

**THE UNIVERSITY OF ZAMBIA**  
**SCHOOL OF VETERINARY MEDICINE**

**FIRST SEMESTER EXAMINATIONS - APRIL/MAY 2002.**

1.	Veterinary Anatolgy and General Histology Supplementary and deferred	-	VMB 211
2.	Veterinary Anatomy	-	VMB 311
3.	Veterinary Histology	-	VMB 321
4.	Veterinary Biochemistry I	-	VMB 331
5.	Veterinary Physiology	-	VMB 341 -
6.	General Veterinary Pathology	-	VMP 411
7.	Veterinary Microbiology	-	VMP 431
8.	Veterinary Pharmacology	-	VMB 451
9.	Veterinary Pharmacology (Supplementary)	-	VMB 451
10.	Veterinary Medicine I	-	VMC 511
11.	Veterinary Clinical Pathology	-	VMD 511
12.	Veterinary Surgery I	-	VMC 521
13.	Veterinary Surgery I Supplementary	-	VMC 521
14.	Infectious Diseases of livestock (Theory)	-	VMD 521
15.	Veterinary Epidemiology	-	VMD 531
16.	Veterinary Epidemiology (Supplementary)	-	VMD 531
17.	Veterinary Medicine III	-	VMC 611
18.	Veterinary Surgery III	-	VMC 621
19.	Veterinary Surgery III (Supplementary)	-	VMC 621
20.	Therigenology II	-	VMC 631
21.	Therigenology Deferred/Supplementary	-	VMC 631
22.	Veterinary Preventive Medicine	-	VMD 641



**THE UNIVERSITY OF ZAMBIA**  
**SCHOOL OF VETERINARY MEDICINE**  
**DEPARTMENT OF BIOMEDICAL SCIENCES**

**FIRST SEMESTER SUPPLEMENTARY AND DEFERRED**  
**EXAMINATIONS**  
**JUNE 2002**

**VMB 211**

**VETERINARY ANATOLOGY AND GENERAL HISTOLOGY**

**TIME:** THREE (3) HOURS

**INSTRUCTIONS:** ANSWER **ALL** QUESTIONS CARRY. ALL EQUAL MARKS

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- (I) Differentiate between regional anatomy and systematic anatomy.
- (ii) List five extrinsic muscles of the hindlimb.
  
- (I) Name two hypaxial, two epaxial muscles of the trunk.
- (ii) List four structures that are transmitted through the carpal canal of the dog.
- (iii) Briefly discuss the classification of bones based on origin and shape.
  
- (I) Briefly explain what you understand by "the rectus sheath".
- (ii) Define the following:  
**Axial skeleton, nucleus pulposus; chordae tendinae; sternabrae; Vertebral canal.**
  
- 4. (I) Compare and contrast cardiac and skeletal muscle.
- (ii) Briefly discuss the histology (microscopic structure) of bone.

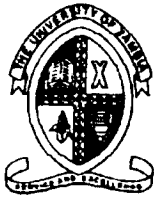
- (I) List at least five mammalian cell organelles that you know.
  - (ii) Use drawings to assist you in describing the following:  
**bipolar neurone: multipolar neurone: pseudo-unipolar neurone**
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**END OF SUPPLEMENTARY/DEFERRED EXAMINATION.**

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**THE UNIVERSITY OF ZAMBIA**  
**SCHOOL OF VETERINARY MEDICINE**  
**DEPARTMENT OF BIOMEDICAL SCIENCES**

**FIRST SEMESTER EXAMINATIONS - APRIL/MAY 2002**

**VMB 311**

**VETERINARY ANATOMY**

**TIME: THREE (3) HOURS**

**INSTRUCTIONS: ATTEMPT ONLY FIVE (5) QUESTIONS**

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1.
  - (i) Describe in detail the anatomy of the muscular portion of the diaphragm of the bovine.
  - (ii) Mention three (3) openings found on the diaphragm that transmit some important structures. List the structures transmitted through each of these openings.
  - (iii) Define the term mediastinum. Name three (3) important structures contained within the middle mediastinum in the bovine.

20 marks
  
2.
  - (i) Mention six (6) non-muscular structures that can be seen on a mid-transverse section of the bovine neck.
  - (ii) Briefly describe the anatomy of the nuchal ligament noting its location and function.
  - (iii) Mention the muscles that border the jugular groove of the goat. What veins unite just caudal to the parotid gland to form the external jugular vein? Briefly explain the clinical importance of the external jugular vein.

20 marks

3. Use short notes to explain the following:

- |       |                     |         |
|-------|---------------------|---------|
| (i)   | Supraomental recess | 3 marks |
| (ii)  | Ruminal pillars     | 3 marks |
| (iii) | Porta of the liver  | 3 marks |
| (iv)  | Reticular groove    | 5 marks |
| (v)   | Inguinal canal      | 6 marks |

4. Give a detailed account of the structure of the bovine penis including its innervation. Discuss how penile relaxation may be achieved:

- |      |                                |            |
|------|--------------------------------|------------|
| (i)  | without pain loss of the penis |            |
| (ii) | with pain loss of the penis    | (20 marks) |

5. Define and discuss postpartum uterine involution in the cow (20 marks)

6. Write concise notes on each of the following in ruminants:

- |       |                              |            |
|-------|------------------------------|------------|
| (I)   | Interosseus muscle           |            |
| (ii)  | Blood supply of the forelimb |            |
| (iii) | Tarsal bones                 |            |
| (iv)  | Hip joint                    | (20 marks) |

7. Describe the bovine udder under the following headings

- |       |                      |            |
|-------|----------------------|------------|
| (I)   | External features    |            |
| (ii)  | Suspensory apparatus |            |
| (iii) | Internal structure   |            |
| (iv)  | Lymphatic drainage   | (20 marks) |

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**END OF EXAM-GOOD LUCK**

**THE UNIVERSITY OF ZAMBIA**

**UNIVERSITY FIRST SEMESTER EXAMINATION-APRIL/MAY 2002**

**VMB 321**

**VETERINARY HISTOLOGY**

TIME: THREE (3) HOURS

INSTRUCTIONS: ANSWER **FIVE** QUESTIONS.

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1. Give a comparative account of the functional histology of the mucosa of the rumen, abomasum and the small intestine of the bovine.

20 marks

2. (i) Compare and contrast the histology of a vein and an artery  
(ii) Describe the histology of a hepatic lobule.

20 marks

3. Give a detailed account of the histology of the adrenal glands noting the functional roles of the various histological components.

20 marks

4. (i) Describe in detail the histology of the thyroid follicle

(ii) Use short notes to differentiate between the following paired terms:

- Capsule/trabeculae
- Medullary cords/medullary sinuses of a lymph node
- White pulp of spleen/red pulp of spleen
- Myoepithelial cells/secretory alveoli of mammary glands

20 marks

5. (i) List the histological layers that are found in cerebral cortices of domestic animals.  
(ii) Briefly explain what you understand by the term "neocortex" of the cerebral cortex.  
(iii) List the contents of the adnexa of the eye.

20 marks

6. (i) Use a well-labelled diagram to describe the histology of a lymphnode.

(ii) State the function (s) of the spleen.

20 marks

7. (i) Use a well-labelled diagram to show the different stages of follicular development in a mammalian ovary.

(iii) Briefly describe the histology of a seminiferous tubule. What is/are the functional roles of (a) sustentacular cells of the testis and (b) interstitial cells of the testis.

20 marks

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**END OF EXAMINATION**

# THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS – APRIL 2002  
VMB 331

## VETERINARY BIOCHEMISTRY I

**TIME:** Three (3) hours

**INSTRUCTIONS:** Answer ANY five (5) Questions only  
All Questions carry equal marks

### QUESTION # 1

Write a discussion of the separation methods of proteins.

