THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

1.	VMB 211	-	Veterinary Anatomy and Physiology 1
2.	VMB 311	-	Veterinary Anatomy
3.	VMB 321	-	Veterinary Histology
4.	VMB 331	-	Veterinary Biochemistry 1
5.	VMB 341	-	Veterinary Physiology
6.	VMB 451	-	Veterinary Pharmacology
7.	VMC 511	-	clinical Veterinary Medicine 1
8.	VMC 521	-	Principles of General Veterinary Surgery and Anesthesiology
9.	VMC 611	-	Clinical Veterinary Medicine III
10.	VMC 621	-	Operative Surgery II
11.	VMC 631	-	Theriogenology II
12.	VMD 511	-	Veterinary Clinical Pathology I
13.	VMD 521	-	Infections Diseases of Livestock
14.	VMD 531	-	Veterinary Epidemiology
15.	VMD 641	-	Veterinary Preventive Medicine
16.	VMD 651	-	Veterinary Public Health
17.	VMP 411	-	Veterinary Pathology I
18.	VMP 431	-	Veterinary Microbiology
19.	VMP 441	-	Veterinary Parasitology

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE
DEPARTMENT OF BIOMEDICAL SCIENCES

FIRST SEMESTER EXAMINATIONS - SEPT 2006

VMB 211

VETERINARY ANATOMY AND PHYSIOLOGY I

TIME: THREE (3) HOURS
INSTRUCTIONS:
ATTEMPT ALL QUESTIONS
ANSWER SECTIONS A AND B IN SEPARATE ANSWER BOOKS

SECTION A - CYTOLOGY AND GENERAL HISTOLOGY

1. List and indicate the functions of the following
   a) Ganulocytes and agranulocytes found in blood — 5 marks
   b) Six cell organelles — 3 marks
   c) Free cells of the loose connective tissue — 3 marks

2. Use short notes to discuss
   a) Haemopoiesis — 4 marks
   b) Abnormal forms of erythrocytes — 4 marks
   c) Nutrient supply to cartilage — 4 marks
   d) Microscopic structure of the bone — 4 marks

3. Discuss
   a) The classification of the muscle tissue giving details of each of the components — 9 marks
   b) The embryonic connective tissue — 3 marks
   c) The fluid mosaic model of the plasma membrane — 5 marks

4. Briefly discuss
   a) the astrocytes — 5 marks
   b) the 3 types of nervous system responses — 3 marks
   c) the classification of synapses — 3 marks

SECTION B –GROSS ANATOMY

6. I) Give two examples of skeletal muscles in each case whose names depict the following (briefly elaborate); (10 marks)

a) Shape

b) Direction

c) Action

d) Position

e) Attachment

7. I) What articulations constitute the canine stifle joint? (2 marks)

ii) Explain the role of the cruciate ligaments in stabilizing the stifle joint. (2 marks)

iii) Copy and complete the following table (6 marks)

Muscle	Action on the stifle	Innervation
Tensor fasciae latae		
Popliteus		
Gastrocnemius		
Biceps femoris		
Gracilis		
Semitendinosus		

8. I) Write short notes on **any two** of the following (10 marks)

a) Pericardium

b) Coronary groove

c) Cardiac valves

9. I) Write short notes on the following (10 marks)

a) Nasal cavity

b) Lungs

10. I) Name the muscles of the ventrolateral abdominal wall. *(2mark)*

ii). What is their source of innervation? *(1mark)*

iii) Briefly describe the canine ribs. *(7marks)*

**********END OF EXAM**********

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE
DEPARTMENT OF BIOMEDICAL SCIENCES

FIRST SEMESTER EXAMINATIONS - SEPT 2006

VMB 311

VETERINARY ANATOMY

TIME: THREE (3) HOURS

INSTRUCTIONS: ATTEMPT ONLY FIVE (5) QUESTIONS

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1. Write short notes on the following structures in ruminants
    i) Nuchal ligament
    ii) Brachiocephalicus muscle

2. Give an account of the mediastinum in ruminants under the following headings
    i) Definition
    ii) Divisions
    iii) Contents
    iv) Attachment to the diaphragm
    v) Clinical anatomy

3. Give an account of the structure and topography of the bovine omasum.

4. Outline the blood and nerve supply to the ruminant fore gut.

5. Write short notes on the following structures.
    i) External features of the bovine udder
    ii) Apical ligament of the penis
    iii) obturator nerve
    iv) Interosseus muscle

6. Give a description of the macroscopic structure of the kidneys in small ruminants.

7. Describe in detail the pelvic canal of the cow.

END OF EXAM-GOOD LUCK

THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER EXAMINATIONS – JUNE 2006

VMB 321 – VETERINARY HISTOLOGY

TIME: THREE (3) HOURS

INSTRUCTIONS: ANSWER ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS

1. Use short notes to discuss (i) the primary immune response (ii) visceral capillaries (iii) the mucosa of he digestive tract (iv) alveolar macrophages (v) the macula densa

2. Discuss (i) the functional histology of the spleen (ii) vallate papilla (iii) secretory units of the salivary glands (iv) vomeronasal organ (v) the sertoli cells

3. Compare and contrast (i) the filiform and fungiform papillae (ii) Brachydont and Hypsodont teeth (iii) the two cell types of the blood-air barrier of the alveoli (iv) the basal zone and functional zones of the endometrium (v) the general histology of the bovine vs equine ovary.

4. Define (i) argentaffin cells (ii) GBM and state its composition (iii) corpus atreticum (iv) Stereocilia (v) the pericytes

5. In a sentence describe the histology of the (i) non-glandular zone of the ruminant stomach (ii) epithelium of the respiratory part of the nasal cavity (iii) epithelium of the ductus deferens (iv) epithelium of the urethra (v) epithelium of the thin tubule of the nephron

END OF EXAM!!!!!!!!!!!!!!!!!!!!!!!!

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
FIRST SEMESTER UNIVERSITY EXAMINATIONS - SEPTEMBER 2006
VMB 331-VETERINARY BIOCHEMISTRY I

TIME ALLOWED: THREE (3) HOURS
INSTRUCTION: THERE ARE SEVEN QUESTIONS IN THIS EXAMINATION.
YOU SHOULD ATTEMPT ONLY FIVE QUESTIONS.
ALL QUESTIONS HAVE EQUAL VALUE

SECTION A

INSTRUCTION: ATTEMPT BOTH QUESTIONS IN THIS SECTION.

1. Gluconeogenesis is the synthesis of glucose from non-carbohydrate precursors.

   a). Given that the starting substrate is glutamic acid, explain in detail, how this is converted to phosphoenolpyruvate, an intermediate of the gluconeogenesis pathway.
   b). Name two regulatory enzymes of this pathway.
   c). Show the non-reversible reactions of this pathway.
   d). Explain the relationship between glucagon, fructose-1,6-bisphosphatase and fructose-2,6-bisphosphate.

2. a). State Beer-Lambert's law and give the mathematical expression of Beer-Lambert's law you would use to determine the concentration of an unknown experimental sample.
   b). Beer-Lambert's law was used in the estimation of the concentration of plasma proteins in a blood sample taken from an experimental domestic animal. The results obtained were as follows:

Sample	Albumin	Total Protein	Albumin Standard (10 mg / mℓ)
Absorbance at 540 nm	0.15	0.33	0.57

Calculate the albumin to globulin (A:G) ratio and hence identify the experimental domestic animal given the following information:

Domestic Animal	Pig	Sheep	Cat	Dog	Cow	Goat / Horse
A:G ratio ± 0.05	0.44	0.63	0.71	0.83	0.89	0.96

c). Discuss two functions of the globulins in mammalian blood.

