

TABLE OF CONTENTS

Clinical Pathology & Laboratory Techniques for Veterinary Technicians, 2nd Edition

List of Contributors xi

Preface xiii

1 Getting Started with Clinical Pathology 1

Amy L. MacNeill

Introduction 2

Standard Equipment 3

Standard Supplies 14

Sample Types 17

Sample Storage and Preparation 17

Basic Laboratory Safety 18

2 Minimizing Laboratory Errors in Veterinary Practice 21

Bente Flatland

Introduction 23

Laboratory Considerations 23

Laboratory Area 26

Types of Laboratory Error 27

Minimizing Laboratory Error 28

Minimizing All Types of Laboratory Error 28

Minimizing Preanalytical Error 31

Minimizing Analytical Error 32

Minimizing Postanalytical Error 38

Summary 39

Further Reading 39

3 Hematology 45

Amy L. MacNeill

Introduction 48

Components of Peripheral Blood 49

Blood Cell Parameters 50

Erythrocytes 51

Leukocytes 68

Platelets 81

Atypical Cells in the Peripheral Blood 84

Blood Parasites 85

Hematology Methods 89

Further Reading 104

4 Hemostasis 109

Amy L. MacNeill

Introduction 112

Physiology 112

Diagnostic Testing 120

Further Reading 129

5 Clinical Chemistry 131

Anne M. Barger

Introduction 132

Available Testing 133

Sample Preparation 134

Sample Quality 137

Clinical Chemistry Health Profiles 140

Purpose 140

Blood Proteins 142

Kidney 147

Liver 153

Muscle 162

Pancreas 163

Glucose 164

Electrolytes 168

Calcium 168

Phosphorus 171

Sodium, Chloride, and Potassium 172

Acid–Base Balance 174

Further Reading 178

6 Urinalysis 181

Anne M. Barger

Introduction 182

Urine Production 183

Concentration of Urine 184

Urine Collection 186

Examination of Urine 188

Urine Concentration 190

Urine Chemistry 193

Urine Sediment 196

Further Reading 217

7 Parasitology 219

Ashley K. McGrew

Introduction 221

Classification of Parasites 222

Life Cycles 223

Effect of the Parasite on the Host 224

Endoparasites 224

Diagnostic Testing 224

Ectoparasites 258

Diagnostic Testing 258

Parasite Identification 263

Further Reading 275

Recommended Websites 276

8 Endocrinology 277

Jérémie Korchia

Introduction 281

Hormonal Physiology 281

Generalities About Hormones 281

Classification of Hormones and Receptors 284

Origin of Endocrine Diseases 285

Samples for Hormone Measurement 288

Submission Form 288

Protocol Considerations 289

Sample Considerations 289

Measurement Methods 290

Endocrine Test Performance and Endocrine Result Interpretation 293

Performance of Immunoassays 293

Difference between Analytical and Clinical Performance 294

Main Endocrine Systems and Associated Diseases/Status in Veterinary Medicine 294

Adrenal System 294

Thyroid System 296

Calcium Regulating System 297

Water Regulatory Systems: Renin–Angiotensin–Aldosterone and ADH Hormone 298

Glucose Metabolism Regulation Systems 300

GH and IGF1 304

Reproductive System 305

Further Reading 311

Glossary of Terms 317

Index 329.