### QUESTION # 2

- (a) Where do the following processes take place in the cell?
- (i) Krebs cycle
  - (ii) Oxidative phosphorylation
  - (iii) Pentose monophosphate shunt
  - (iv) Glycolysis
  - (v) Photosynthesis
- (b) Briefly explain why gluconeogenesis is NOT just a simple reversal of glycolysis.

For the next set of questions, answer TRUE (T) or FALSE (F)

- (c) The Michaelis - Menten Constant,  $K_m$ :
- (i) Represents the substrate concentration at which a reaction rate is half of  $V_{max}$ .
  - (ii) Of some enzymes may be altered by the presence of metabolites structurally unrelated to the substrate.

### QUESTION # 3

Outline one complete cycle of the tricarboxylic acid cycle, giving the structures and the names of the compounds involved as well as enzymes and cofactors.

### QUESTION # 4

Give a detailed account of the  $\beta$ -oxidation degradation pathway for a C16 fatty acid in animals (show only one cycle) and work out the net amount of ATP when it is fully oxidised to  $CO_2$  and  $H_2O$ . Show all the assumptions you make.



### QUESTION # 5

The pathways of major importance in the fasting state are glycogenolysis, gluconeogenesis, ketogenesis and ketone body utilization.

- (a) Give a meaning to each of the underlined words.
- (b) Name the tissue in which each process takes place.
- (c) Showing all the major key enzymes explain the degradation of glycogen.

### QUESTION # 6

The aerobic oxidation of glucose requires the participation of the electron transport chain. Outline the transfer of electrons from NADH to O<sub>2</sub>, giving the names of the enzyme complexes and also the mobile carriers. Why is cyanide a poison?

### QUESTION # 7

- (a) What are C<sub>4</sub> plants? Give two examples of C<sub>4</sub> plants.
- (b) What purpose is achieved by:-
  - (i) The light reactions in photosynthesis?
  - (ii) The dark reactions in photosynthesis?
  - (iii) The pentose monophosphate shunt?
- (c) Select the answers to the following statements below:
  - (i) Components of photosystem I
  - (ii) Components of photosystem II
  - (iii) Associated with the electron transport system linking photosystems I and II
  - (iv) Donates two electrons directly to NADP<sup>+</sup>
  - (v) Donates an electron directly to P700

From the following list below:

P680	Chlorophyll b
P700	H <sub>2</sub> O
Cytochrome b <sub>6</sub>	Plastoquinone
Cytochrome f	Plastocyanin
Mn	Ferredoxin
Chlorophyll a	



**THE UNIVERSITY OF ZAMBIA**  
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DEPARTMENT OF BIOMEDICAL SCIENCES

**FIRST SEMESTER EXAMINATIONS – APRIL 2002**

**VMB 341**  
**VETERINARY PHYSIOLOGY**

**TIME:** THREE (3) HOURS  
**INSTRUCTIONS:** ANSWER FIVE (5) QUESTIONS

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1. What is symbiosis? Give examples of some symbiotic microorganisms in the rumen and explain how they benefit the herbivorous host.
  2. Describe: (a) the factors that affect the rate of gas diffusion through the respiratory membrane and how they are related to each other.  
(b) carbon dioxide transport as the bicarbonate ion.
  3. Discuss how bile aids in the digestive process in the duodenum even though it contains no enzymes.
  4. Outline one method of determining cardiac output. How is cardiac output controlled? Briefly account for the changes in cardiac output that occur during sinus arrhythmia, during exercise and after hemorrhage.
  5. Discuss the physiology of the retina and give the visual pathways.
  6. Describe the cardiovascular adjustments that counteract an increase in blood pressure and discuss the role of the nervous system in the mediation of these adjustments
  7. Write brief notes on the following:
    - (a) Enterohepatic circulation of bile acids in a normal dog.
    - (b) Regurgitation
    - (c) Membranous digestion in a dog
    - (d) Intrinsic regulation of heart function
    - (e) The aortic arch and carotid sinus baroreceptor reflexes
- 

END OF EXAMINATION



**THE UNIVERSITY OF ZAMBIA**  
**SCHOOL OF VETERINARY MEDICINE**  
**DEPARTMENT OF BIOMEDICAL SCIENCES**

**FIRST SEMESTER SUPPLEMENTARY AND DEFERRED EXAMINATIONS**  
**JUNE 2002**

**VM341**  
**VETERINARY PHYSIOLOGY**

**TIME:** THREE (3) HOURS  
**INSTRUCTIONS:** ANSWER FIVE (5) QUESTIONS

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1. Briefly describe:
    - (a) Coprophagy
    - (b) The role of the renin - angiotensin - aldosterone system in blood pressure.
    - (c) Pneumotaxic and apneustic centers.
    - (d) The thalamus
    - (e) Uptake of oxygen by pulmonary blood during exercise.
  2. What is membranous digestion?  
Describe the mode of absorption of components of digested food in the alimentary canal of a dog.
  3. Describe the chemical control of respiration.
  4. Discuss the functions of the liver in both monogastric and ruminant animals.
  5. Discuss how changes in cardiac output (ventricular stroke volume and heart rate) are affected in relation to changes in blood volume and blood pressure.
  6. Compare and contrast the mechanisms which evoke and bring about rumination and eructation in a goat.
  7. Describe the operation of the vestibular apparatus. Discuss, giving the mechanism involved, the physiological roles of this structure.
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**END OF EXAMINATION**

# **THE UNIVERSITY OF ZAMBIA**

## **FIRST SEMESTER EXAMINATIONS (SUPPLEMENTARY)**

**APRIL 2002**

### **GENERAL VETERINARY PATHOLOGY – VMP 411**

**TIME: THREE HOURS**

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#### **SECTION A: ANSWER ALL QUESTIONS**

1. Briefly describe the basis for classification of tumours
2. Briefly define shock. List the lesions that are indicative of shock and in one of the listed describe in detail the mechanism involved.
3. Discuss secondary union in detail

#### **SECTION B: ANSWER QUESTION ONE (1) AND ANY OTHER TWO QUESTIONS**

1. Briefly define and describe the following terms:
  - a. haemorrhages
  - b. fibrinoid
  - c. hypoplasia
  - d. emboli
  - e. gout
  - f. apoptosis
2. What three (3) factors affect the adequacy and quality of tissue repair?  
Answer giving examples of each
3. Describe the fate of thrombi
4. Describe the morphology and behavioural changes in Benign and Malignant Neoplasm

**END OF EXAMINATIONS. GOOD LUCK!!**

**THE UNIVERSITY OF ZAMBIA**  
**UNIVERSITY FIRST SEMESTER EXAMINATION – APRIL 2002**  
**VETERINARY MICROBIOLOGY I (VMP 431)**

**Time :**            **Three (3) hours**  
**Answer :**        **All the questions**  
                      **All questions carry equal marks**

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**SECTION I: IMMUNOLOGY**

Q1. One of the major breakthroughs in immunology has been the discovery of vaccines and vaccination. This has resulted in the control/prevention of both human and livestock diseases which had long been major scourges. Discuss vaccination under the following headings:

- a) General principles of vaccination
- b) Live versus dead vaccines
- c) Storage and administration of vaccines
- d) Vaccination failure

Q2. Briefly comment on **any five (5)** of the following:

- a) Membrane attack complex
- b) Major histocompatibility complex (MHC) class I
- c) ELISA
- d) Components of the innate immunity
- e) Clonal selection theory
- f) Characteristics of antigen presenting cells
- g) IgE

**SECTION II: BACTERIOLOGY**

Q1. Define infection. Discuss in detail:

- a) factors that can affect disease patterns
- b) ways by which bacteria cause diseases in an animal host.

