

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
2018/2019 ACADEMIC YEAR

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|----------|---|
| VMB 2100 | VETERINARY ANATOMY |
| VMB 2110 | VETERINARY HISTOLOGY & EMBRYOLOGY PAPER I |
| VMB 2110 | VETERINARY HISTOLOGY & EMBRYOLOGY PAPER II |
| VMB 2200 | VETERINARY BIOCHEMISTRY |
| VMB 2302 | INTRODUCTORY VETERINARY PHYSIOLOGY |
| VMB 2511 | ANIMAL WELFARE AND BEHAVIOUR |
| VMB 3311 | VETERINARY PHYSIOLOGY |
| VMB 3600 | VETERINARY PHARMACOLOGY |
| VMC 4101 | PROPAEDEUTICS TO CLINICAL VETERINARY MEDICINE |
| VMC 4112 | PRINCIPLES OF COMPANION ANIMAL MEDICINE |
| VMC 4200 | PRINCIPLES AND INTRODUCTION TO VETERINARY SURGERY AND DIAGNOSTIC IMAGING |
| VMC 4309 | INTRODUCTION TO VETERINARY REPRODUCTION AND OBSTETRICS |
| VMC 5210 | VETERINARY OPERATIVE SURGERY |
| VMD 4201 | VETERINARY EPIDEMIOLOGY |
| VMP 3400 | VETERINARY PARASITOLOGY |

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

FINAL EXAMINATIONS-2019 ACADEMIC YEAR

VETERINARY ANATOMY (VMB 2100)

PAPER II

TIME: THREE (3) HOURS

INSTRUCTIONS:

1. Answer any **FIVE (5)** questions only. All questions carry equal marks
 2. Write as clearly as possible as poor handwriting cannot be marked
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QUESTION 1

Describe the anatomy of the bovine mammary glands and explain how milk is produced in the cow. **[20 marks]**

QUESTION 2

Draw a representative schematic diagram of the Pupillary Light Reflex (PLR) of the dog and explain what would happen in the scenarios below:

- (i) Damage to the pretectal nucleus on the right side of the midbrain.
- (ii) Damage to the Edinger-Westphal nucleus on the left side of the mid brain
- (iii) How would you clinically assess the two scenarios above?

[20 marks]

QUESTION 3

Describe the functional anatomy of the Nervous system with respect to:

- (i) The Brain and spinal cord (CNS) **[5 marks]**
- (ii) The Peripheral Nervous System (PNS) **[5 marks]**
- (iii) The Parasympathetic and sympathetic nervous system (ANS) **[5 marks]**
- (iv) The first five cranial nerves **[5 marks]**

QUESTION 4

- i. Using short notes, explain your understanding of: **Systematic Anatomy; Applied/Clinical Anatomy; Regional Anatomy [5 marks]**
- ii. Briefly describe the osteology of the neck region **[5 marks]**
- iii. Briefly describe the osteology of the thoracic region **[5 marks]**
- iv. List FIVE (5) structures of the abdominal region of the ovine animal and name the other anatomical structures to which they are closely related **[5 marks]**

QUESTION 5

Describe in details the gross anatomical structure of the bovine hoof and comment on the necessity of hoof trimming. **[20 marks]**

QUESTION 6

- (i) Describe in detail the external and internal anatomy of the ruminant stomach **[10 marks]**
- (ii) Describe in detail the anatomy of the ruminant intestines including blood supply **[10 marks]**

QUESTION 7

The below listed are the anatomical components of the dog's female and male reproductive systems. Briefly explain the functional anatomy of each.

- (i) Fallopian tubes [5 marks]
- (ii) Male secondary sex organs [5 marks]
- (iii) Uterus [5 marks]
- (iv) Vagina [5 marks]

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

END OF YEAR SUPPLEMENTARY FINAL EXAMINATIONS– 2019 ACADEMIC YEAR

VMB 2110 – VETETRINARY HISTOLOGY AND EMBRYOLOGY- PAPER I

INSTRUCTIONS:

1. DURATION: 3 HOURS
 2. ANSWER ALL QUESTIONS IN SECTION A, AND ANY OTHER 2 IN SECTION B
 3. EACH QUESTION SHOULD BE ANSWERED IN A SEPARATE ANSWER BOOKLET
 4. ALL QUESTIONS CARRY EQUAL MARKS
-

SECTION A

QUESTION 1

Outline the histological at least 4 elements seen in the following organs when viewed under a light microscope:

- a) Tongue of a cow **(4 marks)**
- b) Ovary of a bitch **(4 marks)**
- c) Liver of a pig **(4 marks)**
- d) Salivary glands of a dog **(4 marks)**
- e) Teat of a goat **(4 marks)**

QUESTION 2

Briefly describe the following:

- a. The Lyssa **(5 marks)**
- b. Major functions of the liver **(5 marks)**
- c. The elements that make-up the blood-air-barrier in the lungs **(5 marks)**
- d. Composition of the taste bud **(5 marks)**

QUESTION 3

With the aid of a diagram :

