

# THE VETERINARY TECHNICIAN NATIONAL EXAMINATION

## CANDIDATE INFORMATION HANDBOOK



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## **1. WHAT ARE THE OBJECTIVES OF THE VETERINARY TECHNICIAN NATIONAL EXAMINATION?**

The primary objectives of the Veterinary Technician National Examination (VTNE) are:

- To provide examination services to state/provincial boards in assistance to their charge of protecting the public through the credentialing of veterinary technicians
- To assess the entry level competency of veterinary technicians.
- To provide a tool for boards and agencies to use as a common standard in the evaluation of candidates for licensing.
- To facilitate interstate/interprovincial licensing transfer for practicing veterinary technicians.

## **2. HOW IS THE VETERINARY TECHNICIAN NATIONAL EXAMINATION CONSTRUCTED?**

The VTNE is a 225-item multiple-choice examination prepared under a contractual agreement between the American Association of Veterinary State Boards (AAVSB) and the Professional Examination Service (PES). The Veterinary Technician Testing Committee (VTTC) of AAVSB, includes representation by the National Association of Veterinary Technicians in America (NAVTA), Association of Veterinary Technician Educators (AVTE), Canadian Association of Animal Health Technologists and Technicians (CAAHTT) and the Committee on Veterinary Technician Education and Activities (CVTEA), and veterinarians and veterinary technicians in private practice and academia. The AAVSB is responsible for the annual development and validation of the VTNE. The VTTC, under guidance provided by AAVSB and PES, ensures that the VTNE reflects current practice in the field of veterinary technology.

Questions for the VTNE are written by veterinarians and veterinary technicians who represent all aspects of the profession, including academicians, practitioners, members of specialty boards, and the national practice associations. Each newly written question is reviewed and validated by at least three experts in the field of veterinary medicine/technology for content relevance, importance, difficulty, and correctness. These questions are then reviewed and validated by psychometricians and editors to ensure conformity to psychometric principles and to rules of grammar and style.

Once a question is accepted following this validation process, it is placed into a computerized item-banking system. The questions for potential use on the VTNE are selected by the computer in accordance with the practice-based examination blueprint (test specifications, see Appendices 1A and 1B). The VTTC then reviews the computer-generated test, item by item, making changes and substitutions as necessary. Following this review, the finished examination is prepared by PES.

### 3. WHAT DOES THE VETERINARY TECHNICIAN NATIONAL EXAMINATION COVER?

The VTNE is administered in one test booklet. Beginning with the January 2009 administration, the VTNE will consist of 200 multiple-choice operational items and 25 multiple-choice pilot items derived from the test specifications (Appendices 1A and 1B). The candidate's score on the VTNE is based on the candidate's responses to 200 operational items; the remaining 25 pilot items embedded in the test will not count towards the candidate's score. The pilot questions will be used in constructing future examinations.

The VTNE examination covers seven primary areas of responsibility (domains) within veterinary technology practice, seventeen (23) task area statements, and forty-seven (47) knowledge area statements obtained from a job analysis study completed by AAVSB and PES every 5 to 7 years. The veterinary technology domains of practice are the major areas of responsibility deemed essential for an entry-level veterinary technician. The task area statements are specific goal directed actions undertaken by an entry-level veterinary technician within a particular veterinary technology domain of practice. The knowledge area statements consist of knowledge used across the seven domains of veterinary technician practice. A complete list of the veterinary technology practice domains, task, and knowledge statements are presented within Appendices 1A and 1B.

The VTNE is revised yearly to ensure that the questions reflect current practices and important concepts in veterinary technology.

Forty-eight (48) sample questions similar to the VTNE are included in Appendix B. You may also utilize the VTNE Online Practice Test, a fee based experience found at [www.aavsb.org](http://www.aavsb.org).