Q2. Write informative notes on **any five (5)** of the following :

- a) Fimbriae
- b) Enrichment media
- c) Bactericidal antimicrobial drugs
- d) Gram staining technique

- e) Phases of bacterial growth on artificial media
- f) Antibiotic sensitivity test
- g) Bacterial capsule

Q3. Pasteurellosis is an important livestock disease in Zambia. Discuss the genus *Pasteurella* under the following headings:

- a) Characteristic genus description/identification
- b) Laboratory differentiation of *Pasteurella multocida* and *Pasteurella haemolytica*
- c) Pathogenicity of *Pasteurella multocida*
- d) Treatment and control of Pasteurellosis

Q4. Write short notes on **any five (5)** of the following :

- a) *Mycobacterium paratuberculosis*
  - b) Rose Bengal test
  - c) Macfadyean's reaction/test
  - d) *Clostridium tetani* pathogenicity
  - e) Pathogenic enzymes secreted by *Staphylococcus aureus*
  - f) Pathogenicity of *Listeria monocytogenes*
  - g) Host adapted *Salmonella* species
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**GOOD LUCK!!!!**



THE UNIVERSITY OF ZAMBIA

UNIVERSITY 2001/2002 FIRST SEMESTER EXAMINATIONS - APRIL 2002

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**VMB 451**  
**VETERINARY PHARMACOLOGY**

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**INSTRUCTIONS:**

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1. Time three (3) hours
  2. Answer **FIVE (5)** questions only.
  3. All questions carry equal marks
- 
1. Write an essay on local anaesthetics using the following guidelines:
    - a). Mechanism of action of local anaesthetics [2 marks].
    - b). Briefly describe the techniques used in local anaesthesia giving suitable examples of the conditions and local anaesthetics used in each technique [12 marks].
    - c). Precautions to make when administering local anaesthetics [2 marks].
    - d). Benefit of using adrenaline (epinephrine) with local anaesthetics [2 marks].
    - e). Adverse effects of local anaesthetics [2 marks].
  2. Write an essay on corticosteroids using the following guidelines:
    - a). Describe the mineralocorticoid and glucocorticoid effects of corticosteroids [8 marks].
    - b). What is the mechanism of action of corticosteroids? [2 marks].
    - c). List the clinical indications of corticosteroids, giving an example of a corticosteroid you would use in each case [6 marks].
    - d). What problems are associated with prolonged administration of corticosteroids? [4 marks].
  3. Write short notes on any **FOUR** of the following [5 marks each].
    - a). Clinical application and adverse effects of beta-2 ( $\beta_2$ ) adrenergic receptor agonists.
    - b). Suxamethonium (Succinylcholine).
    - c). Non-specific (symptomatic) treatment of diarrhoea.
    - d). Pharmacological treatment of bloat.
    - e). Loop diuretics.
    - f). Digitalis glycosides

4. Describe the mode of action and clinical application(s) of each of the following drugs [4 marks each].

- a). Azeparone ("Suicalm", "Stresnil")
- b). Oxytetracycline ("Terramycine", "Oxyjet")
- c). Pentobarbitone (Sagatal", Nembutal")
- d). Buparvaquone ("Butalex")
- e). Diminazine aceturate ("Berenil")

5. Discuss in detail the mechanism of action, spectrum of activity, important pharmacokinetic properties and uses of the following drugs [10 marks each].

- a). Sulphonamide plus trimethoprim combination ("Tribrissen", "Septrin")
- b). Isometamidium ("Samorin")

6. Write short notes on the following [4 marks each]:

- a). Planes of anaesthesia
- b). Rational and empirical drug therapy
- c). Factors affecting drug distribution in the body.
- d). Applications of pharmacokinetic techniques .

7. Give two examples of drugs that are used for the treatment of each of the following disease conditions [2 marks each].

- i). Babesiosis
- ii). Anaplasmosis
- iii). Theileriosis
- iv). Trypanosomoses
- v). *Clostridia chauvei* infection
- vi). Chronic respiratory disease due to Mycoplasmosis.
- vii). Prolonged pain
- viii). Organophosphorus poisoning
- ix). Paralytic ileus
- x). Epilepsy

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**END OF EXAMINATION**

**Good luck!!**

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THE UNIVERSITY OF ZAMBIA

UNIVERSITY 2001/2002 FIRST SEMESTER SUPPLEMENTARY  
EXAMINATIONS - JUNE 2002

**VMB 451**  
**VETERINARY PHARMACOLOGY**

**INSTRUCTIONS:**

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

1. Define the following concepts in pharmacodynamics [2 marks each].

- |                         |                  |
|-------------------------|------------------|
| i). Affinity            | vi). Potency     |
| ii). Intrinsic activity | vii). Efficacy   |
| iii). Agonist           | viii). Summation |
| iv). Antagonist         | ix). Synergism   |
| v). Partial agonist     | x). Potentiation |

2. Write short notes on any FOUR of the following [5 marks each].

- a). Rate Theory (Paton's Theory) of drug-receptor interactions.
- b). Succinylcholine (Suxamethonium).
- c). Anti-emetic agents.
- d). Symptomatic (non-specific) treatment of diarrhoea.
- e). Methyxanthines.
- f). Pharmacological basis for the use of angiotensin converting enzyme inhibitors

3. Answer one of the two questions below - A or B [20 marks each].

- A.
  - i). List six (6) endogenous chemical mediators of inflammation and describe the role each one plays in the pathogenesis of inflammation [12 marks].
  - ii). Describe the mechanism of anti-inflammatory action of salicylates [2 marks].  
List THREE (3) uses and THREE (3) common side effects of salicylates [6 marks].
- B.
  - i). Describe the mechanism of action of the following diuretic agents [10 marks].
    1. Mannitol

2. Acetazolamide
3. Hydrochlorothiazide
4. Spironolactone
5. Frusemide

Give one clinical use of each of the above listed diuretics [5 marks].

- ii). Write short notes on the clinical applications of beta-1 adrenergic receptor agonists [4 marks].

Give an example of a drug which is relatively selective agonist on beta-1 adrenergic receptors [1 mark].

4. Discuss in detail the mechanism of action, spectrum of activity, important pharmacokinetic properties and uses of the following drugs [10 marks each].

- a). Benzylpenicillin (Penicillin G).
- b). Oxytetracycline.

5. Write short notes on the following drugs [2 marks each]:

- |                    |                       |
|--------------------|-----------------------|
| a). Loperamide     | f). Halothane         |
| b). Xylazine       | g). Nitrous oxide     |
| c). Pentobarbitone | h). Acetylpromazine   |
| d). Phenobarbitone | i). Imidocarb         |
| e). Parvaquone     | j). Sulphaquinoxaline |

6. Briefly discuss the following [5 marks each]:

- a). Dissociative anaesthetics giving one suitable example
- b). Antibiosis (usage of antibacterials).
- c). Neuroleptanalgesia.
- d). Trypanosomiasis chemoprophylaxis

7. In an experiment to demonstrate effects of autonomic drugs on the rat uterine smooth muscles discuss the effects of;

- a). Double dose addition of acetylcholine
- b). Carbachol, adrenaline and Noradrenaline while washing three times between each dose.
- c). Addition of propranolol for 5 minutes then washing, followed by re-testing adrenaline for one minute and then acetylcholine without washing between the two.
- d). Addition of high calcium Ringer's solution.

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**END OF EXAMINATION**

**Good luck!!**

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**THE UNIVERSITY OF ZAMBIA**  
**FIRST SEMESTER EXAMINATIONS APRIL 2002**  
**VMC 511 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 answer to each question in a separate answer book.
4. All questions carry equal marks.

