AP-16

Glossary G-1

Credits C-1

Index I-1