

CONTENTS

PART 1 INTRODUCTION TO THE MICROBIAL WORLD

- 1 History of microbiology, 3
- 2 Biochemical background for microbiology, 14
- 3 Introduction to microscopic technique, 40
- 4 Characteristics of the microbial world: prokaryotes, 50
- 5 Characteristics of the microbial world: eukaryotes, 92
- 6 Viruses, 133

PART 2 MICROBIAL STRUCTURE AND FUNCTION

- 7 Prokaryotic ultrastructure and function, 153
- 8 Eukaryotic ultrastructure and function, 185

PART 3 MICROBIAL GENETICS

- 9 DNA replication and mutation, 205
- 10 Genetic code and protein synthesis, 229
- 11 Recombination and gene transfer, 248
- 12 Eukaryotic genetics, 266

PART 4 MICROBIAL METABOLISM AND GROWTH

- 13 Energy production in microorganisms, 281
- 14 Nutrition, biosynthesis, and metabolic control, 312
- 15 Microbial growth and factors affecting growth, 334
- 16 Viral replication and tumor development, 355

PART 5 ENVIRONMENTAL AND APPLIED MICROBIOLOGY

- 17 Concepts of microbial ecology, 381
- 18 Aquatic microbiology, 400
- 19 Soil microbiology, 420
- 20 Food microbiology, 440
- 21 Industrial microbiology, 467

PART 6 INFECTION AND IMMUNITY

- 22 Host-parasite interactions, 497
- 23 Immunology: factors and functions of the immune system, 519
- 24 Antigen-antibody interactions: their detection and quantitation, 544
- 25 Immune disorders: immunodeficiencies and hypersensitivities, 555

PART 7 MICROORGANISMS AND HUMAN INFECTIOUS DISEASE

- 26 Epidemiology of infectious disease, 575
- 27 Control of infectious microorganisms: chemotherapy, sterilization, and disinfection, 589
- 28 Bacterial diseases, 618
- 29 Viral diseases, 651
- 30 Sexually transmitted diseases, 671
- 31 Fungal diseases, 691
- 32 Animal parasite diseases, 707
- 33 Hospital-associated diseases, 732

PART 8 INFECTIOUS DISEASES OF ANIMALS AND PLANTS

- 34 Infectious diseases of animals, 753
- 35 Infectious diseases of plants, 764

APPENDIXES

- Appendix A Scientific measurements and mathematics, 785
- Appendix B Techniques and procedures used in identification of infectious microorganisms, 787
- Appendix C Bergey's classification scheme, 793
- Glossary, 797