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**SECTION A.**

1. A problem has been reported to you concerning some of the horses at the police stables and it is clear from the request that it has something to do with lameness.
  - a). How do you suggest to start your investigations, taking into account all essential information necessary for your suggestive clinical diagnosis.
  - b). How would you carry out a systematic clinical examination, considering all the necessary stages?
2. A six year old male Jack Russell is presented to you due to frequent urination. The owners tell you that the problem had been going on for about a week. The dog is otherwise active but vocalizes when he is urinating and only voids a small amount of urine.
  - a). What is your conclusion?
  - b). Outline your physical examination of this patient in view of your conclusion.
  - c). Outline the tests and examinations you would carry out.
  - d). Briefly discuss how you would investigate anuria in a male cat.
3. A piggery manager has reported a health problem in the lactating sow unit.
  - a). Describe in detail and step by step how you would investigate the suspected problem.
  - b). What unit and piggery records would you consider during your investigation?

c). Supposing the manager is not familiar with the recording system what would your advice be concerning proper recording system? Please give advantages of record keeping.

### **SECTION B**

4. There are many terminologies encountered during the study of the nervous system. Give detailed definitions of Reflex arch, Motor pathways and sensory pathways, and describe in detail the technique of examination of the central nervous system.
5. Compare and contrast in detail the following methods used in the detection and elicitation of clinical signs;
  - a). Palpation.
  - b). Percussion and
  - c). Auscultation.
6.
  - a). Discuss in detail different forms of hair loss (*Alopecia*) in domestic animals and compare hyperkeratosis and elasticity.
  - b). Thorough clinical examination plays an important gastrointestinal examination. Discuss how you would carry out an investigation of this system in a dairy herd.
7. Cardiovascular is one of the important systems to be considered in routine operations of a clinician.
  - a). Name six animal species of veterinary importance and their artery of choice for evaluating pulse.
  - b). Discuss the importance of respiratory system in cardiac disorders
  - c). Discuss the differential diagnosis and interpretation of jugular pulse in veterinary clinical examination
  - d). In a sentence define each of the following in relation to clinical examination:
    - i). Gallop sounds,
    - ii). Systolic clicks and
    - iii). Crescendo/decrecendo configuration.

# THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER EXAMINATION-APRIL 2002

(VMD 511)

## VETERINARY CLINICAL PATHOLOGY

TIME: 3 HOURS

INSTRUCTIONS: ANSWER ALL QUESTIONS

1. What are the different types of specimens/tissues and preservatives needed when collecting specimens from suspected cases of the following diseases for laboratory confirmation?
  - a. (i) Babesiosis (ii) Trypanosomiasis (iii) Heartwater (iv) Cryptosporidiosis (v) Theileriosis
  - b. (i) Haemorrhagic Septicaemia (ii) Streptothricosis (iii) Brucellosis (iv) Paratuberculosis (v) Anthrax
  - c. (i) Foot and Mouth Disease (ii) Rabies (iii) Marek's Disease (iv) New Castle Disease (v) African Horse Sickness
  - d. (i) Ovine Haemonchosis (ii) Bovine Fascioliasis (iii) Avian Spirochetosis (iv) Equine Strongylosis (v) Caprine Mange
2. What is leukaemia? Classify leukaemia. How would one differentiate leukaemia from leucocytosis?
3. A Holstein Friesian cow aged 4 years old was presented before a veterinarian with the following presenting signs:  
Off-feed for 2 days and milk production greatly reduced. On physical examination, pain elicited on palpation over xyphoid cartilage, grunts when walking and exhibits occasional forelimb lameness. There was dehydration, poor rumen motility and the temperature was 103°F. The blood was collected in EDTA and the following blood values were provided by the technician: -

RBC x 10 <sup>6</sup> /ul	4.6
Haemoglobin (g/dl)	9.8
PCV (%)	28%
WBC x/μl	13,576
Band neutrophils (μl)	416
Seg. Neutrophils (μl)	9200
Lymphocytes	2960
Monocytes (μl)	108
Eosinophils (μl)	508
Toxic neutrophils	294
Basophils (μl)	90
Fibrinogen	1gm/dl

- a. Based on the above values, find out the blood indices and % of differential leucocyte count (DLC).
- b. Interpret the haemogram.

- c. Give the diagnosis based on the above blood values with particular attention to the leucocytes and justify your diagnosis.
4. Briefly give the Principle and Significance of the following haematological parameters:
  - a. Packed Cell Volume (PCV)
  - b. Erythrocyte Sedimentation Rate (ESR)
  - c. Fibrinogen determination
  - d. Reticulocytosis
  - e. Differential white cell count.
5. A dog is brought to the clinic for treatment. The owner reports that the dog developed a sudden fever.

After clinical examination, it is discovered that the dog has pale membranes. Many ticks are also found on the dog. A blood sample is collected from which total blood counts and a smear is made and examined. The smear reveals pear-shaped intra-erythrocytic inclusions that are confirmed to be of *B. canis*. The whole examination reveals among others a markedly reduced PCV.

It is concluded that the dog has haemolytic anaemia. Describe the typical RBC characteristics as a result of the condition and relate these characteristics to the prognosis.

6. Briefly describe how the coagulation time test is carried out and indicate the applications of the test.

**END OF EXAMINATION!!!!**

✓

**The University of Zambia**  
**First Semester Examinations April 2002**  
**VMC 521 Veterinary Surgery 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 answer to each question in a separate answer book.
  4. All questions carry equal marks.
- 

**SECTION A.**

1. a). Discuss in detail how you would come up with the anaesthetic risk in a veterinary patient presented for general anaesthetic administration.  
  
b). In relation to veterinary anaesthesia, discuss the following:
  - i. Minimum data base
  - ii. Fasting
  - iii. Consent form and anaesthetic record
  
2. A 2 year-old cat weighing 2 kg is presented to you following a road traffic accident. The patient is recumbent and has marked abdominal distension, a fluid wave is felt on ballotement of the abdomen. She is very pale and capillary refill time is 3 seconds. Temperature is 36 °C and heart rate 250/minute. The pulse is weak and very fast. The haematocrit is 26%.
  - a). Outline the pathophysiology of the cardiovascular signs seen in this case.
  - b). Briefly describe your emergent management of the above case.
  - c) Outline the factors you would take into consideration when carrying out a blood transfusion in the feline.

3. i). Discuss the classification of haemorrhage.
- ii). List the instruments found in a veterinary general surgical pack.
- iii). With examples, discuss the use of specific antagonists to sedatives or anaesthetics.

## **SECTION B**

4. a). Define the basic rules of surgery and how they affect the outcome of an operation.
- b). Describe the different methods of sterilising surgical goods (Give examples of articles you would sterilise using the methods you describe).
5. a). Compare and contrast the use of Pentobarbitone sodium and Ketamine hydrochloride as anaesthetics in canine anaesthesiology.
- b). Outline the contraindications and side effects of Xylazine in dogs.
6. a). Discuss how the patient may contribute to surgical wound contamination.
- b). Outline the factors you would take into consideration when selecting the route and type of fluid administered for a given patient.
7. Write short notes of four of the following
- a) Stenting by the use of buttons or plastic tubing
  - b) Bunnell suture pattern
  - c) Use of glycopyrrolate in an anaesthetic protocol
  - d) Dermal suture
  - e) Inverting mattress suture pattern



✓

**THE UNIVERSITY OF ZAMBIA**  
**FIRST SEMESTER SUPPLEMENTARY EXAMINATIONS JUNE 2002**  
**VMC 521 VETERINARY SURGERY 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 question to each answer in a separate answer book.
  4. All questions carry equal marks.
- 

**SECTION A**

1. Answer part i) and ii). Each part carries equal marks.
  - i. List and discuss the ideal properties of a suture material.
  - ii. Write short notes on the following suture materials
    - a. Catgut
    - b. Stainless steel
2. Give a detailed account of how the surgical attire may contribute to surgical wound contamination.
3. Outline the pathophysiology of the following signs in a patient suffering from hypovolemic shock.
  - a. Reduced urine output
  - b. Cardiac arrhythmias
  - c. Thready pulse
  - d. Intestinal infection

**SECTION B**

4. Write short notes on five of the following:
  - a. Pre-anaesthetic evaluation
  - b. Azaperone
  - c. Flumazenil
  - d. Premedication
  - e. Glycopyrrolate
  - f. Anaesthetic risk.

