

TABLE OF CONTENTS – Laboratory Procedures for Veterinary Technicians, 7th Edition

- Cover image
- Title Page
- Table of Contents
- IFC
- Procedures
- Copyright Page
- Dedication
- Contributors
- Preface
- Acknowledgments

- **Unit 1 The Veterinary Practice Laboratory**
- Introduction
- 1 Safety Concerns and OSHA Standards
- Hazard Control
- OSHA Standards
- Laboratory Design
- Review Questions
- Key Points

- **2 General Laboratory Equipment**
- Test Tubes
- Centrifuge
- Refractometer
- Pipettes
- Temperature-Controlling Equipment
- Automated Analyzers
- Miscellaneous Equipment and Supplies
- Review Questions
- Key Points

- **3 The Microscope**
- Care and Maintenance
- Calibration of the Microscope
- Digital Microscopy
- Review Questions
- Key Points

- **4 The Metric System and Lab Calculations**
- Numbering Systems
- Review Questions
- Key Points
-

- **5 Quality Control and Record Keeping**
- Accuracy, Precision, and Reliability
- Analysis of Control Materials
- Errors
- Applied Quality Control
- Laboratory Records
- Review Questions
- Key Points
- Unit 2 Hematology
- Introduction

- **6 Hematopoiesis**
- Hematopoiesis
- Erythropoiesis
- Thrombopoiesis
- Granulopoiesis
- Monopoiesis
- Lymphopoiesis
- Definitions
- Review Questions
- Key Points

- **7 Sample Collection and Handling**
- Collection and Handling of Blood Samples
- Sample Volume
- Collection Procedure
- Review Questions
- Key Points

- **8 Automated Analyzers**
- Cell Counts
- Types of Hematology Instruments
- Review Questions
- Key Points
-
- **9 Hemoglobin, PCV, and Erythrocyte Indices**
- Packed Cell Volume
- Hemoglobin Testing
- Erythrocyte Indices
- Review Questions
- Key Points

- **10 Evaluating the Blood Smear**
- Preparation of Blood Smears
- Review Questions
- Key Points

- **11 Morphologic Abnormalities of Blood Cells**
- Quantifying Morphologic Changes
- Morphologic Abnormalities Seen in White Blood Cells

- Morphologic Abnormalities Seen in Red Blood Cells
- Review Questions
- Key Points

- **12 Additional Hematologic Tests**
- Reticulocyte Count
- Bone Marrow Evaluation
- Erythrocyte Sedimentation Rate
- Review Questions
- Key Points

- **13 Hematopoietic Disorders and Classification of Anemia**
- Disorders of the Bone Marrow
- Classification of Anemia
- Review Questions
- Key Points
- Unit 3 Hemostasis
- Introduction

- **14 Principles of Blood Coagulation**
- Overview of Blood Coagulation
- Coagulation Testing
- Review Questions
- Key Points

- **15 Sample Collection and Handling**
- Sample Collection and Handling
- Coagulation Instrumentation
- Review Questions
- Key Points

- **16 Platelet Evaluation**
- Platelet Count
- Review Questions
- Key Points

- **17 Coagulation Testing**
- Buccal Mucosa Bleeding Time
- Activated Clotting Time
- Whole Blood Clotting Time
- Activated Partial Thromboplastin Time
- Prothrombin Time Test
- Clot Retraction Test
- Fibrinogen Determination
- PIVKA
- D-Dimer and Fibrin Degradation Products
- Von Willebrand Factor
- Coagulation Factor Assays
- Review Questions
- Key Points

- **18 Disorders of Hemostasis**
- Hemostatic Defects
- Hereditary Coagulation Disorders
- Acquired Coagulation Disorders
- Disseminated Intravascular Coagulation
- Review Questions
- Key Points
- Unit 4 Immunology
- Introduction

- **19 Basic Principles of Immunity**
- Innate Immune System
- Adaptive Immune System
- Passive Immunity
- Immunization
- Review Questions
- Key Points

- **20 Common Immunologic Laboratory Tests**
- Sample Collection and Handling
- Handling Serologic Samples
- Tests of Humoral Immunity
- Immunology Analyzers
- Review Questions
- Key Points