SECTION B

INSTRUCTION: ATTEMPT THREE QUESTIONS ONLY IN THIS SECTION.

3. The degradation of glycogen involves three enzymes. Name and describe, in detail, the role of each of these enzymes; what their degradation products are and describe how these enzymes are influenced by cyclic AMP during the degradation of glycogen.

4. Human milk is the best food for babies because it contains special ingredients like arachidonic acid, $20{:}4\Delta^{5,8,11,14}$ and docosahexenoic acid, $22{:}6\Delta^{4,7,10,13,16,19}$, which contribute to brain and retinal development and are degraded by β-oxidation.

   a). Distinguish between β-oxidation and biosynthesis of fatty acids in three ways.
   b). Draw the full structure of Arachidonic acid, $20{:}4\Delta^{5,8,11,14}$ fatty acids and then give the full meaning of the notation $22{:}6\Delta^{4,7,10,13,16,19}$.
   c). Name and draw all the organic products from 8:0 and 11:0 fatty acids after undergoing β-oxidation totally.
   d). Without showing the β-oxidation cycle, calculate the total energy yield for tetradecanoic acid (14:0). Clearly show all the assumptions / facts you made or used.

5. The hexose monophosphate pathway is one of the secondary pathways in the catabolism of glucose. Name the major uses of this pathway and describe, in detail, the uses of one of the major products of this pathway.

6. Discuss the statement that "the modern classification of enzymes is based on the type of reaction the enzymes catalyse." Support your answers with suitable equations, where possible.

7. Write notes and / or draw diagrams on three of the following:

   a). The alpha helix of the secondary structure of proteins.
   b). Phosphofructokinase
   c). The Bohr effect
   d). Ion-exchange chromatography

END OF 2006 FIRST SEMESTER EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER EXAMINATIONS – JUNE 2006

VMB 341

VETERINARY PHYSIOLOGY

TIME: THREE HOURS
INSTRUCTIONS: ANSWER ONLY **FIVE** QUESTIONS

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1. A cardiac impulse is a spontaneously-generated electrical potential arising in the sinoatrial (SA) node of the heart and passes over the atrial myocardium and, in turn, excites the atrioventricular (AV) node. Its impulse is conducted over the Purkinje system (bundle of His and bundle branches) to the ventricular myocardium, exciting ventricular contraction in a certain sequence. In order for the heart to do this it is necessary that the heart be under the control of several factors to which it should respond promptly. In order to test the effects of these factors, a frog heart preparation can be observed in a laboratory:

   a) What are the effects of temperature changes on the activity of the frog's heart?
   b) Explain the effect of increasing the frequency of electrical stimulation on the rate and strength of heart contraction.
   c) Explain the effects of introducing adrenaline and acetylcholine respectively on the heart preparation.
   d) Explain the effects of introducing a frog Ringer's solution with high calcium and potassium ions respectively, on the heart.
   e) What is stannous ligature? Explain the effect of this ligature on the heart.

   [20-marks]

2. a) Give the physiologic anatomy of the parasympathetic nervous system
   b) Explain the effects of parasympathetic stimulation on the organs innervated. [20-marks]

3. a) Define arterial blood pressure
   b) Explain how kidneys regulate arterial blood pressure. [20-marks]

4. Write short notes on:
   a) Ceretrospinal fluid
   b) Bloat
   c) Hering – Breuer reflex
   d) Frank – Starling law of a heart. [20-marks]

5. a) What is symbiosis?
   b) Discuss the microbial digestion of cellulose, how the different end-products arise and utilized. [20-marks]

6. Outline in detail the role of the secretions from the pancreas and liver in digestion. [20-marks]

7. a) Explain how oxygen is carried in blood.
   b) Draw and label the oxygen-hemoglobin dissociation curve.
   c) How do changes in temperature, pH, carbon dioxide, and DPG affect the left/right shift of the dissociation curve?
   d) Define the term P_{50}. [20-marks]

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER EXAMINATIONS - JUNE 2006

VMB 451

VETERINARY PHARMACOLOGY

INSTRUCTIONS:

1. Time three (3) hours
2. Answer five (5) questions only.
3. All questions carry equal marks

1. The effectiveness of drugs depends on their characteristic properties. Briefly discuss the following properties of drugs and their pharmacological importance.
   a) Potency
   b) Bioavailability
   c) Biological half-life
   d) Efficacy
   e) Plasma clearance
   f) Biotransformation
   g) Liver microsomal enzyme induction
   h) Adverse reactions
   i) Therapeutic index
   j) Loading dose

2. Write short notes on important properties, mechanisms of action, side effects and/or contra-indications and uses of the following drugs.
   a) Furosemide
   b) Cimetidine
   c) Atropine
   d) Decamethonium

3. Giving specific examples in each category, discuss anaesthetics in detail.

4. Give three (3) examples of drugs that are commonly used in the following situations and state their modes of action
   a) Respiratory depression due to general anaesthetic overdose.
   b) Immobilisation (capture) of a lion.
   c) Reversing effects of narcotic analgesics.
   d) Tranquilising pigs.
   e) Dilating constricted bronchi.

5. Digoxin is sometimes used in the treatment of congestive heart failure and supraventricular tachyarrythmias. Discuss its mechanism of action and pharmacodynamic effects. What are some of the drug interactions associated with digoxin therapy? Describe toxicity that may arise with the use of digoxin and the various corrective options one would use in case of an overdose.

6. Discuss the pharmacological effects of glucocorticoids and the general principles of therapy that should be followed.

7. a) Describe the different factors that influence the selection of an appropriate antibiotic.

   b) Discuss in detail two classes of antimicrobials you could use to treat meningitis.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
DEPARTMENT OF CLINICAL STUDIES

2006 ACADEMIC YEAR FIRST SEMESTER FINAL EXAMINATIONS

VMC 511: CLINICAL VETERINARY MEDICINE I

TIME: THREE HOURS

INSTRUCTIONS

1. Please read the instructions and each question carefully
2. Answer **ALL** questions in Section A and **THREE** questions in Section B
3. Write the answers to each question in a separate answer book
4. **ALL** questions carry equal marks

SECTION A

The musculoskeletal and nervous systems are some of the important systems in an animal.

1. a) Which structures make up the musculoskeletal system?
   b) Outline in detail, the primary function of the musculoskeletal system?
   c) Categorize the diseases affecting the musculoskeletal system based on the nature of their occurrence, and discuss one example under each category.
   d) What is meant by the terms "upper motor neuron (UMN)" and 'lower motor neuron (LMN)"?

2. A 5-year-old high milk yielding Fresian cow is presented to you with sudden onset of loss of milk production two weeks after calving. During your initial clinical examination, you notice that the cow is unusually alert and continuously licks its feet. When quietly standing, the cow presses its head against the wall and stumbles over objects when walking.

   a) What is your tentative diagnosis?
   b) Describe the pathogenesis of this condition.
   c) Give three differential diagnoses, indicating their similarities and differences with the condition you have named in a) above.
   d) How would you confirm your diagnosis?
   e) Describe one treatment and control option for this condition.