- 
5. A six- month old Bulldog is presented to you due to vomiting. On examination you conclude that the patient is dehydrated.
    - a. Outline the clinical findings that have led you to this conclusion.
    - b. Outline the complications that can arise from putting a patient on an intravenous fluid infusion of Ringer's lactate.
  6. Write short notes on the use of any four anaesthetics in the feline patient.
  7. Write short notes on the following:
    - i. Complications arising from blood transfusions.
    - ii. Contribution of the theater design to surgical wound contamination.
    - iii. Checking the depth of anaesthesia in a patient.
    - iv. Considerations you would keep in mind before sedating a patient.

Good luck!

**THE UNIVERSITY OF ZAMBIA**  
**UNIVERSITY FIRST SEMESTER EXAMINATION-APRIL 2002**  
**(VMD 521)**  
**INFECTIOUS DISEASES OF LIVESTOCK (THEORY)**

**TIME:** 3 HOURS  
**TOTAL MARKS:** 40  
**INSTRUCTIONS:** Answer All Questions

1. Write short notes on any four (4) of the following:
  - a. Latency in bovine herpesvirus 1 infection
  - b. Development of mucosal disease in cattle
  - c. Transmission and control of African Swine Fever
  - d. A named pox-virus infection of cattle
  - e. Transmission of Rift Valley Fever.
2. Discuss the control of rabies in the wildlife and domestic animals.
3. Describe the Foot and Mouth High-Risk areas in Zambia. Also discuss the control measures taken during an out-break of Foot and Mouth Disease.
4. Discuss the aetiology, transmission, and pathogenesis clinical signs of the following protozoa diseases:
  - a. Trypanosomosis
  - b. Malignant Theileriosis
  - c. Anaplasmosis
5. Discuss the transmission, pre-disposing factors and control of infections due to *Pasteurella multocida*
6. Name four most important bacterial causes of mastitis and provide a scheme for its control.
7. Name three most important bacterial-soil-born diseases and discuss the transmission and control of any one of them.

**END OF EXAMINATION!!!**

**THE UNIVERSITY OF ZAMBIA**

**UNIVERSITY FIRST SEMESTER EXAMINATION-APRIL 2002**

**(VMD 531)**

**VETERINARY EPIDEMIOLOGY**

<b><u>TIME:</u></b>	<b>THREE HOURS</b>
<b><u>TOTAL MARKS:</u></b>	<b>100</b>
<b><u>INSTRUCTIONS:</u></b>	<b>ANSWER ALL QUESTIONS</b>

---

1. (a) In a trial 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 not. Weaning was at five weeks with the following weights:

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							

Summary statistics for Group B are, mean 4.71, standard error 0.1793

Calculate for Group A showing calculations:

- (i) The mode
  - (ii) The median
  - (iii) The arithmetic mean
  - (iv) The confidence interval
  - (v) Using the above statistics, compare and contrast between the two groups.
- (b) As a follow-up to a disease report received on the 22 of April, 2001, you visit the affected farm on 23<sup>rd</sup> of April to investigate and collect specimen. You revisit the farm exactly a month later to report back your findings and provide possible recommendations on possible control measures. You have the following basic data:

Total herd size on 23<sup>rd</sup> April was 800

Number of sick animals on the same day was 30

Number of animals becoming sick between 23<sup>rd</sup> April and 23<sup>rd</sup> May is 100

Number of deaths from Disease during the same period is 20.

Calculate

- (i) The attack rate
- (ii) Incidence rate for the specified period
- (iii) Prevalence rate on 23<sup>rd</sup> April. How do you call this rate?
- (iv) Mortality rate
- (v) Case fatality rate

**20 points**

2 An area with a total cattle population of 10, 000 is thought to have EBL with a probable prevalence of 30%.

- (a) Determine the sample size required to estimate the prevalence with a bound on error of estimation of 5% and a confidence level of 95%.
- (b) What would be the sample size required to detect at least 1 animal with EBL in this population at 95% confidence level?
- (c) A screening test revealed 62 cattle positive for a certain infectious disease out of a total herd of 700. Out of 62, only 48 were confirmed positive by culture. Specimens were also collected from a random sample of test negative cattle and on culture it was revealed that 10% of these animals were actually positive.

(i) From the data, construct a 2X2 table filling in all the details

(ii) Calculate

Apparent prevalence

True prevalence

Sensitivity and specificity of the screening test

The predictive value of the test

(d) Name and briefly describe the requirements of a diagnostic test. What are the specialised uses of diagnostic tests?

**25 points**

3 (a) Define and classify carrier state. What do you understand by antigenic variation?

(b) Name and briefly describe the methods of disease transmission.

(c) What is the significance of man as a disease determinant?

(d) Compare and contrast cohort and case control studies? What are the three uses of field trials?

(e) Name and briefly describe two causes of bias in observational studies.

12 points

4 (a) What do you understand by association? Name and briefly describe the types of association.

(b) Name and briefly describe the four main methods of arriving at a causal hypothesis.

(c) An epidemiological study to investigate the effect of *Mycoplasma meleagridis* infection of turkey eggs on embryonic death was carried out as follows:

Embryos were divided into dead and live embryos and then tests for presence or absence of *M. meleagridis* were carried out and the following results were obtained:

<i>m. meleagridis</i> infection	Embryonic Death		Total
	+VE	-VE	
+VE	134	160	294
-VE	36	159	195
Total	170	319	489

The test statistic at 5% significance level (0.05) is 3.84

(i) Is this an observational or experimental study?  
Briefly defend your answer.

(ii) What is the specific name of this study?

(iii) From the information given in the table above, calculate the chi-square statistic and interpret your results in relation to the test statistic given above.

(iv) Calculate the following parameters and interpret each result

The odds ratio (OR)

The attributable rate (AR)

The attributable fraction (AF)

30 points

5 (a) Define monitoring / surveillance. What are the objectives of monitoring / surveillance.

(b) Briefly describe the considerations that must be taken into account when designing a monitoring program.

- (c) At any level, effective surveillance will depend on a number of considerations. Briefly describe these considerations.
- (d) State the three major questions that you must answer when conducting an outbreak investigation? What are the general objectives of investigating an outbreak?