- **21 Blood Groups and Immunity**
- Blood Types
- Blood Typing
- Crossmatching
- Review Questions
- Key Points

- **22 Intradermal Testing**
- Tests of Cell-Mediated Immunity
- Review Questions
- Key Points

- **23 Reference Laboratory Immunoassays**
- Coombs Testing
- Immunodiffusion
- Radioimmunoassay
- Fluorescent Antibody Testing
- Antibody Titers
- Molecular Diagnostics
- Review Questions
- Key Points

- **24 Disorders of the Immune System**
- Hypersensitivity

- Review Questions
- Key Points
- Unit 5 Urinalysis
- Introduction

- **25 Anatomy and Physiology of the Urinary System**
- Formation of Urine
- Urine Volume Regulation
- Review Questions
- Key Points

- **26 Sample Collection and Handling**
- Voided or Free-Catch Samples
- Bladder Expression
- Catheterization
- Cystocentesis
- Specimen Storage and Handling
- Review Questions
- Key Points

- **27 Physical Examination of Urine**
- Urine Volume
- Color
- Clarity/Transparency
- Odor
- Specific Gravity
- Review Questions
- Key Points

- **28 Chemical Evaluation**
- pH
- Protein
- Glucose
- Ketones
- Bile Pigments
- Blood (Hemoprotein)
- Leukocytes
- Urinalysis Analyzers
- Review Questions
- Key Points

- **29 Urine Sediment Analysis**
- Dry-Mount Urine Cytology
- Constituents of Urine Sediment
- Microorganisms
- Miscellaneous Components of Urine
- Urolithiasis
- Review Questions
- Key Points

- Unit 6 Clinical Chemistry
- Introduction

- **30 Sample Collection and Handling**
- Plasma
- Serum
- Factors That Influence Results
- Reference Ranges
- Review Questions
- Key Points

- **31 Automated Analyzers**
- Photometry
- End Point Versus Kinetic Assays
- Units of Measurement
- Ion-Selective Electrode and Electrochemical Methods
- Features and Benefits of Common Chemistry Analyzer Types
- Instrument Care and Maintenance
- Review Questions
- Key Points

- **32 Protein Assays and Hepatobiliary Function Tests**
- Protein Assays
- Hepatobiliary Assays
- Review Questions
- Key Points

- **33 Kidney Function Tests**
- Blood Urea Nitrogen
- Serum Creatinine
- Blood Urea Nitrogen/Creatinine Ratio
- Urine Protein/Creatinine Ratio
- Uric Acid
- Tests of Glomerular Function
- Review Questions
- Key Points

- **34 Pancreatic Function Tests**
- Exocrine Pancreas Tests
- Endocrine Pancreas Tests
- Review Questions
- Key Points

- **35 Electrolytes and Acid–Base Status**
- Acid–Base Balance
- Acidosis and Alkalosis
- Electrolyte Assays
- Review Questions
- Key Points

- **36 Miscellaneous Tests**
- Creatine Kinase
- Troponin and Brain Natriuretic Peptide
- Lactate
- Endocrine System Assays
- Chemical Tests of Gastrointestinal Function
- Toxicology
- Review Questions
- Key Points
- Unit 7 Microbiology
- Introduction

- **37 Introduction to Microbiology**
- Bacterial Cell Morphology
- Bacterial Growth
- Virology
- Review Questions
- Key Points

- **38 Equipment and Supplies**
- The In-House Microbiology Laboratory
- Laboratory Safety
- Equipment and Supplies Needed for the Microbiology Laboratory
- Culture Media
- Review Questions
- Key Points

- **39 Sample Collection and Handling**
- General Guidelines
- Collection of Viral Specimens
- Review Questions
- Key Points

- **40 Staining Specimens**
- Gram Stain
- Potassium Hydroxide Test
- Ziehl-Neelsen Stain
- Giemsa Stain
- Specialized Stains
- Quality Control
- Review Questions
- Key Points

- **41 Culture Techniques**
- Inoculation of Culture Media
- Incubation of Cultures
- Colony Characteristics
- Culture of Anaerobes
- Review Questions
- Key Points

