

BRIEF CONTENTS

VOLUME ONE

PART ONE

Introduction to Microbiology

- 1 The History and Scope of Microbiology 4
- 2 The Study of Microbial Structure: Microscopy and Specimen Preparation 20
- 3 Prokaryotic Cell Structure and Function 40
- 4 Eucaryotic Cell Structure and Function 69

PART TWO

Microbial Growth and Metabolism

- 5 Microbial Nutrition 96
- 6 Microbial Growth 112
- 7 Metabolism: Energy and Enzymes 133
- 8 Metabolism: The Generation of Energy 145
- 9 Metabolism: The Use of Energy in Biosynthesis 171
- 10 Metabolism: The Synthesis of Nucleic Acids and Proteins 191
- 11 Metabolism: The Regulation of Enzyme Activity and Synthesis 216

PART THREE

Microbial Genetics

- 12 Microbial Genetics: General Principles 236
- 13 Microbial Genetics: Recombination and Plasmids 258
- 14 Recombinant DNA Technology 285

PART FOUR

The Control of Microorganisms

- 15 Control of Microorganisms by Physical and Chemical Agents 310
- 16 Antimicrobial Chemotherapy 325

PART FIVE

The Viruses

- 17 The Viruses: Introduction and General Characteristics 346
- 18 The Viruses: Bacteriophages 367
- 19 The Viruses: Viruses of Eucaryotes 383

PART SIX

The Diversity of the Microbial World

- 20 Microbial Taxonomy 404
- 21 The Bacteria: Gram-Negative Bacteria of General, Medical, or Industrial Importance 426
- 22 The Bacteria: Gram-Positive Bacteria Other Than Actinomycetes 450
- 23 The Bacteria: Remaining Gram-Negative Bacteria and Cyanobacteria 467
- 24 The Archaeobacteria 492
- 25 The Bacteria: The Actinomycetes 506
- 26 The Fungi, Slime Molds, and Water Molds 518
- 27 The Algae 535
- 28 The Protozoa 548

VOLUME TWO

PART SEVEN

The Nature of Symbiotic Associations

- 29 Symbiotic Associations: Commensalism, Mutualism, and Normal Microbiota of the Human Body 564
- 30 Symbiotic Associations: Parasitism, Pathogenicity, and Resistance 578

PART EIGHT

The Fundamentals of Immunology

- 31 The Immune Response: Antigens and Antibodies 606
- 32 The Immune Response: Chemical Mediators, B- and T-Cell Biology, and Immune Disorders 626
- 33 The Immune Response: Antigen-Antibody Reactions 646

PART NINE

Microbial Diseases

- 34 Clinical Microbiology 672
- 35 The Epidemiology of Infectious Disease 698
- 36 Human Diseases Caused by Viruses 715
- 37 Human Diseases Caused Primarily by Gram-Positive and Gram-Negative Bacteria 741
- 38 Human Diseases Caused by Other Bacteria (Chlamydiae, Mycoplasmas, and Rickettsias); Dental and Nosocomial Infections 770
- 39 Human Diseases Caused by Fungi and Protozoa 781

VOLUME THREE

PART TEN

Microorganisms and the Environment

- 40 Microorganisms as Components of the Environment 804
- 41 Marine and Freshwater Environments 823
- 42 The Terrestrial Environment 845

PART ELEVEN

Food and Industrial Microbiology

- 43 Microbiology of Food 866
- 44 Industrial Microbiology and Biotechnology 887