**13 points**

## FORMULAE

$$n = \frac{4PQ}{L^2}$$

$$n = \frac{Npq}{(N-1)D+pq}$$

$$n = \frac{4S^2}{L^2}$$

$$n = [1-(1-\alpha)^{1/D}] [N-(D-1)/2]$$

$$n = [1-(1-\alpha)^{1/n}] [N-(n-1)/2]$$

$$\mu = \frac{\sum X}{N}$$

$$x = \frac{\sum x}{n}$$

$$S^2 = \frac{\sum x^2 - (\sum x)^2}{n-1}$$

$$S^2 = \frac{\{(n_1-1) S_1^2 + (n_2-1) S_2^2\}}{(n_1+n_2-2)}$$

$$D = [1-(1-\alpha)^{1/n}] [N-(n-1)/2]$$

$$\chi^2 = \frac{n(ad-bc/-n/2)^2}{(a+b)(c+d)(a+c)(b+d)}$$

$$\chi^2 = \frac{(r-s/-1)^2}{r+s}$$

$$t = \frac{(\bar{d}-\delta)}{\sqrt{s^2/n}}$$

$$t = \frac{(\bar{x}-\mu)}{\sqrt{s^2/n}}$$

$$t = \frac{(\bar{x}_1 - \bar{x}_2 - \delta)}{\sqrt{s^2 [1/n_1 + 1/n_2]}}$$

$$P_T = \frac{P_T + S_p - 1}{S_e + S_p - 1}$$



## UNIVERSITY FIRST SEMESTER SUPPLEMENTARY EXAMINATION-JUNE 2002

# **VETERINARY EPIDEMIOLOGY**

## THREE HOURS

**ANSWER ALL QUESTIONS**

Total herd size on 23<sup>rd</sup> April was 800  
Number of sick animals on the same day was 30

Number of animals becoming sick between 23<sup>rd</sup> April and 23<sup>rd</sup> May is 100  
Number of deaths from Disease during the same period is 20.

Calculate

- (i) The attack rate
- (ii) Incidence rate for the specified period
- (iii) Prevalence rate on 23<sup>rd</sup> April. How do you call this rate?
- (iv) Mortality rate
- (v) Case fatality rate

**20 points**

2 An area with a total cattle population of 10, 000 is thought to have EBL with a probable prevalence of 30%.

- (a) Determine the sample size required to estimate the prevalence with a bound on error of estimation of 5% and a confidence level of 95%.
- (b) What would be the sample size required to detect at least 1 animal with EBL in this population at 95% confidence level?
- (c) You are the leader of a project tasked to eradicate brucellosis in traditionally managed cattle in Central Province using the test and slaughter method. The diagnostic test you have available has a sensitivity of 95% (0.95) and a specificity of 90% (0.90).
  - (i) You test about 1000 animals in three villages, and you find that 13% of the animals are test positive. What would be the true prevalence (p) of brucellosis in the three villages?
  - (ii) From the information above, construct a 2 X 2 table and fill in all the details.
  - (iii) Calculate the positive predictive value of the test.
  - (iv) The predictive value of a diagnostic test will change when the prevalence in a population changes. Is this true or false? Defend your answer.
  - (v) How many healthy (i.e. not Brucella infected) animals will be slaughtered in these three villages?

**25 points**

3 (a) Define and classify carrier state. What do you understand by antigenic variation?

(b) Name and briefly describe the methods of disease transmission.

- (c) What is the significance of man as a disease determinant?
- (d) Compare and contrast cohort and case control studies? What are the three uses of field trials?
- (e) Name and briefly describe two causes of bias in observational studies.

**12 points**

- 4 (a) What do you understand by association? Name and briefly describe the types of association.
- (b) Name and briefly describe the four main methods of arriving at a causal hypothesis.
- (c) Consider the following data derived from a cross-sectional study of the relationship between dry cat food (DCF) and feline urological syndrome (FUS) and summarised as follows:

	FUS+	FUS-	TOTAL	RATES OF FUS
DCF+	13	2163	2176	?
DCF-	5	3349	3354	?
TOTALS	18	5512	5530	?
Proportion of DCF	?	?	?	?

The test statistic at 5% significance level (0.05) is 3.84

- (i) Fill in the missing information in the above 2 X 2 contingency table.
- (ii) Calculate the chi-square statistic and interpret your result in relation to the test statistic given above.
- (iii) Calculate the following parameters and interpret each result

The relative risk (RR)  
 The odds ratio (OR)  
 The attributable rate (AR)  
 The attributable fraction (AF)

**30 points**

- 5 (a) Define monitoring / surveillance. What is the objective of monitoring / surveillance.

- (b) Briefly describe the considerations that must be taken into account when designing a monitoring program.
- (c) At any level, effective surveillance will depend on a number of considerations. Briefly describe these considerations.
- (d) State the three major questions that you must answer when conducting an outbreak investigation? What are the general objectives of investigating an outbreak?

**13 points**

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**END OF EXAMINATION AND GOOD LUCK !!!!**

**The University of Zambia**  
**First Semester Examinations April 2002**  
**VMC 611 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.
- 

**SECTION A**

1. A 7 year- old female mongrel was presented to with a complaint of blood in urine intermittently over the previous week. On clinical examination, the bitch was bright, and rectal temperature was 39.2° C. There was a trace of blood at the entrance to the vulva and numerous petechial hemorrhages were seen on both the vulval and oral mucous membranes.
  - a). Which useful tests might be carried out if laboratory facilities are not nearby or are available only by post?
  - b). Which useful tests might be carried out which can be done only in the presence of the patient?
  - c). Hematology results are given in *Table 8*.

**Table 8.**

PCV (%)	41	35-60
MCV (fl)	79	65-80
MCHC (%)	31.6	30-40
WBC ( $\times 10^3/l$ )	9.4	5-14
Adult neutrophils ( $\times 10^3/l$ )	5.8	4-10
Eosinophils ( $\times 10^3/l$ )	0.3	<1
Lymphocytes ( $\times 10^3/l$ )	2.9	1-5
Monocytes ( $\times 10^3/l$ )	0.4	<0.5.

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The RBC Picture was moderately regenerative, no abnormal WBCs were seen and platelets were very scarce. Prothrombin time was 7 seconds ( $<12$ ).

- d). Describe the pathogenesis of the petechial bleedings and hemorrhages?
  - e). What is the probable diagnosis and how might this be confirmed?
  - f). How would you treat this and what is the prognosis?
2. The pigman at Mulombwa's farm reports on an explosive outbreak of diarrhea involving all age groups. He also reports that he has had the highest number of mortality in one to two week old piglets. The diarrhea is profuse, watery and yellowish green in colour according to the narration.
- a). What is your tentative diagnosis?
  - b). What would your differential diagnoses be and how would you etiologically and clinically eliminate the other conditions?
  - c). What is the prognosis of this disease and how would your treatment plan be?
3. A three year old male German shepherd is presented with a nasal discharge of a months duration. The discharge is sanguinopurulent and at times haemorrhagic. The dog paws the face and rubs it against inanimate objects. On examination, there is pain on palpation of the bridge of the nose and the external nares are ulcerated.
- a). What is your diagnosis?
  - b). List your differential diagnoses.
  - c). Give a description of how you would confirm your diagnosis in (a).
  - d). Outline your management of the above case.

## **SECTION B**

4. Mr. Hunt would like you to assist him with his horses. He reports that a friend from Zimbabwe suggested that the disease affecting his horses is either Ringworm, Sweet- itch, or urticaria. Could you compare and contrast these three skin conditions in horses taking into account the etiology, clinical signs and treatment.
5.
  - a). Discuss the use of glucocorticoids in the treatment of chronic hepatitis in the dog.
  - b). In form of a table, list the causes of acute and subacute hepatic failure in dogs and cats.
6. An argument has arisen among your junior colleagues over the differences and similarities in the following diseases: Pneumonic pastuerellosis, Lungworm infection and contagious bovine pleuropneumonia. Could you guide them how these three diseases differ and how they resemble using etiology, clinic, pathology, treatment and control.
7. A seven-year-old Saint Bernard is presented with severe ascites, weakness and lethargy. The dog also has a history of syncope and is of the past week said not to be able to keep up with owner as they stroll through the park. On examination, the heart is very muffled and the pulse weak and exaggeratedly declines during inspiration.
  - a). What is your diagnosis?
  - b). List your differential diagnoses
  - c). Describe how you would confirm the condition in (a).
  - d). Describe your management of the above case.

