_					
_	ᆈ	: 4	_	-	
_	11		n	rs.	ΙY

Preface xi

About the Companion Website xiii

## Section I General Principles of Laboratory Testing and Diagnosis 1

1 Laboratory Technology for Veterinary Medicine 3

Glade Weiser

2 Sample Collection and Processing, Preparations for Clinical Microscopy, and Analysis of Laboratory Service Options 30

Glade Weiser

3 Perspectives in Laboratory Data Interpretation and Disease Diagnosis 46 Glade Weiser and Robin W. Allison

4 Immunodiagnostics: Current Use and Future Trends in Veterinary Medicine 58 Wayne A. Jensen

5 Laboratory Diagnosis of Infectious Diseases of Animals 65 *Sreekumari Rajeev* 

#### **Section II Hematology of Common Domestic Species 85**

6 Erythrocyte Production, Function, and Morphology 87 Mary Anna Thrall

7 Classification of and Diagnostic Approach to Anemia 100 Mary Anna Thrall

8 Nonregenerative Anemia 106

Mary Anna Thrall

9 Regenerative Anemia 110

Mary Anna Thrall

10 Classification of and Diagnostic Approach to Erythrocytosis 135 Mary Anna Thrall

11 Introduction to Leukocytes and the Leukogram 139 *Glade Weiser* 

12 Neutrophil Production, Trafficking, and Kinetics 144 *Glade Weiser*  13 Interpretation of Leukocyte Responses in Disease 148

Glade Weiser

14 Molecular Diagnostics of Hematologic Malignancies 161

Emily D. Rout and Anne C. Avery

15 Laboratory Evaluation of Bone Marrow 170

Mary Anna Thrall and Glade Weiser

16 Lymphoproliferative Disorders and Myeloid Neoplasms 183

Mary Anna Thrall

17 Disorders of Hemostasis 201

James Meinkoth

18 Principles of Blood Transfusion and Crossmatching 220

Linda M. Vap and Karl E. Jandrey

## Section III Hematology of Common Nondomestic Mammals, Birds, Reptiles, Fish, and Amphibians 235

19 Mammalian Hematology: Laboratory Animals and Miscellaneous Species 237

Terry W. Campbell

20 Hematology of Birds 254

Terry W. Campbell

21 Hematology of Reptiles 292

Terry W. Campbell

22 Hematology of Fish 314

Terry W. Campbell

23 Hematology of Amphibians 330

Terry W. Campbell

#### Section IV Clinical Chemistry of Common Domestic Species 341

24 Laboratory Evaluation and Interpretation of the Urinary System 343

Donald Meuten and Saundra Sample

25 Laboratory Evaluation of Electrolytes 402

Andrea A. Bohn

26 Laboratory Evaluation of Acid-Base Disorders 417

Glade Weiser

27 Laboratory Evaluation of the Liver 425

Robin W. Allison

28 Laboratory Evaluation of the Pancreas and Glucose Metabolism 445

Robin W. Allison

29 Laboratory Evaluation of Gastrointestinal Disease, Digestion, and Intestinal Absorption 458

Dawn Seddon

30 Laboratory Evaluation of Plasma and Serum Proteins 484

Robin W. Allison

31 Laboratory Detection of Muscle Injury 498

Robin W. Allison

32 Laboratory Evaluation of Lipids 502

M. Judith Radin

33 Laboratory Evaluation of the Thyroid, Adrenal, and Pituitary Glands 515

Donald Meuten and Saundra Sample

34 Parathyroid Glands and Calcium and Phosphorus Metabolic Pathology 561

Donald Meuten

# Section V Clinical Chemistry of Common Nondomestic Mammals, Birds, Reptiles, Fish, and Amphibians 587

35 Clinical Chemistry of Mammals: Laboratory Animals and Miscellaneous Species 589

Terry W. Campbell

36 Clinical Chemistry of Birds 601

Terry W. Campbell

37 Clinical Chemistry of Reptiles 617

Terry W. Campbell

38 Clinical Chemistry of Fish and Amphibians 625

Terry W. Campbell

#### Section VI Cytopathology of Common Domestic Animals 633

39 Cytology of Inflammation and Infectious Agents 635

Robin W. Allison

40 Cytology of Neoplasia 652

Donald Meuten and Kristina Meichner

41 Cytology of Skin and Subcutaneous Masses 676

Donald Meuten, Kristina Meichner, and Mary Anna Thrall

42 Cytology of Body Cavity Effusions 703

Robin W. Allison

43 Cytology of Synovial Fluid 717

James Meinkoth

44 Cytology of Abdominal Organs 731

Mary Anna Thrall and Andrea A. Bohn

45 Cytology of Lymph Nodes 752

Mary Anna Thrall, Donald Meuten, Andrea A. Bohn, and Kristina Meichner

## **Section VII Clinical Case Presentations 775**

Clinical Case Presentations 777

Alex Mau

This section includes 117 cases with clinicopathologic data accompanied by an interpretive discussion and diagnostic summary.

Index 1011