### 4. HOW AND WHEN IS THE VETERINARY TECHNICIAN NATIONAL EXAMINATION ADMINISTERED?

The VTNE is administered on the **THIRD Friday of January and June** over a four (4) hour time period. The Veterinary Technician National Examination is administered by AAVSB, or by each contracted state agency and/or provincial licensing board on the **third Friday in January and / or June**. Candidates are reminded that the VTNE is **not** administered in every state or province, **nor** is it administered twice a year in **every** jurisdiction. Candidates should contact the specific boards from which they intend to seek licensure for specific test date information and to determine if those states or provinces will be administering or requiring the VTNE. Board contact information can be found at [www.AAVSB.org](http://www.AAVSB.org), in the Boards and Agencies Directory.

**During the examination, candidates are allowed to use a four-function calculator provided by AAVSB. No other calculators are allowed during the examination.**

## 5. WHAT IS THE ROLE OF THE STATE/PROVINCIAL LICENSING BOARD?

Candidates wishing to take the VTNE must apply for the test through a state or provincial licensing board that regulates the credentialing of veterinary technicians. AAVSB accepts and processes applications for many jurisdictions, listed on the website: [www.AAVSB.org](http://www.AAVSB.org). In each jurisdiction that regulates veterinary technicians, the board sets the eligibility requirements for the test, processes applications, and sets the fees for the examination. It is the responsibility of each candidate to obtain the necessary application materials from the board through which the licensing credential is being sought. Since the requirements, deadlines, and application fees vary among jurisdictions, candidates are advised to contact their chosen boards well in advance of the examination date. Most boards have a deadline for the receipt of applications which may be **up to two months** prior to the examination date.

The addresses of the state and provincial licensing boards in the United States and Canada may be found on the AAVSB Website - [www.AAVSB.org](http://www.AAVSB.org). Click on Boards and Agencies Directory. Each jurisdiction is listed with all contact information. If you do not have a computer, you may call or write: AAVSB VTNE Administrator, 4106 Central, Kansas City, MO 64111. Telephone #: 816-931-1504. Fax # 816-931-1604. **Toll Free - 877-698-8482**. Email: [vettech@AAVSB.org](mailto:vettech@AAVSB.org).

## 6. HOW DO I APPLY FOR SPECIAL ACCOMMODATIONS?

The American Association of Veterinary State Boards is committed to the principle of testing individuals in a manner that will yield valid and reliable examination results. In some instances, the examination administration procedures may need to be modified to provide reasonable accommodations for candidates with disabilities.

The state/provincial authority is responsible for approving special accommodations. If you are requesting special accommodations, you should do this at least two months prior to the examination date AND submit the following with your application to the state/provincial authority:

1. The nature of the special accommodation being requested.
2. Documentation completed by a professional with a license or credential appropriate to diagnose and treat the disability. This documentation should include the nature of the disability, identification of the test(s) and protocol(s) used to confirm the diagnosis.
3. A description of past accommodations made for the disability. The state/provincial authority may request further documentation in support of your request.
4. A sample form for applying for special accommodations is found on the AAVSB website, at [www.aavsb.org](http://www.aavsb.org).

## 7. HOW IS THE VTNE SCORED?

All 225 questions that appear on the VTNE are retained for scoring purposes. The choices selected by candidates for each of the questions are cross-checked against the official answer key. Each of the 200 operational questions is scored individually and contributes equally to the candidate's total score. Although the 25 embedded pilot questions are also scored, they do not count towards the candidate's score. Candidates are encouraged to answer each VTNE item since there is no penalty for guessing.

### Raw and Scaled Scores

Performance of the VTNE is reported in terms of scaled scores, not raw scores. After equating procedures are completed, raw scores are mathematically converted to scaled scores that can range from 200 to 800 with a passing scaled score of 425 or from 0 – 100 with a passing scale score of 70 or 75, depending on how the candidates' state reports the results. Scaled scores are equivalent for all administrations so that the same standard is maintained from administration to administration. A scaled score of 425 (passing) is equal to a score of 70 or a score of 75, in the jurisdictions which use those numbers for the passing score. Scaled scores are not "number correct" or "percent correct" scores.

## 8. WHAT IS VETERINARY INFORMATION VERIFYING AGENCY (VIVA)?

The AAVSB Veterinary Information Verifying Agency (VIVA)<sup>™</sup> serves as a means of facilitating the transfer of veterinary and veterinary technician candidates' national scores and license information between jurisdictions. The AAVSB Score Transfer Request Application can be found online at [www.AAVSB.org](http://www.AAVSB.org).