**THE UNIVERSITY OF ZAMBIA**  
**FIRST SEMESTER EXAMINATIONS APRIL 2002**  
**VMC 621 VETERINARY SURGERY 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.
- 

**SECTION A**

**QUESTION ONE**

- a. List the surgical approaches to the equine guttural pouch.
- b. Discuss one of the above surgical approaches
- c. Discuss the surgical management of subcutaneous ventral abdominal inflammation secondary to urethral rupture in a two-year-old steer.

**QUESTION TWO**

Discuss, with the aid of line or sketch drawings, the following:

- i)
  - (a) Half closed equine castration.
  - (b) Amputation of the equine penis.

OR

- ii)
  - (a) Teaser bull preparation by penile diversion.
  - (b) Discuss endoscopic classification of laryngeal hemiplegia

**QUESTION THREE**

A two-year-old Siberian Husky is presented due to a noisy breathing. The dog is also reported to be coughing when eating or drinking. Of late the dog also seems unable to bark.

- a) What is your tentative diagnosis?
- b) How would you confirm the above condition (a)
- c) Briefly describe the pre-anaesthetic considerations for the above case.
- d) Outline in detail the operative procedure of the choice for treatment of this problem.



## **SECTION B**

### **QUESTION FOUR**

You are presented with a prized four-year-old Boran bull diagnosed with a urinary bladder rupture of three days duration. It was sent in to your Lusaka referral hospital by a referring veterinarian in Chibombo.

- i) What clinical signs would you expect?
- ii) Describe in detail how you would surgically manage this case (Include pre-op considerations, anaesthesia, surgical technique, and post-operative care).
- iii) In this case list two intra-operative findings that would make you not close the urinary bladder tear

### **QUESTION FIVE**

Write short notes on four of the following (Include only the anaesthesia and surgical technique):

- i) Colpotomy
- ii) Cricoarytenoidopexy with ventriculectomy
- iii) Equine Urethrovestibuloplasty
- iv) Bovine epididymectomy
- v) Bovine episiotomy

### **QUESTION SIX**

A ten-year-old male Great Dane was presented due to bloody urine of a month's duration. The dog is being referred to you after having been on a long course of antibiotics with no response. The dog is otherwise fine and active. He however, vocalizes during urination.

- a) List your differential diagnoses
- b) What further investigations would you carry out in the above case?
- c) If on ultrasonography an echogenic mass is imaged in the trigone area with distal shadowing, what is your diagnosis?
- d) Give a detailed account of your surgical management of the above case.

### **QUESTION SEVEN**

- a) Describe in detail the clinical features and clinical presentation of mammary tumors in small animals.
- b) How would you diagnose mammary tumors and what differentials would you think of?
- c) How would you treat a case of bilateral mammary tumors in a bitch?

***GOOD LUCK!!***

**THE UNIVERSITY OF ZAMBIA**  
**FIRST SEMESTER SUPPLEMENTARY EXAMINATIONS JUNE 2002**  
**VMC 621 VETERINARY SURGERY III**

**TIME: THREE HOURS**

**INSTRUCTIONS**

1. Please read the instructions and each question carefully.
  2. Answer ALL questions.
  3. Write the question to each answer in a separate answer book.
  4. All questions carry equal marks.
- 
1. Discuss in detail the surgical technique **ONLY** for two of the following:
    - a) Equine pararectal cystotomy
    - b) Repair of third degree rectovaginal tears
    - c) Ovariectomy in the mare
  2. Discuss in detail two of the following (include pre-op, anaesthesia, technique, post-op. care).
    - a) Bovine cystotomy and catheterization
    - b) Urethrostomy in the steer
    - c) Bovine epididymectomy.
  3. Outline your surgical management of a benign nasal tumour in a 4 year old male Doberman.
  4. Discuss in detail the various available options of managing equine ethmoid haematoma.
  5. Outline the radiographical features of the following:
    - a) Megaoesophagus
    - b) Hydrothorax
    - c) Cranial mediastinal mass
    - d) Left heart enlargement.
  6. A 6 year old mongrel is presented for abdominal radiographs due to apparent pain on palpation. The radiograph reveals a radiopaque mass in the left kidney. Ultrasonographical studies reveal a hyperechoic mass which is shadowing in the renal pelvis
    - a) What is your diagnosis?
    - b) Outline your surgical management of the above case.

**GOOD LUCK!**

THE UNIVERSITY OF ZAMBIA  
FIRST SEMESTER EXAMINATIONS  
VMC 631  
THERIOGENOLOGY II

TIME:            THREE HOURS

READ ALL QUESTIONS CAREFULLY BEFORE ATTEMPTING TO ANSWER  
ANSWER ALL QUESTIONS IN SECTION A AND THREE QUESTIONS IN SECTION B

SECTION A

1.      Alternative to antibiotics, GnRH is one of the drugs that is used as a therapy for uterine infections during the early postpartum period. Give a reason why it is given between days 10-14 postpartum.
2.      Which is the most common testicular tumour of the stallion and how is it characterized?
3.      The incidence of ovarian cysts in beef cattle is lower than in dairy cattle. What is the possible explanation for this?
4.      One of the recommended treatments for endometritis in cycling animals is by the use of intrauterine infusion of Lugol's iodine solution to shorten the oestrous cycle. How does this solution shorten the oestrous cycle?
5.      At what stage of gestation does abortion due to EPIVAG occur in cattle?
6.      Which infectious disease would you frequently observe an abnormally long inter-service interval of between 2-5 months and what is the reason for this?
7.      Explain why sows overfed around farrowing time are prone to agalactia postpartum.
8.      Anatomically, how does a freemartin differ from a male pseudohermaphrodite?

9. Following parturition, when does sub-oestrus or weak oestrus occur more frequently in cattle and why?
10. You are presented with a mare that is acting very aggressively towards people and actively attacks and mounts other mares. Palpation reveals a solid mass. Your diagnosis and treatment?
11. Can early embryonic deaths be distinguished from failure of fertilization before the regression of the corpus luteum? Please explain.
12. Some practitioners use dexamethason a glucocorticoid to treat fetal mummification in cattle i.e. to effect an abortion or delivery. What do you think of the efficacy of this treatment?
13. What medical terminology is used to denote a reduced to complete lack of sexual desire and inability to copulate? Give three examples.
14. Which of the following is the most important control or preventive measure against brucellosis in swine and give reasons?
  - (i) Vaccination with brucella S19 vaccine.
  - (ii) Slaughter.
15. How many primordial follicles would you expect to find in a cow with partial ovarian hypoplasia and can this cow cycle?
16. How does a cystic corpus luteum differ from a luteal cyst?

17. What is the possible cause and treatment of persistent penile frenulum in bulls?
18. The first heat after parturition in cattle is usually silent. However, if the cow is bred, do you think the ova would be fertilized? Explain.
19. Why is it that serological tests are of no value in the detection of enteroviruses or picornaviruses when exposure of pigs to these viruses is recommended in order to develop natural immunity before breeding?
20. What is the rationale for treating pigs with coliform mastitis with corticosteroids?

## SECTION B

1. At a farm in Lusaka West, a 24 months old Friesian/Holstein heifer that has not been seen in heat is brought to you for examination.
  - (i) What disease conditions would you suspect?
  - (ii) How would you differentiate these conditions?
  - (iii) Discuss your treatment if any of each of the conditions you suspect.
  - (iv) What recommendations would you give to the farmer in view of your diagnoses in (i) above?
2. A cow that gave birth some 5 months ago and has not been observed in oestrus is brought to you for examination. The farmer uses natural breeding.
  - (i) What would expect to find on rectal palpation of the reproductive tract?
  - (ii) What disease conditions would you suspect?
  - (iii) How would you treat these conditions?
  - (iv) Should this cow be recommended for breeding or not? Give reasons.

