Tennessee CTE

Veterinary Science Technologies

Economic, Occupational, and Technological Implications 1

1 **Career Exploration: Explore and compare local and regional career opportunities in the veterinary science industry using information from local job postings and Tennessee labor data. Describe the knowledge, skills, and abilities necessary for a selected occupation in veterinary and related careers.** 1.1

2 **Emerging Technologies: Examine specific technologies that have evolved within the veterinary science industry including but not limited to advances in equipment and procedures in healthcare, and evaluate the economic and societal implications of each. Explain how these advances have impacted the veterinary science industry.** 1.2

Personal and Occupational Health and Safety 2

1 **Occupational Safety: Compare and contrast the safety hazards associated with clinical and field settings. Review safety hazard case studies and recommend research-based practices to prevent the safety hazard in the future.** 2.1

2 **Safety and Operational Procedures: Review common laboratory safety procedures for tool and equipment operation in the veterinary science laboratories, including but not limited to accident prevention and control procedures. Demonstrate the ability to follow safety and operational procedures in a lab setting and complete a safety test with 100 percent accuracy.** 2.2

3 **Personal and Animal Safety: Demonstrate the ability to follow procedures precisely for the following areas:** 2.3

- a animal restraint and handling in clinical or field settings; 2.3.A
- b sanitation, disinfection, and sterilization procedures to prevent the transfer of zoonotic diseases; and 2.3.B
- c Globally Harmonized System (GHS) chemical data sheets interpretation. 2.3.C

Veterinary Law and Ethics 3

1 **Ethical Issues: Gather and compare information on the philosophical, social, moral, and ethical issues encountered in the veterinary profession. Debate their implications for practitioners of veterinary science by developing claim(s) and counterclaim(s) supported by reasoning and evidence from research.** 3.1

2 **Legal Regulations: Research legislation, local, state, and federal laws that regulate policies and procedures in veterinary medicine to summarize:** 3.2

- a animal rights and welfare; 3.2.A
- b professional licensing; 3.2.B
- c liability of veterinary staff; 3.2.C
- d U.S. Food and Drug Administration (FDA), U.S. Department of Agriculture (USDA), and U.S. Environmental Protection Agency (EPA) regulations for veterinary drugs and biologicals; and 3.2.D
- e Occupational Safety and Health Administration (OSHA) regulations for workplace safety. 3.2.E

Clinical Anatomy and Physiology 4

1 **Clinical Terminology: Identify common clinical terminology, abbreviations, and symbols relating to the diagnosis, pathology, and treatment of animals.** 4.1

2 **Cellular Homeostasis: Recognize various states of cellular homeostasis to identify infections, diseases, and mutations.** 4.2

3 **Tissue Anatomy: Review fundamental concepts pertaining to tissue and organ systems by comparing and contrasting the structure and function of different tissue types, including epithelial, connective, muscle, and nervous tissues. Explain how cellular differentiation allows for specialized tissue development.** 4.3

4 **Body Systems: Identify and research the major body systems, including the skeletal, muscular, respiratory, digestive, nervous, integumentary, urinary, and reproductive systems. Develop models to compare and contrast between different species of small and large domesticated animals.** 4.4

Clinical Nutrition 5

1 **Nutritional Assessment: Perform nutritional assessment techniques, including body condition scoring and life stage to determine the nutritional status of animals. Apply this information to recommend balanced rations, justify the recommendations.** 5.1

2 **Diseases and Disorder: Research the relationships of diseases and disorders to digestion, absorption, and metabolic processes. Assess the impact of various diseases and disorders on the maintenance of optimum nutrition levels in the animal's body.** 5.2

Clinical Procedures 6

1 **Equipment: Correctly identify and describe the function of common equipment used in the clinical area of a veterinary practice, including but not limited to examination tools, radiology equipment, ultrasound equipment, surgical equipment, and testing equipment. Develop a checklist including safe use and maintenance for specific equipment.** 6.1

2 **Procedures: Demonstrate, in a live setting or in a presentation, physical examination procedures in the following areas:** 6.2

- a identification of exam purpose, importance, and routine tasks; 6.2.A
- b completion of new client health history report; 6.2.B
- c identification and evaluation of factors affecting the physiological state of animals; 6.2.C
- d identification of characteristics and signs of healthy animals; 6.2.D
- e demonstration of procedures to accurately obtain and record vital signs; and 6.2.E
- f identification and evaluation of effects of age, stress, and environmental factors on vital signs. 6.2.F

3 **Vaccines and Injections: Identify and recommend the optimum timeline for administering different types of vaccines suitable for different species. Demonstrate, in a live setting or in a presentation, the ability to:** 6.3