AAVSB automatically reports examination results to the licensing board in whose jurisdiction the test is given. These original score reports are included in your examination fee.

SCORE TRANSFER - FEE: \$80.00 per online examination transfer request and \$100.00 per mailed or faxed examination transfer request. When you request a score transfer, the reports are sent to the new jurisdiction in the format that jurisdiction requires.

The on-line application on the AAVSB secure website requires payment by credit card.

## 9. HOW CAN CANDIDATES PREPARE TO TAKE THE EXAMINATION?

Candidates may wish to review the major areas to be tested. AAVSB does not provide any study guides or preparatory materials except for this brochure and the **VTNE: Practice Test Online**. The practice test will assess candidates' strengths and weaknesses in each of the

seven content areas of the VTNE so that the candidates can better focus their study efforts. The questions on the practice test are similar to the test questions on the actual examination and the passing score represents a similar standard to that of the actual examination. Performance on the practice test provides an indication of test readiness, but does not guarantee a similar result on the VTNE.

The VTNE: *Practice Test* is presented online and the fee is \$45. For information on the VTNE: *Practice Test Online* visit [www.AAVSB.org](http://www.AAVSB.org) and/or [www.testrac.com/AAVSB](http://www.testrac.com/AAVSB).

In addition to the VTNE: *Practice Test Online*, 48 Sample Questions are presented in Appendices 2A and 2B.

# APPENDICES

## Appendix 1A

### LIST OF PRACTICE DOMAINS AND TASKS FOR THE VETERINARY TECHNICIAN NATIONAL EXAMINATION (VTNE)

VTNE PRACTICE DOMAINS	
Domains	% of Items
Domain 1. Pharmacy & Pharmacology	14
Domain 2. Surgical Prep. & Assisting	16
Domain 3. Dentistry	8
Domain 4. Laboratory Procedures	15
Domain 5. Animal Care and Nursing	24
Domain 6. Diagnostic Imaging	8
Domain 7. Anesthesia and Analgesia	15

(Task area statements appear on the pages that follow)

## Appendix 1A (continued)

### PRACTICE DOMAINS AND TASK STATEMENTS FOR THE VETERINARY TECHNICIAN NATIONAL EXAMINATION (VTNE)

#### **DOMAIN 10.00      Pharmacy and Pharmacology (14%,)**

TASK 10.01    Prepare, administer, and/or dispense pharmacological and biological agents (excluding anesthetics and analgesics) to comply with veterinary prescriptions.

TASK 10.02    Educate the client regarding pharmacological and biological agents (excluding anesthetics and analgesics) administered or dispensed to ensure the safety of the patient/client and efficacy of the products.

#### **DOMAIN 20.00      Surgical Preparation and Assisting (16%)**

TASK 20.01    Prepare and maintain the surgical environment, equipment, instruments, and supplies to meet the needs of the surgical team and patient.

TASK 20.02    Prepare patient for procedure, including surgical site scrub and patient positioning.

TASK 20.03    Function as a sterile surgical technician (including but not limited to tissue handling, suturing, instrument handling) to ensure patient safety and procedural efficiency.

TASK 20.04    Function as a circulating (non-sterile) surgical technician to ensure patient safety and procedural efficiency.

#### **DOMAIN 30.00      Dentistry (8%)**

TASK 30.01    Prepare and maintain the environment, equipment, instruments, and supplies for dental procedures to meet the needs of the dental team and patient.

TASK 30.02    Perform or assist with dental procedures (including but not limited to prophylactic, radiographic, therapeutic, charting) to maintain the dental health of the patient and aid in the treatment of dental disease.

TASK 30.03    Educate the client regarding dental health, including prophylactic and post-treatment care.

**DOMAIN 40.00      Laboratory Procedures (15%)**

- TASK 40.01    Collect, prepare, and maintain specimens for in-house or outside laboratory evaluation.
  