3. Mr. Mung'andu presents his Shar-pei and Pug to your clinic. On clinical examination, you discover the following abnormalities: severe dyspnoea and cyanosis in both dogs; prolonged inspiration and unilateral epistaxis in the Pug; prolonged expiration, asymetrical respiration and purulent nasal discharge in the Shar-pei.

   a) Give possible reasons for each of the signs you have observed.
   b) On thoracic auscultation you hear crackles in the Shar-pei. Give three (3) conditions that may cause crackles.
   c) Describe in detail three (3) other methods of examination of thoracic organs.

SECTION B

4 Clinical examination of the abdomen and its organs is an important component of small animal practice.

a) Describe in detail the organ/s you would be palpating and the findings in the diagnosis of the following conditions:
   i) Pyometra
   ii) Gastric dilatation and volvulus
   iii) Cystic urolithiasis
   iv) Urethral obstruction in a tom cat

a) Differentiate between urinary and faecal tenesmus.
b) Describe how you would investigate causes of constipation in a bitch.

5. Examination of the lymphatic system is routine practice in a general physical examination of small animals.

a) List six things that are noteworthy in the examination of lymph nodes.
b) List and describe four causes of lymph node enlargement.
c) What are the two types of splenomegaly and their causes?

6. You are presented with a two-year-old heifer with brisket edema, jugular pulse and cardiac murmurs that are loudest on auscultation of the right side of the thorax in the third inter-costal space.

a) What do you think is the likely problem with this heifer?
b) State two other conditions that may cause similar signs?
c) Describe two procedures you would conduct to differentiate physiological from pathological jugular pulse.

7. After examination of cattle at a farm, you conclude that the system to investigate further is the gastrointestinal tract.

a) How would you proceed in getting your history in relation to the system in question?
b) Describe how you would take your clinical parameters.
c) Compare and contrast normal and abnormal ruminal contents in cattle.

----------END OF EXAMINATION----------

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
DEPARTMENT OF CLINICAL STUDIES

2006 ACADEMIC YEAR FIRST SEMESTER FINAL EXAMINATIONS

VMC 521: PRINCIPLES OF GENERAL VETERINARY SURGERY AND ANAESTHESIOLOGY

TIME: THREE HOURS

INSTRUCTIONS:

1. Please read the instructions and each question carefully
2. Answer **ALL** questions in Section A and **THREE** questions in Section B
3. Write the answer to each question in a separate answer book
4. **ALL** questions carry equal marks

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SECTION A

1. a) Why are muscle relaxants used in veterinary medicine?

   b) Classify muscle relaxants and discuss one drug under each classification as regards pharmacological effects, clinical use(s) and side effects.

2. a) Describe the indications and technique of the following:
      i. Auriculopalpebral nerve block in a horse.
      ii. Epidural analgesia in a sow.
      iii. Four-point retrobulbar nerve block.

   b) Analgesia and general anaesthesia are commonly used in veterinary surgery.

      i. Discuss why local analgesia is widely used in cattle in preference to general anaesthesia.

      ii. Describe in detail how you would best use general anaesthetic agents on a cow for caesarean section. Include precautions you need to take pre-operatively, during surgery and post-operatively.

3. While carrying out a castration on a Maltese poodle, you realise that your patient has stopped breathing and the heart has ceased beating.
   a) How would you resuscitate this patient whom you had anaesthetised with ketamine?
   b) What could you have done to avoid this situation or make it easier to resuscitate the patient?

SECTION B

4. Hydration status is a good indication in determining impending shock.
   a) What clinical signs are associated with the following percentages of body weight lost as fluid?

      i. < 5%
      ii. 5-6%
      iii. 6-8%
      iv. 10-12%
      v. 12-15%

   b) How are the following laboratory parameters influenced by hydration status?
      i. PCV
      ii. Total protein
      iii. Urine Specific Gravity (USG)
      iv. BUN

5. Mr Bean presents his greyhound bitch to your clinic for ovariohysterectomy. The bitch is a cardiac patient and is eight (8) years old.

   a) What anaesthetic regime would you use? Include premedication if any, induction and maintenance of anaesthetia.
   b) Four days after the surgery, Mr Bean brings back the bitch because she apparently has acquired peritonitis. What are the possible sources of this infection?

6. Discuss post-operative management of a cat that underwent abdominal surgery. Include monitoring anaesthetic recovery, monitoring for post-procedural complications and record keeping.

7. A wound is a disruption of normal anatomic continuity and metabolic functions of body structures, including organs, tissues and cells.
   a) How do wounds heal?
   b) Describe the categories of wound healing.
   c) Discuss factors affecting wound healing, which can be directly controlled by the surgeon.

----------END OF EXAMINATION----------

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
DEPARTMENT OF CLINICAL STUDIES

2006 ACADEMIC YEAR FIRST SEMESTER
FINAL EXAMINATIONS

VMC 611: CLINICAL VETERINARY MEDICINE III

TIME: THREE HOURS

INSTRUCTIONS:

1. Please read the instructions and each question carefully
2. Answer **ALL** questions in Section A and **THREE** questions in Section B
3. Write the answer to each question in a separate answer book
4. **ALL** questions carry equal marks

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SECTION A

1. A beef farmer is complaining that his calves have a strange disease. During your examination, you noticed that the affected calves appeared blind, ataxic and had tremors especially of the head muscles.

   a) What is your tentative diagnosis?
   b) Discuss in detail the pathogenesis of this condition.
   c) How does this condition compare and contrast to two similar conditions also affecting cattle?
   d) How would you manage this condition?
   e) What would your client education be?

2. Compare and contrast Hansen type I and type II intervertebral disk disease in terms of occurrence, clinical signs, differential diagnoses and treatment.

3. You are a veterinary officer in Monze district. A farmer reports that three of his animals recently purchased from Batoka (approximately 100 km away) are sick. You examine the sick animals and find that they have fever, are depressed, have respiratory distress and petechial haemorrhages on the oral and nasal mucous membranes.

   a) What is your tentative diagnosis?
   b) How would you confirm your diagnosis?
   c) Give three differential diagnoses to this condition, explaining how you would differentiate them from your tentative diagnosis.
   d) How would you treat and control this condition?

SECTION B

4. An emaciated cow is presented to you for an expert opinion and treatment. On clinical examination, the animal shows arched back, somnolence, pain on palpation over the last rib and pale yellowish mucous membranes.

   a) Which disease condition do you suspect?
   b) How do you confirm this condition?
   c) How would you treat and control this condition?

5. You are presented with a two year old heifer that has been passing red urine for the past two days. The farmer explains that his herd has had a problem with liver flukes as his animals graze around a dam that has water all year round. You examine the heifer and find that it is anaemic and has marked pyrexia. However, there are no ecto-parasites on the animal in question as well as the rest of the herd.

   a) What is you tentative diagnosis?
   b) What is the pathogenesis of this condition?
   c) Give three differential diagnoses indicating how they differ from your tentative diagnosis.
   d) Explain how you would treat and control this condition.

6. What are the differences between the following?

   a) Azotemia and uremia.
   b) Renal disease and renal failure.
   c) Acute and chronic renal failure.

7. Differentiate canine babesiosis from canine erlichiosis, taking into consideration the aetiology, clinical signs, diagnosis and treatment.