- a identify injection methods; 6.3.A
- b identify appropriate anatomical injection sites; and 6.3.B
- c administer the injection, including the selection of appropriate equipment. 6.3.C

4 **Contamination Prevention: Explain the importance of contamination prevention as related to the veterinary industry. Demonstrate the ability to explain and follow contamination control procedures relating to the following areas:** 6.4

- a principles of sanitation, disinfection, antiseptics, and sterilization; 6.4.A
- b exam room care and sanitation procedures; 6.4.B
- c classification of sterilants, antiseptics, disinfectants, and their appropriate applications; 6.4.C
- d hazardous waste management; and 6.4.D
- e proper techniques to fill a syringe for a prescribed dosage. 6.4.E

Animal Nursing 7

1 **Plan of Care: Design a care plan by interpreting patient records and treatment plans, and perform basic nursing and patient monitoring tasks.** 7.1

2 **Basic First Aid: Outline basic first aid, wound care, and bandaging procedures and compare the different procedures in relation to small and large animals. Demonstrate, in a live setting or in a presentation, the ability to follow these procedures precisely, while distinguishing between small and large animals for the following areas:** 7.2

- a canine cardiopulmonary resuscitation (CPR) procedures; 7.2.A
- b assessment and care of common physical injuries such as cuts, abrasions, and contusions; 7.2.B
- c wound therapies at different phases of healing; 7.2.C
- d types and purposes of bandages, splints, slings, and casts, and indications for use; 7.2.D
- e techniques for application and removal of bandages; and 7.2.E
- f caring of animals during the birthing process. 7.2.F

3 **Pharmaceutical: Research and explain laws and regulations related to the administration of prescription and over-the-counter medication within the veterinary industry. Demonstrate the ability to follow medication administration procedures precisely, including:** 7.3

- a identification of common medications and their required storage, handling, and disposal; 7.3.A
- b demonstration of administration techniques for topical and oral medications; 7.3.B
- c interpretation of medication label and packaging information; and 7.3.C
- d calculate proper dosages of medications based upon label directions. 7.3.D

Laboratory Procedures 8

1 **Biological Samples: Compare and contrast appropriate laboratory quality control procedures such as the proper collection, preparation, handling, and storage of biological samples, and describe their effects on obtaining accurate data from laboratory procedures.** 8.1

2 **Hematology: Develop a procedural check sheet to aid in conducting veterinary clinical hematology procedures such as complete blood count (CBC). Using the check sheet, demonstrate the ability to follow clinical hematology procedures precisely in relation to the following areas:** 8.2

- a sample collection, preparation, and storage, 8.2.A
- b microscopic examination to identify blood cells, and 8.2.B
- c interpretation of normal and abnormal results. 8.2.C

3 **Urinalysis and Fecal Analysis: Explain and justify the need for conducting urinalysis and fecal analysis as related to animal health. Outline procedures for conducting clinical urinalysis to include the following:** 8.3

a sample collection, preparation, and storage; 8.3.A

b physical, chemical, and microscopic examination procedures; and 8.3.B

c interpretation of normal and abnormal results. 8.3.C

Principles of Disease 9

1 **Disease Prevention and Control: Compare and contrast the role of the USDA, state veterinarians, state animal disease laws, and diagnostic labs in disease prevention and control. Explain the classification of diseases and disease processes, and identify causative factors and agents of disease.** 9.1

2 **Disease – Signs and Symptoms: Explain how diseases affect the body and differentiate between clinical signs and symptoms of diseases. Identify and describe the differences between clinical signs and symptoms of proper health and poor health.** 9.2

3 **Prevention Methods: Identify symptoms of common animal diseases and their causative agents, and summarize methods of prevention, treatment, and control by drawing evidence from informational texts or recent medical literature.** 9.3

4 **Parasite Infections: Describe the clinical signs of an animal with a parasite infection. Compare and contrast the symptoms of common internal and external parasite infections and summarize methods of prevention, treatment, and control between small and large animals.** 9.4

5 **Genomics: Research how genomics can be used to reduce animal diseases, citing credible sources. Compare the different approaches genomics have on disease tolerance in both small and large animals.** 9.5

Clinic Management 10

1 **Front Office Operations: Demonstrate effective oral and written communication skills needed in clinical settings, including but not limited to client greeting, telephone answering, appointment scheduling and management, and admission and discharge procedures. Outline the procedures for euthanasia and post mortem customer care and role-play appropriate grief counseling services for clients.** 10.1

2 **Business Operations: Identify the types of medical, financial records, and recordkeeping platforms required to ensure a viable veterinary practice. Explain, justify, and demonstrate correct procedures for the completion and filing of veterinary records, required business operational records including inventory management documents, and related documentation in a legal manner to ensure a sound business.** 10.2