- TASK 40.02    Perform laboratory tests and procedures (including but not limited to serology, cytology, hematology, urinalysis, parasitology).
  
- TASK 40.03    Maintain laboratory equipment and related supplies to ensure safety of operation and quality of results.

**DOMAIN 50.00      Animal Care and Nursing (24%)**

- TASK 50.01    Perform and document initial and ongoing evaluations of physical, behavioral, nutritional, and environmental status of animals to provide for optimal animal/client safety and health.
  
- TASK 50.02    Perform animal nursing and clinical diagnostic procedures (including but not limited to post-operative care, catheterization, wound management, blood pressure measurement, electrocardiography) to aid in diagnosis, prognosis, and implementation of prescribed treatments
  
- TASK 50.03    Educate clients and the public about animal care (including but not limited to post-operative care, preventive care, zoonosis) to promote and maintain the health of animals and the safety of clients/public.
  
- TASK 50.04    Provide a safe, sanitary, and comfortable environment for animals to ensure optimal healthcare and client/personnel safety.

**DOMAIN 60.00      Diagnostic Imaging (8%)**

- TASK 60.01    Produce diagnostic images (excluding dental) following safety protocols for operator and patient.
  
- TASK 60.02    Maintain imaging equipment and related materials to ensure safety of operation and quality of results.

**DOMAIN 70.00      Anesthesia and Analgesia (15%)**

- TASK 70.01    Assist in development of the anesthetic plan to ensure patient safety and procedural efficacy.
- TASK 70.02    Implement the anesthetic plan (including but not limited to administration, monitoring, maintenance) to facilitate diagnostic, therapeutic, or surgical procedures.
- TASK 70.03    Prepare and maintain anesthetic equipment and related materials to ensure safety and reliability of operation.
- TASK 70.04    Assess need for analgesia and assist in the development and implementation of the analgesic plan to optimize patient comfort and/or healing.
- TASK 70.05    Educate the client with regard to analgesic administration and the side effects of anesthetics and analgesics to ensure the safety of the patient/client and efficacy of the product(s) or procedure(s).

## Appendix 1B

### LIST OF KNOWLEDGE STATEMENTS FOR THE VETERINARY TECHNICIAN NATIONAL EXAMINATION (VTNE)

#### KNOWLEDGE

- 01 Anatomy
- 02 Normal physiology including theriogenology (reproduction)
- 03 Pathophysiology (diseases and disease processes)
- 04 Common animal diseases
- 05 Medical terminology
- 06 Toxicology
- 07 Applied mathematics (including but not limited to metric system/weights, measures/percentage solutions, dosage calculations)
- 08 Drug classification
- 09 Routes of administration of pharmacological and biological agents
- 10 Legal requirements and procedures for preparing, storing, and dispensing pharmacological and biological agents
- 11 Contraindications, side effects, and normal and abnormal drug reactions and interactions
- 12 Fluid balance and therapy
- 13 Aseptic techniques
- 14 Sterilization techniques and quality assurance for equipment and supplies
- 15 Patient positioning techniques (including but not limited to diagnostic imaging, surgery)
- 16 Surgical procedures

- 17 Sterile and circulating (non-sterile) surgical assisting procedures and instrumentation
- 18 Suturing methods and techniques
- 19 Dentistry procedures (including but not limited to cleaning, floating, charting, preventive procedures, dental imaging)
- 20 Dental equipment, instruments, and supplies
- 21 Sample collection, preparation, storing, and shipping techniques
- 22 Laboratory diagnostic principles and procedures (e.g., hematology, cytology, urinalysis, serology, immunology, microbiology, parasitology)
- 23 Quality assurance in the laboratory (including but not limited to maintenance of equipment, verification of test results, calibration, controls)
- 24 Implications of abnormal laboratory and diagnostic test results
- 25 Animal assessment and monitoring techniques (including but not limited to surgery, hospitalization, physical exam, and excluding anesthetic monitoring)
- 26 Principles of animal behavior
- 27 Clinical diagnostic procedures (including but not limited to blood pressure measurement, electrocardiography, tonometry)
- 28 Nutrition
- 29 Animal handling and restraint techniques
- 30 Animal husbandry
- 31 Animal nursing procedures (including but not limited to pre/post-operative care technique, casting, bandaging)
- 32 Animal first aid, triage, and emergency/critical care techniques
- 33 Public health (including but not limited to zoonosis, epidemiology)
- 34 Environmental health and safety procedures (including but not limited to handling and disposing hazardous material, personal safety, evacuation procedures, safety plans)

