

## **Part 1: The Clinical Laboratory**

1. General Concepts and Administrative Issues
2. Optimizing Laboratory Workflow and Performance
3. Preamalysis
4. Analysis: Principles of Instrumentation
5. Mass Spectrometry and Applications
6. Analysis: Clinical Laboratory Automation
7. Point-of-Care Testing and Physician Office Laboratories
8. Postanalysis: Medical Decision Making
9. Interpreting Laboratory Results
10. Laboratory Statistics
11. Quality Control
12. Clinical Laboratory Informatics
13. Financial Management
14. Ethics in Laboratory Medicine

## **Part 2: Clinical Chemistry**

15. Evaluation of Renal Function, Water , Electrolytes and Acid-Base Function
16. Biochemical Markers of Bone Metabolism
17. Carbohydrates
18. Lipids and Dyslipoproteinemia
19. Cardiac Injury, Atherosclerosis, and Thrombotic Disease
20. Specific Proteins
21. Clinical Enzymology
22. Evaluation of Liver Function
23. Laboratory Diagnosis of Gastrointestinal and Pancreatic Disorders
24. Toxicology and Therapeutic Drug Monitoring
25. Evaluation of Endocrine Function
26. Reproductive Function and Pregnancy
27. Vitamins and Trace Elements

28. Chemical Basis for Analyte Assays and Common Interferences

**Part 3: Urine and Other Body Fluids**

29. Basic Examination of Urine

30. Cerebrospinal, Synovial, Serous Body Fluids, and Alternative Specimens

**Part 4: Hematology and Transfusion Medicine**

31. Basic Examination of Blood and Bone Marrow

32. Hematopoiesis

33. Erythrocytic Disorders

34. Leukocytic Disorders

35. The Flow Cytometric Evaluation for Hematopoietic Neoplasia

36. Immunohematology

37. Transfusion Medicine

38. Hemapheresis

39. Tissue Banking and Progenitor Cells

**Part 5: Hemostasis and Thrombosis**

40. Coagulation and Fibrinolysis

41. Platelet Disorders and Von Willebrand Disease

42. Laboratory Approach to Thrombotic Risk

43. Antithrombotic Therapy

**Part 6: Immunology and Immunopathology**

44. Overview of the Immune System and Immunologic Disorders

45. Immunoassays and Immunochemistry

46. Laboratory Evaluation of the Cellular Immune System

47. Laboratory Evaluation of Immunoglobulin Function and Humoral Immunity

48. Mediators of Inflammation: Complement

49. Mediators of Inflammation: Cytokines and Adhesion Molecules

50. Human Leukocyte Antigen: The Major Histocompatibility Complex of Man

51. The Major Histocompatibility Complex and Disease

52. Immunodeficiency Disorders

53. Clinical and Laboratory Evaluation of Systemic Autoimmune Rheumatic Diseases

54. Vasculitis

55. Organ-Specific Autoimmune Diseases

56. Allergic Diseases

**Part 7: Medical Microbiology**

57. Medical Bacteriology

58. In Vitro Testing of Antimicrobial Agents

59. Mycobacteria

60. Mycotic Diseases

61. Spirochete Infections

62. Chlamydial and Mycoplasmal Infections

63. Rickettsiae and Other Related Intracellular Bacteria

64. Viral Infections

65. Medical Parasitology

66. Specimen Collection and Handling for Diagnosis of Infectious Diseases

**Part 8: Molecular Pathology**

67. Introduction to Molecular Pathology

68. Molecular Diagnostics: Basic Principles and Techniques

69. Polymerase Chain Reaction and Other Nucleic Acid Amplification Technology

70. Hybridization Array Technologies

71. Applications of Cytogenetics in Modern Pathology

72. Molecular Diagnosis of Genetic Diseases

73. Molecular Genetics of Neuro-Psychiatric Disorders: Current Research and Perspectives

74. Identity Testing: Use of DNA Analysis in Parentage, Forensic, and Missing Persons Testing

75. Pharmacogenomics and Personalized Medicine

**Part 9: Clinical Pathology of Cancer**

76. Diagnosis and Management of Cancer Using Serologic and Other Body Fluid Markers

77. Oncoproteins and Early Tumor Detection

78. Molecular Diagnosis of Hematopoietic Neoplasms

79. Molecular Genetic Pathology of Solid Tumors

80. High-Throughput Genomic and Proteomic Technologies in the Post-Genomic Era

Appendices

Physiologic Solutions, Buffers, Acid-Base Indicators, Standard Reference Materials, and Temperature Conversions

Desirable Weights, Body Surface Area, and Body Mass Index

Approximations of Total Blood Volume

Periodic Table of Elements

SI Units

Common Chimeric Genes Identified in Human Malignancies

Disease/Organ Panels