- **42 Antimicrobial Sensitivity Testing**
- Antibiotic Resistance
- Antimicrobial Sensitivity Testing
- Agar Diffusion Method
- Minimum Inhibitory Concentration
- Colony Count
- Review Questions
- Key Points

- **43 Additional Testing**
- Motility
- Indole Test
- Catalase Test
- Coagulase Test
- Oxidase Activity
- Acid Production From Glucose
- California Mastitis Test
- Immunologic Examination
- Review Questions
- Key Points

- **44 Mycology**
- Dermatophyte Testing
- Fungal Cultures
- Review Questions
- Key Points
- Unit 8 Parasitology
- Introduction

- **45 Nematodes**
- Phylum Nematoda
- Review Questions
- Key Points

- **46 Cestodes, Trematodes, and Acanthocephalans**
- Eucestodes
- Pseudotapeworms
- Trematodes
- Acanthocephalans (Thorny-Head Worms)
- Review Questions
- Key Points

- **47 Protozoa and Rickettsia**
- Phylum Sarcomastigophora
- Phylum Apicomplexa
- Phylum Ciliophora
- Rickettsial Parasites
- Review Questions
- Key Points

- **48 Arthropods**
- Order: Siphonaptera (Fleas)
- Orders: Mallophaga and Anoplura (Lice)
- Order: Diptera (Flies)
- Class: Acarina (Mites and Ticks)
- Pentastomids (Tongue Worms)
- Phylum: Annelida (Segmented Worms)
- Review Questions
- Key Points

- **49 Sample Collection and Handling**
- Collection of Fecal Samples
- Skin Scraping
- Cellophane Tape Preparation
- Vacuum Collection
- Sample Collection at Necropsy
- Collection of Blood Samples
- Review Questions
- Key Points

- **50 Diagnostic Techniques**
- Evaluation of Fecal Specimens
- Cellophane Tape Preparation
- Baermann Technique
- Miscellaneous Fecal Examinations
- Staining Procedures
- Evaluation of Blood Samples
- Immunologic and Molecular Diagnostic Tests
- Miscellaneous Parasitologic Evaluations
- Review Questions
- Key Points
- Unit 9 Cytology
- Introduction

- **51 Sample Collection and Handling**
- Swabs
- Scrapings
- Imprints
- Fine-Needle Biopsy
- Tissue Biopsy
- Centesis
- Transtracheal/Bronchial Wash
- Concentration Techniques
- Review Questions
- Key Points

- **52 Preparation of Cytology Smears**
- Smear Preparation
- Fixing and Staining the Cytology Sample
- Submission of Cytologic Preparations and Samples for Interpretation

- Review Questions
- Key Points

- **53 Microscopic Evaluation**
- Inflammation
- Neoplasia
- Review Questions
- Key Points

- **54 Cytology of Specific Sites**
- Peritoneal and Pleural Fluid
- Lymph Nodes
- Cerebrospinal Fluid
- Aqueous and Vitreous Humor
- Synovial Fluid Analysis
- Tracheal Wash
- Nasal Flush
- Ear Swabs
- Vaginal Cytology
- Fecal Cytology
- Semen Evaluation
- Evaluation of Prostatic Secretions
- Examination of Milk
- Review Questions
- Key Points

- **Appendix A Review Questions**

- **Appendix B Reference Ranges**

- **Appendix C Bacterial Pathogens of Veterinary Importance**

- **Appendix D Professional Associations Related to Veterinary Clinical Laboratory Diagnostics**

- **Appendix E Common Parasites of Some Exotic Animal Species**
- Parasites of Birds
- Parasites of Rabbits
- Parasites of Guinea Pigs
- Parasites of Rats
- Parasites of Mice
- Parasites of Hamsters
- Parasites of Gerbils
- Parasites of Fish
- Parasites of Reptiles

- **Appendix F Example of a Standard Protocol for Reporting Results of a Urinalysis Laboratory Report**

- **Appendix G Taxonomic Classification of Parasites**
- Kingdom: Animalia (Animals)

- **Appendix H Zoonotic Internal Parasites**

- Glossary
- Resources
- Index.