- 35 Disease control and prevention techniques (including but not limited to vaccination, wellness care, herd health)
- 36 Facility cleaning and disinfection techniques
- 37 Diagnostic imaging equipment and procedures (excluding dental imaging)
- 38 Quality assurance and safety for diagnostic imaging
- 39 Pre- and post-anesthetic assessment and care
- 40 Anesthetic induction, maintenance, monitoring, and recovery techniques including stages of anesthesia, and troubleshooting
- 41 Pre-anesthetic, anesthetic, and analgesic medications
- 42 Pain assessment and analgesic administration techniques
- 43 Procedures for care, maintenance, and use of diagnostic, therapeutic, surgical, and anesthetic equipment and supplies
- 44 Professional ethics (including but not limited to Veterinary Technician Code of Ethics)
- 45 Techniques for communicating with the veterinary medical team and client
- 46 Inventory control
- 47 Record keeping

## Appendix 2A

### SAMPLE PROBLEMS

Following are fifty objective multiple-choice questions similar to those that may appear on the actual Veterinary Technician National Examination:

1. Phenothiazine tranquilizers are *contradicted* in an animal with:
  1. diabetes
  2. epilepsy.
  3. glaucoma.
  4. hyperthyroidism.
  
2. In canines and felines, all deciduous teeth are normally shed by:
  1. 2-3 months of age
  2. 4-5 months of age
  3. 6-8 months of age
  4. 9-12 months of age
  
3. An osteosarcoma is a:
  1. benign tumor originating in cartilage
  2. benign tumor originating in bone
  3. malignant tumor originating in bone
  4. malignant tumor originating in cartilage
  
4. Urine filtration occurs in which portion of the nephron?
  1. Proximal tubule
  2. Glomerulus
  3. Collecting tubule
  4. Distal tubule
  
5. In the bitch, total cornification of the epithelial cells on a vaginal smear indicates:
  1. anestrus
  2. metestrus
  3. estrus
  4. proestrus

6. A lowered prothrombin level can be caused by a dietary deficiency, by impaired synthesis, or by impaired absorption of vitamin:
1. A
  2. D
  3. E
  4. K
7. A veterinarian treated a cow for milk fever last evening, but this morning the owner calls and informs the technician that the cow is down again. The veterinarian is too sick to work today. The technician should:
1. go to the farm and treat the cow, since the condition was previously diagnosed.
  2. supply medication for the owner to administer to the cow.
  3. obtain authorization from the veterinarian to go to the farm and treat the cow.
  4. inform the owner that the veterinarian is sick and offer to try to obtain a referral.
8. A correct statement regarding halothane and methoxyflurane is that these anesthetics:
1. cross the placenta very slowly.
  2. have no affect on the fetus.
  3. do not cross the placenta.
  4. cross the placenta rapidly.
9. A correct statement regarding a Gram stain is that such a stain is a :
1. specific analysis on specific morphology.
  2. chromatic differential test of microorganisms.
  3. test used to differentiate viability.
  4. differential test of colony characteristics.
10. Which of the following is the best reversible agent for inducing anesthesia in sight hounds?
1. Pentobarbital
  2. Oxymorphone
  3. Phenobarbital
  4. Pentothal