----------END OF EXAMINATION----------

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
DEPARTMENT OF CLINICAL STUDIES

2006 ACADEMIC YEAR FIRST SEMESTER FINAL EXAMINATIONS

VMC 621 OPERATIVE SURGERY II

TIME: THREE HOURS

INSTRUCTIONS:
Please read the instructions and each question carefully

1. Answer **ALL** questions in Section A and **THREE** questions in Section B
2. Write the answer to each question in a separate answer book
3. **ALL** questions carry equal marks

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SECTION A

1. A young bull aged 2 years in a herd of 100 cattle was suddenly discovered to have a swelling in the dorsal pre-scrotal region.

   a. What is your tentative diagnosis and likely cause of this condition?
   b. What are your differential diagnoses and how would these be ruled out?
   c. How would you treat this condition?

2. A two year old Pekingese is presented to you with dyspnoea of two months' duration which is progressively worsening. The dog is cyanotic, has severe inspiratory dyspnoea, and prefers the orthopnoeic posture. It had also collapsed twice before presentation.

   a. What is your tentative diagnosis?
   b. What would be your immediate treatment?
   c. How would you carry out the procedure you outlined in (b)? Include preanaesthetic medication, induction and maintenance of anaesthesia.
   d. List three complications of tracheostomy tube placement.

3. Respiratory and urinary surgeries are becoming important components of operative surgery worldwide.

   a. List the surgical approaches to the equine guttural pouch.
   b. Discuss one of the above surgical techniques (including anaesthetic regime, patient preparation, surgical procedure and postoperative care).
   c. Compare and contrast the types of urethrostomies in small animal surgery.

SECTION B

4. A farmer calls you to see one of his Friesian/Holstein cows that is four years old with a complaint that it has not conceived following several services. Upon arrival on the farm and following vaginoscopic examination, you notice that there is a vaginitis and fluid in the vagina.

   a. What is your tentative diagnosis?
   b. Explain the etiology and sequel to this condition
   c. Discuss the surgical treatment of the condition. Include preanaesthesia, anaesthesia, surgical technique and post operative care.

5. Brachycephalic dogs commonly suffer from restless sleep, snoring and occasionally from dyspnoea.

   a. What 4 anatomical abnormalities are consistent with the brachycephalic syndrome?
   b. For each of the abnormalities you have outlined, briefly describe the surgical procedure to correct it.

6. A female dog is presented to you with constant or sometimes intermittent incontinence since weaning. There is sometimes normal voiding accompanied by intermittent dribbling.

   a. What is your tentative diagnosis and describe how you would confirm it?
   b. List other abnormalities that are associated with the condition.
   c. What are your treatment options? Describe in detail one of them outlining pre-anaesthetic evaluation and postoperative care.

7. For along time farmers and animal researchers have incorporated in their breed improvement, the aspect of horn morphology for easy management and handling. This can be seen by comparing the improved breeds like the Africander and local Zebu breeds in the Southern African region.

   a. At what age is the horn palpable for disbudding and what anatomical features has a cow's horn?
   b. Discuss three methods employed to remove the buds taking into account the advantages and disadvantages.
   c. Compare and contrast dehorning and disbudding in local Zambian breeds.
   d. What are the indications of dehorning in goats and sheep?

----------END OF EXAMINATION----------

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
DEPARTMENT OF CLINICAL STUDIES

2006 ACADEMIC YEAR FIRST SEMESTER FINAL EXAMINATIONS

VMC 631: THERIOGENOLOGY II

TIME: THREE HOURS

INSTRUCTIONS:

1. Please read the instructions and each question carefully
2. Answer **ALL** questions in Section A and **THREE** questions in Section B
3. Write the answer to each question in a separate answer book
4. **ALL** questions carry equal marks

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SECTION A

1. Early abortions, irregular oestrous cycles, repeat breeding, infertility and low conception rates were the clinical signs you found during your routine fertility visits to a dairy farm of about 100 Friesian/Holstein.

   a. Which two very important reproductive diseases of cattle would you suspect?
   b. How would you differentiate them?
   c. What treatment and preventive measures would you employ for each disease?

2. A Mr Hambwalula of Ng'ombe Ilede Enterprises calls you to his farm to examine a cow that calved 60 days earlier but has never been seen on heat. Worried that if he does not do anything he may not have it inseminated by 85 days postpartum. Upon your initial palpation per rectum you find that the right ovary is approximately 4x4x3 cm and the left ovary 4x4x4 cm. The left ovary has a follicle-like structure 2 cm in diameter. Not sure of the consistency of the follicle you decide to use ultrasonography and find that there is nothing significant on the right ovary and that the follicule like structure on the left ovary actually is thin walled and has a non-echogenic antrum filled with material that is echogenic.

   a. What is your tentative diagnosis?
   b. What would be your differential diagnoses?
   c. Explain the pathogenesis of the condition in (a).
   d. What treatment would you give to the cow?

3. A small scale dairy farmer in Lusaka West who keeps 25 cows has requested you to investigate the reproductive status of his herd. Last year, 15 of his cows become pregnant after artificial insemination. The average calving interval was 395 days. Calving to conception interval was on average found to be 95 days and the conception rate to first insemination was 44%. The average number of inseminations per conception was 2.0.

   a. Discuss in detail the various causes that might have led to the above findings.
   b. What advice would you give to the farmer in light of these findings?

SECTION B

4. Being the most renowned equine Theriogenologist in Zambia, the Veterinary Association of Zambia found it befitting to invite you to talk on sexually transmitted diseases in the equine. The theme of your talk is **'Important venereal diseases in the horse, their clinical manifestation and medical management'**. Briefly dicuss the pertinent points of your talk to these practioners.

5. A pig farmer calls you to investigate why a high number of his sows have suddenly failed to conceive.

   a. What are the possible causes of infertility at this farm?
   b. How would you investigate this case further to arrive at a definitive diagnosis?
   c. What measures would you employ to improve fertility at this farm?
   d. What recommendations would you give to this farmer?

6. A farmer brings an 8-year old mongrel bitch last seen on heat 5 – 7 weeks ago. He explains that the dog has not yet had puppies before, is vomiting, drinks a lot of water, urinates frequently and is recumbent. Upon examination you notice that the temperature is 40°C and the abdomen is greatly distended.

   a. What is your tentative diagnosis?
   b. What are your differential diagnoses?
   c. What other diagnostic aids and laboratory tests would help confirm your diagnosis? Please describe your results.
   d. Discuss all the possible treatment options, their advantages and disadvantages

7. A farmer calls you to attend to see one of his Friesian/Holstein cows that returned to heat 22 days after artificial insemination.

   a. What would be your differential diagnoses?
   b. Discuss the possible causes of the condition.
   c. What would your client education be?

----------END OF EXAMINATION----------

THE UNIVERSITY OF ZAMBIA
UNIVERSITY FIRST SEMESTER EXAMINATION
SEPTEMBER 2006

VETERINARY CLINICAL PATHOLOGY 1 (VMD 511)

TOTAL: **100 MARKS**
TIME: **3 HOURS**
ANSWER: **ALL QUESTIONS**

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1. A Holstein Friesian female aged four years was presented before a veterinarian with signs of off-feed for 3 days, 60% reduced milk production, pain on physical examination, grunting on palpation over the xiphoid cartilage and sometimes showed limb lameness when forced to walk. In addition, there was a small soft swelling just behind the right elbow joint and there was also dehydration, poor rumen motility and rectal temperature was 103°F. Blood was collected in EDTA and the following blood values were provided by the technician.