3. You are called to examine a mare that has aborted a fully developed foal. The mare was bred artificially using artificial insemination. It is not eating and in a depressive mood. You examine the mare and note the placenta hanging from the vulva and there is also a copious discharge. The respiration, pulse and temperature are 20/min, 88/min and 40 °C, respectively.

- (i) Which diseases would you suspect to have caused the abortion.
- (ii) How would you differentiate them?
- (iii) What further examinations would you carry out in order to reach a definitive diagnosis?
- (iv) What treatments and control and/or preventive measures would you employ to prevent another abortion from occurring?

4. A sheep farmer calls you to investigate why a high number of his ewes abort fully developed lambs or give birth to weak lambs. Following an abortion or birth of a weak lamb, usually a foul vaginal discharge is seen and ewes develop pyrexia and anorexia.

- (i) What do you think is the cause of abortion in this flock of sheep?
- (ii) How would you investigate this case further to arrive at a definitive diagnosis.
- (iii) What treatment and control and/or preventive measures would you employ to prevent further abortions from occurring?
- (iv) What recommendations would you give to the farmer.

THE UNIVERSITY OF ZAMBIA  
FIRST SEMESTER DEFERRED/SUPPLEMENTARY EXAMINATIONS-2001/2  
VMC 631  
THERIOGENOLOGY II

TIME:            THREE HOURS

READ ALL QUESTIONS CAREFULLY BEFORE ATTEMPTING TO ANSWER.  
ANSWER ALL QUESTIONS IN SECTION A AND ANY THREE QUESTIONS IN SECTION B.

SECTION A

ANSWER ALL QUESTIONS

1. It is desirable that a cow gives birth every year for maximum production in dairy farming. However, for this to be achieved, how long should the calving to conception interval (in days) be?
2. What is the importance of farm records?
3. In which specie is campylobacteriosis not considered venereal and why?
4. What is the importance of the pineal gland in reproduction? ✓
5. Give reason why retained placenta is more common in cattle than in horses.
6. About 50% of inseminations performed in cattle result in the birth of a calf. This reproductive wastage is a major source of economic losses in animal production. Failure in fertilization accounts in only about 10% of the reproductive wastage. What do you think is the major cause of this reproductive wastage.
7. Do you think cystic type structures should be treated when a corpus luteum is also present on the ovaries in cows? Explain.
8. Why does it take longer for a cow with trichomoniasis to return to oestrus than a cow with campylobacteriosis?
9. Freemartinism is more common in cattle than in horses. What is the possible explanation for this?
10. Between which period postpartum (in days) is the incidence of cystic ovarian disease highest and why?
11. At what stage of gestation does abortion due to fatty liver syndrome occur?

12. How does stress affect reproduction in animals?
13. Why is it that a cow with mucometra does not show signs of oestrus?
14. Can one use prostaglandins to treat failure of oestrus in cattle?
15. Mention four (4) pitfalls in the use of antibiotics for the treatment of reproductive disorders.
16. How does balanitis affect reproduction in horses?
17. Which viral infection causes abortion between 8-11 months of gestation?
18. Why is that it is recommended to give oestrogens within 48 hrs of mating to prevent conception in dogs?
19. Which bacterial disease of sheep causes abortion as well as nervous disorders? When does abortion occur due to this agent?
20. What is potency and can a cryptorchid have normal potency?

### SECTION B

1. A pig farmer calls you to investigate why a high number of his sows have suddenly failed to conceive.
  - (i) What do you think is the cause of infertility at this farm?
  - (ii) How would you investigate this case further to arrive at a definitive diagnosis.
  - (iii) What measures would you employ to improve fertility at this farm?
  - (iv) What recommendations would you give to the farmer?



2. A cow that gave birth some 6 months ago is presented to you for examination. History reveals that the farmer breeds his cows with a bull. Since calving, this cow has constantly come to oestrus at regular intervals.

- (i) What do you suspect?
- (ii) How would you proceed with this case to arrive at a definitive diagnosis?
- (iii) What treatments (if any) would you carry out in view of your diagnoses in (i) above?
- (iv) What recommendations would you give to the farmer?

3. A bitch in a critical condition is brought to the clinic for examination. History reveals that the bitch has not given birth before. On examination, the bitch has a vaginal discharge, swollen vulva and is anorexic.

- (i) What is your diagnosis?
- (ii) How would you investigate this case further to arrive at a definitive diagnosis?
- (iii) Describe your treatment in view of your diagnosis in (i) above.
- (iv) What are your recommendations?

4. A Jersey cow of about 10 years old gave birth to a relatively large male calf with some assistance some 3 months ago. The farmer has not seen this cow come on heat and is worried because it is the highest milk producer. The cow is eating well and shows no sign of illness. The farmer uses artificial insemination for breeding purposes but has a bull as well just in case.

- (i) What would you expect to find on rectal examination?
- (ii) What disease condition/s would you suspect?
- (iii) How would you resolve the problem/s in (ii) above?
- (iv) What advice would you give to the farmer?

- Q.1. a) Define Veterinary Preventive Medicine (VPM). How is VPM related to Epidemiology?  
b) Name and briefly describe the evolutionary phases of Livestock Production Systems;  
c) How do the individual systems relate to livestock disease occurrence?  
d) How is the livestock movement control enforced generally and in Zambia particularly?  
**11 points**
- Q.2. a) What are the requirements of an ideal vaccine? Briefly discuss the advantages and disadvantages of mass immunisation.  
b) Briefly discuss factors influencing the animals' response to vaccination;  
c) Define and classify Environmental Hygiene. What is Environmental Control and how is it executed?  
d) What is disinfection? Briefly describe disinfection methods;  
**12 points**
- Q.3. a) Briefly define and describe the Test and Slaughter Method;  
b) What is Depopulation and under what circumstances is it put into use  
c) Name and briefly describe the main Vector Control strategies; Which one is the most applicable for Zambia and why?;  
d) List the issues involved in planning disease control programmes  
**10 points**
- Q.4. a) State in general terms the primary objectives and goals of a herd health programme.  
b) Briefly state the criteria for the selection of participating farmers.  
c) Briefly define performance targets and shortfalls.  
d) What are the main causes of reproductive inefficiency in the dairy herd and how would you get rid of them?  
e) Briefly how would you assess the mastitis status of the dairy herd?  
**14 points**
- Q.5. a) State the main objective of a herd health programme in the Dairy and list 3 methods of achieving it.  
b) Briefly describe how you would determine the performance targets for your newly established Herd Health and Productivity Scheme  
c) What is the major objective of a beef cattle herd health programme? What is a weaner calf crop?

- d) What are the causes of economic loss in the feedlot
  - e) List the type of farm records you would require for an assessment of the annual performance of the beef herd
- 14 points**

- Q.6. a) What are the major causes of economic loss in the swine herd?
- b) State the areas of concern in a pig health and productivity scheme and the influential factors in each area.
  - c) Why is it necessary to study fish diseases?
  - d) Briefly describe methods for vaccinating fish. What are the factors influencing the efficacy of vaccines in fish?
  - e) Describe any fish disease you have learnt and how you would treat it.
- 14 points**

- Q.7. a) With the help of a diagram indicate the transmission cycle of *Salmonella pullorum*/*Gallinarum*
- b) Clearly indicate the clinical symptoms and control measures of pullorum disease at the hatchery level.
  - c) Discuss the gross lesions found in Infectious Bursal Disease (IBD).
  - d) Indicate all possible control measures available for IBD.
- 12 points**

- Q.8. Discuss the following:
- a) control of ticks on a game ranch,
  - b) any two (2) diseases of farmed crocodiles and their control.
  - c) the role of wildlife in the epidemiology of Anthrax and Foot & Mouth Disease.
  - d) the role of a veterinarian in a game capture exercise.
- 13 points**

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**END OF EXAMINATION !!!!!**