11. Which of the following tissues is *most* radiation-sensitive?
1. Bone cortex
  2. Cartilage
  3. Muscle
  4. Bone marrow
12. Which of the following is an example of a water-soluble vitamin?
1. Vitamin A
  2. Vitamin B<sub>2</sub>
  3. Vitamin E
  4. Vitamin K
13. When used as a preanesthetic, atropine will:
1. provide sufficient anesthesia for minor surgery.
  2. frequently produce vomiting.
  3. inhibit excessive salivary secretion.
  4. cause the pupils to constrict.
14. The spirochete *Borrelia burgdorferi* is responsible for which of the following diseases?
1. Distemper
  2. Pinkeye
  3. Lyme
  4. Panleukopenia
15. The soda lime in inhalation anesthesia equipment is used to absorb:
1. nitrous oxide.
  2. nitrogen.
  3. carbon dioxide.
  4. the anesthetic.
16. From cranial to caudal, the correct order for the segments of the spine in animals is:
1. coccygeal, sacral, lumbar, thoracic, cervical
  2. cervical, sacral, lumbar, thoracic, coccygeal
  3. cervical, thoracic, lumbar, sacral, coccygeal
  4. coccygeal, thoracic, lumbar, sacral, cervical

17. The Coggins test is used to diagnose:
1. listeriosis.
  2. equine encephalomyelitis.
  3. equine infectious anemia.
  4. brucellosis.
18. A disinfectant that should be used with caution around cats is:
1. Zephiran.
  2. phenol.
  3. Nolvasan.
  4. alcohol.
19. An emasculator is used in:
1. orthopedics.
  2. dentistry.
  3. cardiology.
  4. castration.
20. A correct statement regarding an onychectomy is that it involves the:
1. excision of a cyst.
  2. amputation of the tail.
  3. surgical removal of the nail.
  4. excision of the testicles.
21. A correct statement about the proper storage of whole blood is that it:
1. can be frozen for up to 1 year.
  2. can be stored at 39.2 F - 50 F (4 C - 10 C) for up to 3 weeks.
  3. should be stored above 122 F (50 C).
  4. does not need refrigeration for the first week of storage.

22. In which of the following types of fracture would skin be torn, and bone and subcutaneous tissue be exposed?
1. Impacted
  2. Greenstick
  3. Compound
  4. Comminuted
23. When using a dip on a dog to treat mange, you *must*:
1. rinse the dog thoroughly following application of the dip solution.
  2. place protective ointment in the dog's eyes first.
  3. be sure that the dog has not been bathed for at least 1 week.
  4. be careful that no dip solution wets the dog's face.
24. An otoscope is an instrument primarily used for examining the:
1. rectum.
  2. throat.
  3. ears.
  4. eyes.
25. Which of the following dog breeds is classified as brachycephalic?
1. Doberman pinscher
  2. Springer spaniel
  3. Chihuahua
  4. Pekingese
26. Which patient information should be included on the laboratory request form when ordering a blood culture?
1. Has taken monthly heartworm preventative for 1 year
  2. Has a 3-year history of a chronic skin disease
  3. Consumed a large meal 8 hours before the specimen was taken
  4. Received penicillin 12 hours before the specimen was taken

27. The *most important* reason for polishing the teeth after ultrasonic scaling is to:
1. prevent halitosis.
  2. improve the appearance of the teeth.
  3. create smooth surfaces to prevent accumulation
  4. facilitate fluoride application for prevention of dental caries.
28. The parasite *Anaplasma marginale* invades the:
1. white blood cells in cattle.
  2. red blood cells in horses.
  3. white blood cells in horses.
  4. red blood cells in cattle.
29. A general-purpose stain, such as new methylene blue is useful for:
1. determining the biochemical characteristics of an organism.
  2. studying the morphology of an organism.
  3. testing an organism's affinity for a stain.
  4. identifying Gram-positive organisms.
30. Unused media intended for microbiology purposes should be stored:
1. in the refrigerator.
  2. in the freezer.
  3. at room temperature.
  4. at body temperature.
31. *Eimeria stiedai* is associated with:
1. hepatic coccidiosis in rabbits.
  2. cecal coccidiosis in chickens.
  3. renal coccidiosis in geese.
  4. intestinal coccidiosis in dogs.
32. The type of wound healing in which granulation tissue forms, filling the defect, is known as:
1. first intention
  2. second intention
  3. third intention
  4. fourth intention