RBC ($x10^6/\mu$ l)	4.6
Haemoglobin (gm/dl)	9.8
PCV (%)	28.0
WBC ($x10^3/\mu$ l)	13.0
Band Neutrophils (μ l)	216
Segmented Neutrophils (μ l)	9200
Lymphocyte (μ l)	2160
Monocyte (μ l)	108
Eosinophil (μ l)	108
Fibrinogen (gm/dl)	1.2

a. Based on the above values, find out the blood indices. **(5 marks)**

b. Interpret the haemogram. **(5 marks)**

c. Give your diagnosis based on blood values keeping in mind the leukogram. **(10 marks)**

2. a. What do you understand by the word anemia? **(4 marks)**
   b. Classify anaemia according to morphology and aetiology. **(8 marks)**
   c. How will you confirm anaemia? **(2 marks)**
   d. Write the complete haemogram of a normal adult horse. **(6 marks)**

3. a. Describe the procedure of blood smear staining using Giemsa stain.**(5 marks)**
   b. What are the different conditions/diseases of domestic animals in Zambia which can be confirmed using Giemsa stain? **(15 marks)**

4. a. Write the different locations in the body from where specimens for cytology can be collected. **(5 marks)**
   b. Write the characteristics of exfoliated neoplastic cells in cytological preparation under the microscope. **(5 marks)**
   c. Write the merits and demerits of exfoliative cytology. **(10 marks)**

5. Write short notes on **any 5** of the following:
   a. Reticulocytes **(4 marks)**
   b. Transudate and Exudate **(4 marks)**
   c. Leukemia **(4 marks)**
   d. Shift to left **(4 marks)**
   e. Polycythaemia **(4 marks)**
   f. M:E ratio **(4 marks)**

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVESRITY FIRST SEMESTER EXAMINATIONS

SEPTEMBER 2006

INFECTIOUS DISEASES OF LIVESTOCK (VMD 521)

TIME: 3 HOURS

TOTAL MARKS: 100

INSTRUCTIONS: ANSWER ALL QUESTIONS

Question 1

Describe the following as regards to salmonellosis in calves.

i) Epidemiology **(5 marks)**
ii) Pathogenesis **(5 marks)**
iii) Diagnosis **(5 marks)**

Question 2

a) As a veterinary officer in charge of controlling haemorrhagic septicaemia (HS), outline the factors predisposing the animals to clinical disease and discuss control measures. **(10 marks)**
b) Briefly discuss the pathogenesis of *Bacillus anthracis* in cattle. **(5 marks)**

Question 3

A group of small holder dairy farmers are observing progressive emaciation accompanied by enlarged superficial lymph nodes in some of the animals. There is also an intermittent hacking cough and weakness. Discuss the aetiology, diagnosis, differential diagnosis and control measures of the suspected disease. **(15 marks)**

Question 4

i) You receive a call from Namwala in the morning of a case of suspected African horse sickness. You cannot travel and you have to fax a report to the Veterinary Assistant to help him with clinical diagnosis. Give a sample report. **(5 marks)**
ii) List at least 6 pathological findings in poultry with avian influenza. **(3 marks)**
iii) With the aid of a diagram, give a detailed laboratory diagnosis and confirmation of foot and mouth disease. **(5 marks)**
iv) Discuss the epidemiology of African swine fever. **(2 marks)**

Question 5

i) Carrier states are important in the epidemiology of many viral diseases. Discuss the importance of carrier states and transmission of malignant catarrhal fever. **(3 marks)**

ii) There is an argument as to whether bovine viral diarrhea and mucosal disease complex are one and the same. What would be your explanation if your opinion was sought? **(4 marks)**

iii) You are asked to travel to Western province for suspected lumpy skin disease outbreak in the neighbouring country. How would you go about preventing and controlling the cattle disease? **(3 marks)**

iv) Discuss the aetiology of transmissible spongiform encephalopathies and the clinical manifestation and histopathological diagnosis of bovine spongiform encephalopathy. **(4 marks)**

Question 6

i) Discuss the pathogenesis of theileriosis, emphasizing how the pathogenesis justifies clinical and laboratory diagnosis of the fatal disease of cattle. **(3 marks)**

ii) Discuss the concept of integrated strategies for tick and tick-borne disease control, the rationale and the benefits over the other approaches. **(3 marks)**

iii) Ms. Mfula's Friesians die suddenly of a fatal disease with dramatic terminal nervous signs and abnormal postmortem findings. She asks you for a scientific explanation for this behaviour and treatment, and any other disease she must look out for. Name the disease and write the letter she asked for to be faxed after the examination. **(3 marks)**

iv) Dr. Lepheana oversees two farms; one has cows and the other has bulls. She is asked to write a report on the pathogenesis and clinical signs of an apparent contagious venereal disease affecting the farms to assist with diagnosis. She refuses to write a report of the clinical diagnosis to the bull-only farm. Describe the pathogenesis of the suspected named disease on the two farms. List the clinical signs and explain whether it was wise for her to refuse to write the clinical diagnosis report to the bull farm. **(3 marks)**

v) Describe the diagnosis and confirmation of trypanosomosis. **(3 marks)**

Question 7

i) Discuss the aetiology, transmission and treatment of anaplasmosis. **(3 marks)**

ii) Discuss the agent determinant factor of disease common in trypanosome and avian influenza virus infection. **(3 marks)**

iii) Discuss in general diagnosis and confirmation of most tick and tick-borne protozoan diseases. **(3 marks)**

iv) List the clinical diagnosis of bovine coccidiosis. **(2 marks)**

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA
UNIVERSITY FIRST SEMESTER EXAMINATION
SEPTEMBER 2006

VMD 531

VETERINARY EPIDEMIOLOGY

TOTAL: 100 MARKS
TIME: 3 HOURS
ANSWER: ALL QUESTIONS

QUESTION 1

Write short notes on the following

a) Objectives of epidemiology. **(2.5 marks)**
b) Considerations to be taken into account when designing a monitoring and surveillance programme. **(6 marks)**
c) Types of epidemiological investigations. **(4 marks)**
d) The demands (requirements) and advantages of a cross over study design. **(6 Marks)**
e) Questions that must be asked during the investigation of an outbreak. **(1.5 marks)**

QUESTION 2

Suppose a veterinarian investigates a disease that runs a clinical course ending with either recovery or death in a herd of cattle and that a recovered animal is immune to the disease for life. At the beginning of investigations on July 1, 2003, the herd size is 600 of which 20 were clinically ill. There were 80 animals developing clinical disease between July 1, 2003 and July 1, 2004. About 30 animals died from the disease within the above-mentioned period. From the above information, calculate the following:

a) Prevalence on July 1, 2003. **(3 marks)**
b) The cumulative prevalence from July 1, 2003 to July 1, 2004. **(3 marks)**
c) The mortality risk from July 1, 2003 to July 1, 2004. **(3 Marks)**
d) The case fatality from July 1, 2003 to July 1, 2004. **(3 Marks)**
e) The incidence rate from July 1, 2003 to July 1, 2004. **(4 marks)**
f) The mortality rate from July 1, 2003 to July 1, 2004. **(4 Marks)**

QUESTION 3

a) Discuss the validity of sampling in epidemiological analyses and justify the applicability of this concept to the detection of disease presence in a population of animals. **(4 marks)**

b) A student was asked to either use cluster or systematic random sampling for her research. She chooses cluster sampling? Discuss the reasons for making such a choice. **(4 marks)**

c) You have three District Veterinary Officers visiting your veterinary practice who report sporadic, endemic and epidemic disease situations in their districts. Define these patterns and give the useful information you can obtain about the host-agent-environment balance in their respective districts. **(5 marks)**

d) With the help of a sketch and a named condition, briefly explain why a point source epidemic curve assumes its shape. **(3 marks)**

e) Discuss the importance of the spatial and temporal clustering of disease patterns. **(2 marks)**

f) Discuss the term 'endemic pulsation' in relation to cyclicity of disease occurrence, giving reasons for its existence. **(2 marks)**

QUESTION 4

A trial was conducted to determine the impact of depriving piglets of colostrum on their weaning weights. Group A of a sample of piglets was manually fed colostrum while Group B was deprived of colostrum. Weaning was at five weeks with the following weights in kgs:

Group A

6.4	5.7	4.7	6.1	5.4	5.9	6.5	6.1	5.1	5.4	6.8
5.9	5.2	6.3	5.4	6.9	4.2	5.6	4.6	6.0	5.4	6.4
5.7	4.9	6.0	6.2							

Group B

5.2	4.5	6.3	4.8	2.6	3.8	6.3	5.0	4.0	4.2	3.4
4.3	3.4	5.6	4.4	4.7	5.1	4.5	4.1	4.2	6.3	5.3
5.2	4.5	5.1	5.6							

Showing detailed calculations,

(i) Calculate the 95% confidence interval. **(8 marks)**

(ii) At a significant level of 5% ($\alpha = 0.05$), determine whether depriving piglets of colostrum has any effect on weaning weights. **(8 marks)**
Use $t_{(1 - \alpha/2,\, n+m-2)} = 2.021$

(iii) With the aid of a diagram, interpret your results in (i) above and state whether it agrees with your conclusion in (ii) above. **(4 marks)**

QUESTION 5

a) Using an example of a disease condition or pathogen, discuss the various forms of carrier states and by so doing highlighting the importance of the carrier state in influencing a disease control programme before the disease actually appears in the herd to a point beyond containment of the outbreak. **(3 marks)**

b) Mr. Vuttah is asked to carry out some diagnostic testing. His supervisor imposes 'Aggregate herd testing' on him as a strategy of choice but he prefers to use 'Negative-herd re-testing'. Discuss the two, highlighting the relevant aspects of each approach. **(5 marks)**

c) The Herbalist has developed a near-perfect 'Herbal diagnostic test' with a sensitivity of 99.9% and a specificity of 99.9%. He tests 1,000,000 goats with 0.001% true disease prevalence. He gives the raw data to Ms Thandiwe to fill in a 2x2 table. She obtains the following values: a=999, b=999, c=1 and d=998001, a+b=1998, a+c=1000, c+d=998002, b+d=999000, Positive predictive value=50% and Negative predictive value=100%. (**Note**: No calculations may be required).

i. Interpret and discuss the 2x2 table results thoroughly. **(2 marks)**
ii. What changes to the 2x2 table would you anticipate if there was an increase (to 30%) or decrease (to 0.0001%) of true disease prevalence (from the current 0.001%)? Give an explanation for the expected changes. **(2 marks)**
iii. If this was a human immunodeficiency virus (HIV) survey, which value (s) would concern you the most and give reasons? **(2 marks)**

b) Define an epidemic curve and list the factors affecting its slope. Briefly state how all these factors may work synergistically to influence the shape of the curve. **(3 marks)**

c) Explain to Ms Rosaline how to determine the Sensitivity and Specificity of a new diagnostic test she is developing for FMD. Virus Isolation and Neutralization is the Gold standard. Mention why determining sensitivity and specificity of a new test is an important process. **(3 marks)**

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER SUPPLEMENTARY EXAMINATION

OCTOBER 2006

VMD 531

VETERINARY EPIDEMIOLOGY

TOTAL: 100 MARKS
TIME: 3 HOURS
ANSWER: ALL QUESTIONS

QUESTION 1

a) Discuss the primary and secondary determinants of disease in animals. **(3 marks)**

b) Discuss in detail the dilemma of proving that a particular disease is not present in a population of animals. **(3 marks)**

c) A screening test revealed 62 cattle positive for an infectious disease out of a herd of 700. Only 48 out of 62 positive cattle were confirmed by culturing. Specimens were also collected from a randomly selected sample of test negative animals. On culture, these specimens revealed that 10% of these animals were actually infected.

   i. From these data construct a 2x2 table filling in all the details. **(3 marks)**

   ii. Calculate and interpret the following:

      i) True prevalence and apparent prevalence. **(2 marks)**

      ii) Predictive values. **(2 marks)**

      iii) Sensitivity and specificity of the screening test. **(2 marks)**

d) Discuss Evans' postulates of disease causation in relation to Koch's. **(5 marks)**

QUESTION 2

Write short notes on the following:

a) Sufficient and necessary causes of disease. **(3 marks)**

b) Age susceptibility as a determinant factor of disease. **(3 marks)**

c) Non-probability sampling. **(3 marks)**

d) Parallel interpretation in serological testing. **(3 marks)**

e) 'Iceberg' concept of disease in a population. **(3 marks)**

f) Separated population. **(2 marks)**

g) Population at risk. **(3 marks)**

QUESTION 3

An epidemiological study to investigate the incidence of physiological urinary incontinence (PUI) in spayed and entire bitches 6 months or older was carried out over a period of 7 years. The following results were obtained.

	Physiological Urinary Incontinence	
	PUI+	**PUI-**
Spayed	13	2163
Entire	5	3349

Use the following information to determine the effect of spaying on physiological incontinence at 95% confidence.

Note:

Significance levels:	0.20	0.10	0.05	0.025	0.01	0.001
Critical values:	1.64	2.71	3.84	5.02	6.64	10.83

a) Is this an observational or experimental study? Briefly defend your answer. **(2 marks)**

b) What is the specific name of the study design? Justify. **(2 marks)**

c) Is there statistical association between the factor and the disease condition? Use the Chi-square test to determine the association at 95% confidence. **(2 marks)**

d) Determine the following parameters:

i) Relative Risk (RR). **(2 marks)**

ii) Odds ratio (OR). **(2 marks)**

iii) Attributable rate (AR). **(2 marks)**

iv) Attributable fraction (AF). **(2 marks)**

e) Interpret the parameters calculated in d) above. **(6 marks)**

QUESTION 4

A sample of piglets was manually fed colostrum. At five weeks the piglets were weaned with the following weights in kilograms. You are called to the piggery to examine the record of weights below.