33. A dog that weighs 30 lb (13.6 kg) has had medication prescribed at a dosage of 0.01 mg/lb (0.022 mg/kg). The medication is available only in tablets that contain 0.3 mg each. For one dose, how many tablets should the dog receive?
1.  $\frac{1}{4}$
  2.  $\frac{1}{2}$
  3. 1
  4.  $1\frac{1}{2}$
34. In cases of organophosphate poisoning, which of the following is a commonly used antagonist?
1. Dexamethasone
  2. Disophenol
  3. Doxapram
  4. Atropine
35. The penetrating power of an X ray is controlled by the:
1. kilovoltage.
  2. low-energy transformer.
  3. milliampere-seconds.
  4. milliamperage.
36. A correct statement regarding doxapram hydrochloride (Dopram-V) is that it is a:
1. local anesthetic.
  2. narcotic antagonist.
  3. cardiac depressant.
  4. respiratory stimulant.
37. Which of the following parasites is *most likely* to cause eye damage to a human who becomes infected?
1. A *Toxocara canis* larva
  2. A *Sarcoptes scabiei* mite
  3. An *Ancylostoma caninum* larva
  4. A *Cheyletiella parasitivorax* mite

38. When the albumin value is subtracted from the total protein value, the remainder represents the concentration of:
1. bilirubin.
  2. phosphorus.
  3. globulin.
  4. glucose.
39. Which of the following is a respiratory stimulant?
1. Naloxone
  2. Sodium bicarbonate
  3. Xylazine
  4. Doxapram
40. Anticholinergic drugs *decrease* all of the following *except*:
1. gastrointestinal motility.
  2. salivation.
  3. pain.
  4. vagus-induced bradycardia.
41. Which of the following methods would be an initial measure in providing first aid for epistaxis?
1. Application of ice packs to the nasal passages
  2. Injection with vitamin K
  3. Administration of a tranquilizer
  4. Application of a pressure bandage to the affected area
42. Treatment instructions on a hospitalized dog read: "Administer chloramphenicol 500 mg b.i.d. per os." To comply with these instructions, the treatment is correctly interpreted as:
1. 250 mg twice a day by mouth.
  2. 250 mg three times a day in food.
  3. 500 mg three times a day in food.
  4. 500 mg twice a day by mouth.

43. If an error is made on a medical record, the proper method for correcting the mistake is to:
1. white it out with correction fluid.
  2. draw a single line through it and initial the correction.
  3. erase it.
  4. scratch it out so it cannot be read.
44. Which of the following is commonly used for infiltration and epidural anesthesia?
1. Proparacaine
  2. Lidocaine
  3. Pentobarbital
  4. Sodium pentothal
45. A bovine can be made recumbent by exerting pressure on muscles and nerves with a series of carefully placed and tightened ropes. This technique is called:
1. tilting squeeze.
  2. casting.
  3. haltering.
  4. hobbling.
46. A correct statement concerning guinea pigs is that they are:
1. carnivorous.
  2. unable to synthesize sufficient vitamin C.
  3. mature at birth.
  4. strictly monogamous.
47. A radiograph that has been developed with exhausted chemicals and increased developing time will have:
1. good contrast, with a dark gray background.
  2. poor contrast, with a black background.
  3. good contrast, with a black background.
  4. poor contrast, with a dark gray background.
48. The laboratory animal that is *most likely* to have an epileptiform fit when handled is the:
1. gerbil.
  2. guinea pig.
  3. hamster.
  4. mouse.



## Appendix 2B

### ANSWER KEYS

1.	2	11.	4	21.	2	31.	1	41.	1
2.	3	12.	2	22.	3	32.	2	42.	4
3.	3	13.	3	23.	2	33.	3	43.	2
4.	2	14.	3	24.	3	34.	4	44.	2
5.	3	15.	3	25.	4	35.	1	45.	2
6.	4	16.	3	26.	4	36.	4	46.	2
7.	4	17.	3	27.	3	37.	1	47.	4
8.	4	18.	2	28.	4	38.	3	48.	1
9.	2	19.	4	29.	2	39.	4		
10.	2	20.	3	30.	1	40.	3		