2.60	4.00	4.30	4.50	4.80	5.10	5.20	5.40
3.40	4.10	4.40	4.60	4.90	5.10	5.30	5.40
3.40	4.20	4.50	4.70	5.00	5.20	5.40	
3.80	4.20	4.50	4.70	5.10	5.20	5.40	

a) Calculate the following and briefly explain to the farmer the meaning and the usefulness of these calculations. Clearly show all your calculations.
   i. Median and mean. **(3 marks)**
   ii. Range, mode. **(1 marks)**
   iii. Variance and standard deviation. **(4 marks)**
   iv. Standard error of the mean. **(4 marks)**
   v. Confidence interval of the mean. **(4 marks)**

b) Discuss the importance of summarizing data. **(4 marks)**

QUESTION 5

Briefly and concisely describe your understanding and importance of the following in veterinary epidemiology.

a) Proportional morbidity rate. **(3 marks)**
b) Student t-test. **(4 marks)**
c) Prevalence, duration and incidence of disease. **(3 marks)**
d) Attack rate. **(4 marks)**
e) Experimental units. **(3 marks)**
f) Variability of data. **(3 marks)**

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVESRITY FIRST SEMESTER EXAMINATIONS

SEPTEMBER 2006

VETERINARY PREVENTIVE MEDICINE (VMD 641)

TIME: 3 HOURS

TOTAL MARKS: 100

INSTRUCTIONS: ANSWER ALL QUESTIONS

Question 1

i) Mr. Chitu would like to turn to landless livestock production system. What would be your concern with regard to Preventive Medicine? **(3 marks)**

ii) Ms Lwele asks you to apply the 3 methods of disinfection to ensure that Gumboro is eliminated from her poultry house. Describe how you would proceed? **(3 marks)**

iii) There are high mortalities on pig farms in Lusaka West. The District Veterinary Officer is undecided whether to test and slaughter or depopulate. Discuss the implementation and post outbreak considerations of your method of choice. Highlight the problems of the control strategy. **(4 marks)**

Question 2

i) Veterinary Preventive Medicine comprises intervention strategies, namely prevention, control and eradication of disease with a number of disease management tactics. Name these tactics in their order of evolution. **(3 marks)**

ii) A week after you vaccinate at a fish farm, the farmer threatens to get his money back if you don't convince him as to why there could still be disease. Defend yourself. **(2 marks)**

iii) You receive a report that a proportion of 15% of animals was not vaccinated during your mass immunization campaign against an infectious disease. What would be your response to this urgent call? **(3 marks)**

iv) List all the considerations vital to the success of the planning and implementation of disease control programmes. Discuss any two of them. **(4 marks)**

Question 3

i) The success of a herd health scheme heavily depends on the level of management and desire and ability of the farmers to implement the veterinarian's advice. To ensure that the farmer's performance targets are realistic and kept in sight, the veterinarian must create a farm profile that must be updated each year. What should be included in this farm profile? **(5 marks)**

ii) Outline and describe the factors that affect the productivity and profitability of a dairy herd enterprise. **(6 marks)**

Question 4

i) What are the objectives of a herd health programme in a feedlot? **(7 marks)**

ii) What would be the role of the farmer in a pig herd health programme? **(7 marks)**

Question 5

i) In a continuous assessment test given earlier in the semester, it was obvious that differentiating highly pathogenic avian influenza caused by the H5N1 virus subtype and Newcastle disease using clinical and/or post-mortem diagnosis is not so easy after all. Discuss how you would make this distinction in the laboratory, emphasizing why this is possible. **(4 marks)**

ii) A family friend has several flocks of chickens: Broilers at different ages and Layers at point-of-lay. He gives you a call in the morning that her birds have had what she suspected to be Gumboro for a period of a week.

a. Describe the clinical signs anticipated on reaching the farm. **(3 marks)**
b. Describe what you would find at postmortem examination of the affected birds because your friend is not convinced with the clinical picture you presented. **(3 marks)**

iii) You are presenting a seminar on vector and vector-borne disease control and you mention the term 'strategic chemical vector control'. Everyone gets interested in the term. Explain using an example what the phrase means and the benefits. **(3 marks)**

Question 6

i) During a case review of the poultry diseases diagnosed at the UNZAVET, it was concluded that Newcastle disease topped the list. In your discussion justify this conclusion based on the epidemiology of the disease. **(3 marks)**

ii) In another poultry case review, it was discovered that the age of the birds submitted for diagnosis was not recorded. If you think this was an important omission, justify it with 10 chicken viral diseases by indicating the most affected age groups. **(4 marks)**

iii) Discuss enteric septicaemia of catfish. **(3 marks)**

iv) List 5 diagnostic methods in fish diseases and discuss any one of them. **(3 marks)**

Question 7

a) An emerging Poultry Farmer specializating in rearing quails observes his birds dying acutely without premonitory signs. Some birds are exhibiting watery droppings and marked atrophy of muscles. As a poultry Veterinarian, what is the aetiology? And discuss the transmission, lesions and prevention of the disease. **(10 marks)**

b) Discuss the Diagnosis of Salmonellosis in poultry flocks. **(5 marks)**

Question 8

Answer question (a) and <u>one</u> question from (b) to (d)

a) Last year in June, when it was extremely cold, with minimum temperatures averaging 2° C at night and maximum day temperatures oscillating at between 19° C to 7° C, some crocodiles at a farm in Lusaka, were showing signs of paralysis. Various age groups were affected, ranging from juveniles, rearing to parent stock. The farmer fed them condemned beef, pork, lamb, etc, due to lack of chickens after the scare of outbreaks caused by the H5N1 avian influenza virus. Postmortem findings included the following: formation of perivascular shunts in the venous drainage of the abdominal cavity accompanied by excessive enlargement of kidneys.

   i) Explain your tentative diagnosis, including details concerning the causative agent if any and predisposing factors, to the farmer. **(2 marks)**

   ii) In your diagnostic approach at this farm, what other organs would you wish to have examined and why? **(2 marks)**

   iii) Are there any other complications that may result or occur due to the said condition? **(2 marks)**

   iv) What corrective measures can you advice the farmer to undertake? **(2 marks)**

b) In a recent television story (19th June 2006), the Ministry of Agriculture announced that they were to spend $ 300,000 to eradicate rabies in jackals in the new agricultural settlements (Farming Blocks) that the government has established. Conservationists have advised the government not to kill the jackals as a way of disease eradication, but to vaccinate them. **(4 marks)**

i. Define rabies.
ii. How is it transmitted to humans?
iii. Give a brief outline of clinical signs of a rabid jackal?
iv. Briefly, discuss as to whether this vaccination campaign would be successful in eradicating this disease?

c) Briefly, outline at least four (4) components of consumptive wildlife utilization in Zambia. **(4 marks)**

d) Before conducting a game capture exercise, there are cardinal points to consider for it to be successful. Briefly, discuss these points and explain their importance. **(4 marks)**

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVESRITY FIRST SEMESTER EXAMINATIONS

SEPTEMBER 2006

VETERINARY PUBLIC HEALTH (VMD 651)

TIME: 3 HOURS

TOTAL MARKS: 100

INSTRUCTIONS: Answer all questions in SECTION ONE and any two questions in SECTION TWO

SECTION ONE (60 marks)

Answer all questions in this section

Question 1 **(20 marks)**

a. Define disinfection (**2 marks**).
b. List three major methods of disinfection giving appropriate examples (**6 marks**).
c. Discuss the factors that influence the efficiency of disinfectants (**12 marks**).

Question 2 **(20 marks)**

a. Compare and contrast the following (**2.5 marks each**):
   i. Bacterial food poisoning and foodborne infection.
   ii. Environmental and microbiological infections in fish.
   iii. Intradietetic and intravital intoxication.
   iv. Inherent resistance and cross-resistance.

b. Define the following (**2.5 marks each**):
   i. Thermal death point
   ii. Titrable acidity
   iii. Persistent organic pollutants
   iv. Veterinary public health

Question 3 **(20 marks)**

a. Write short notes on the following **(2.5 marks each)**:
   i. Emerging diseases
   ii. Killing floor contamination
   iii. Sentinel animals as they relate to Public Health
   iv. Phenol coefficient

b. What do you understand by the "farm-to-fork" concept of food safety? **(2 marks)**

c. Discuss the role of food safety veterinarians in ensuring food safety along the food chain **(8 marks)**.

Section Two **(40 marks)**

Answer only 2 questions from this section.

Question 4 **(20 marks)**

Assume you are the new Chief Public Health officer in Lusaka. You have received information of a foodborne disease outbreak at a local pre-school where 40 children have been affected. All the affected children attended a classmate's birthday party and ate food from the school cafeteria prepared specifically for the party. According to the local hospital where the children were rushed for treatment, all the affected children are non-febrile, but are showing signs of nausea and vomiting with about a third showing signs of extent diarrhea.

a. What type of an outbreak do you expect? **(2 marks)**
b. Outline the steps you would take to investigate the suspected outbreak **(4 marks)**.
c. If the children showed symptoms within 2 hours of ingesting the affected food, what type of foodborne disease would you suspect? **(2 marks)**.
d. Compare and contrast Type A and Type B foodborne outbreaks with emphasis on how they occur and what data source are used in their investigation **(12 marks)**.

Question 5 **(20 marks)**

a. Define risk analysis **(4 marks)**
b. Discuss the various components of risk analysis as it relates to food safety **(16 marks)**

Question 6 **(20 marks)**

a. Write brief notes on the sources of contamination in an abattoir (**8 marks**).

b. Best Beef is a HALAL abattoir located in Lusaka's industrial area. It is a small scale abattoir with a capacity to slaughter 100 animals a day. It supplies whole cuts to various butcheries within the city but also has a small processing facility where sausages, mince-meat and polony are produced, as well as a small outlet for over-the-counter purchases. Discuss the approach you would take to implement an HACCP programme at BEST BEEF Abattoir in Lusaka (**12 marks**).

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER EXAMINATIONS – JUNE/JULY 2006

VETERINARY PATHOLOGY I (VMP 411)

TIME: THREE (3) HOURS:

INSTRUCTIONS: (i) Answer **all** questions in Section A
(ii) Answer question one (Q1) and any other two in Section B.

SECTION A:

Q 1 (15 marks)

(a) Define necrosis
(b) Describe the **microscopic** changes of necrotic tissue at cellular level.
(c)Classify icterus (Jaundice) giving causes in each.

Q 2 (15 marks)

(a) What is Disseminated intravascular coagulation (DIC)?
(b) List the pathological conditions that may be responsible for development of acidosis in a dog.
(c) Classify anemia according to **morphological** characteristics of erythrocytes and give causes where possible.

Q 3 (15 marks)

(a) Outline the sequence of vascular changes in acute inflammation.
(b) Describe the **aetiology**, **pathology** and **significance** of **fibrinous** inflammation.

SECTION B

Q 1 (25 marks)

Write short notes on the following;

a) Atrophy
b) Infarction
c) Polycythemia
d) Macrophages
e) Healing by second intention.

Q 2 (15 marks)

a) What are the predisposing factors for thrombosis.
b) Discuss in detail the mechanisms of oedema.

Q 3 (15 marks)

a) Briefly describe the pathogenesis and microscopic features of granulomatous inflammation
b) With a brief explanation where possible, list the factors that may interfere with or inhibit wound healing.

Q 4 (15 marks)

a) What is the standard definition of a neoplasm?
b) There are two ways in which tumors are classified. Name the two and give two examples of each.
c) How do you differentiate a benign form a malignant neoplasm?
d) What factors influence the growth rate of a tumor.
e) For each of the following, indicate TRUE or FALSE

i. Cancer is a swelling
ii. Excessive tissue growth is indicative of neoplasia
iii. Tumors may compromise function of an organ
iv. Neoplasms containing tissues derived from more than one germ cell layer are known as carcinomas.
v. Tiny tumors are benign.
vi. A benign neoplasm of fibroblasts is a fibrosarcoma.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER EXAMINATIONS – JUNE/JULY 2006

VETERINARY MICROBIOLOGY VMP 431

TIME: **THREE (3) HOURS**

INSTRUCTIONS: (i) Answer **all** questions

(ii) All questions carry equal marks

SECTION A: IMMUNOLOGY

1. a) Summarize the early vaccination trials of Edward Jenner and Louis Pasteur. State their conclusions drawn from their experiments.

   b) Specific immunity exhibits four (4) characteristic attributes, which are mediated by lymphocytes. List these four attributes and briefly explain how they arise.

2. Briefly describe any five (5) of the following:

   a) Clonal selection theory.

   b) T-Cell receptors.

   c) Characteristics of Antigen Presenting Cells (APCs).

   d) Primary lymphoid organs.

   e) Granuloma.

   f) Epitopes.

   g) Complement.

SECTION B: BACTERIOLOGY

1. Describe the mechanism of disease production by a pathogenic bacterium, elaborating on the ability of propagation and toxin formation in the body.

2. Discuss briefly the isolation and identification of:

   a) *Salmonella pullorum* from an infected chicken.

   b) *Bacillus anthracis* from a suspected case of anthrax in Cattle.

3. Give an account on the mechanism of altering the genetic material of a bacterium.

4. Name five different genera, which come under Enterobacteriaceae family. Describe the nature and mode of action of the enterotoxins produced by *Escherichia coli.*

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

FINAL THEORY EXAMINATION – 28TH JUNE 2006 (AM)

VMP 441

VETERINARY PARASITOLOGY

TIME: THREE (3) HOURS

ANSWER: All QUESTIONS

SECTION A: PROTOZOOLOGY

Q 1 Clearly DISCUSS the modes of reproduction in the Apicomplexan protozoan parasites.

Q 2 Write SHORT NOTES on ALL of the following topics;

a) Mode(s) of transmission in protozoan parasites belonging to the phylum Sarcomastigophora.

b) Nutrition and organelles of nutrition in protozoan parasites.

c) Extrinsic and intrinsic factors in the classification of protozoa of veterinary importance.

d) State the significance of quantum of infection and biotic potential in protozoan infection.

e) Enzootic stability in any tick borne protozoan parasite(s) infection of veterinary importance in livestock in sub-Saharan Africa.

(PLEASE TURN OVER)

SECTION B: HELMINTHOLOGY

Q 1. Clearly OUTLINE the different species of Schistosoma which affect mammals. With reference to *Schistosoma bovis,* clearly DISCUSS the life cycle and pathogenecity of schistosomes.

Q 2. Write SHORT NOTES on ALL of the following topics;

a) *Dicrocoelium dendriticum.*

b) *Paramphistomum cervi.*

c) *Diphyllobothrium latum.*

d) Causative agent(s) of Cystic hydatid disease.

e) *Raillietina* infections in chickens.

SECTION C: ENTOMOLOGY

Q 1. EXPLAIN the general alimentary system of insects **and** DISCUSS how you would relate the alimentary system of insects with disease transmission to vertebrates.

Q 2. Write SHORT NOTES on ALL of the following topics:

a) Differences of Classes Insecta and Arachnida.

b) Growth and metamorphosis in arthropods.

c) Biological transmission of disease pathogens.

d) Pheromones.

e) Insect cuticle.

E N D O F E X A M I N A T I O N
G O O D L U C K