- a. Discuss the components of a taste bud found on the fungiform papillae **[5 marks]**
 - b. Discuss the elements that make the blood-air-barrier in the lung tissue **[5 marks]**
 - c. Compare and contrast the serous and mucous acini found in mixed salivary glands **[5 marks]**
 - d. Outline and briefly discuss the mineralized tissue elements of a short tooth **[5 marks]**
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SECTION B

QUESTION 4

1. List down:

- a. Names of ducts of compound glands **[5 marks]**
- b. Supportive cells of the central nervous system **[5 marks]**
- c. Microscopic structure of the rough endoplasmic reticulum **[5 marks]**
- d. Names of monocytes and lymphocytes found in connective tissue **[2 marks]**
- e. Types of cell inclusion bodies **[3 marks]**

QUESTION 5

In a sentence indicate or state the type of epithelium of the following organs:

- a. Tongue **[2 marks]**
- b. Esophagus **[2 marks]**
- c. Non-glandular zone of a simple stomach **[2 marks]**
- d. Glandular zone of a simple stomach **[2 marks]**
- e. Non-glandular zone of a ruminant stomach **[2 marks]**

QUESTION 6

Write brief notes on the following:

- a. Histology of the Liver **[10 marks]**
- b. Histology of the Pancreas **[10 marks]**

QUESTION 7

In detail discuss the conducting and distributing arteries **(20 marks)**

QUESTION 8

1. Describe the main histological features that are visible with a light microscope used to identify: eosinophils, basophils, neutrophils, lymphocytes, monocytes, smooth muscle fibres and cardiac muscle fibres **[20 marks]**

END OF EXAM

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

END OF YEAR SUPPLEMENTARY FINAL EXAMINATIONS– 2019 ACADEMIC YEAR

VMB 2110 – VETETRINARY HISTOLOGY AND EMBRYOLOGY- PAPER II

INSTRUCTIONS:

1. DURATION: 3 HOURS
 2. ANSWER ALL QUESTIONS IN SECTION A, AND ANY OTHER 2 IN SECTION B
 3. EACH QUESTION SHOULD BE ANSWERED IN A SEPARATE ANSWER BOOKLET
 4. ALL QUESTIONS CARRY EQUAL MARKS
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SECTION A

QUESTION 1

What were the roles of the following philosophers/theologians/embryologists with respect to the development and understanding of early embryology:

- a) Democritus (5 marks)
- b) Aristotle (5 marks)
- c) Zacharias Janssen (5 marks)
- d) Ernst Haeckel (5 marks)

QUESTION 2

Write short notes to describe each of the following:

- a) Omphalocele (2 marks)
- b) Mickel's diverticulum (2 marks)
- c) Counter rotation of the gut (2 marks)
- d) Pyloric stenosis (2 marks)
- e) Physiological herniation of the midgut (2 marks)
- f) Septum transversum (2 marks)

QUESTION 3

Discuss the following:

- a. Cleavage in domestic animals (5 marks)
- b. Functions of the placenta (5 marks)
- c. Structures shed at ovulation (5 marks)
- d. Blood supply to the gut (5 marks)

SECTION B

QUESTION 4

Describe in detail the stages in the development of the liver and pancreas in an embryo (**20 marks**)

QUESTION 5

Write brief notes on the following:

- a) Gastrulation (**5 marks**)
- b) Barriers to fertilization (**5 marks**)
- c) Complex anomalies of cardiac development (**5 marks**)
- d) Atrial septation (**5 marks**)

QUESTION 6

Write brief notes on the following:

- a) The four (4) generations of ovarian follicles and their characteristics (**5 marks**)
- b) The potential barriers to fertilization, and the cascade of events following successful sperm penetration of the ovum (**5 marks**)
- c) Implantation in domestic animals (**5 marks**)
- d) Twinning in domestic animals (**5 marks**)

QUESTION 7

Describe the following:

- a) Abnormalities of cardiac development (**10 marks**)
- b) Ventricular Septation (**10 marks**)

QUESTION 8

Briefly describe the following:

- a) Polyspermy (**5 marks**)
- b) Capacitation (**5 marks**)
- c) Sex determination (**5 marks**)
- d) Transposition great vessels (**5 marks**)

END OF EXAM

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

**END OF YEAR JANUARY/FEBRUARY DEFERRED SUPPLEMENTARY
UNIVERSITY EXAMINATIONS
2018/19 ACADEMIC YEAR**

VETERINARY BIOCHEMISTRY (VMB 2200)

DURATION: Three (3) Hours.

INSTRUCTIONS:

1. Please read instructions and each question carefully
 2. Answer **ANY** five (5) questions only
 3. All questions carry equal marks
 4. Write the answer(s) to each question in a separate answer booklet
 4. Write in a legible handwriting
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QUESTION 1

Gluconeogenesis is the synthesis of glucose from non-carbohydrate precursors and yet it is not a reverse of glycolysis. With respect to this statement answer the following:-

- a) Clearly, show how gluconeogenesis is not a reverse of glycolysis. **(9 marks)**
- b) Name three non-carbohydrate precursors of glucose and for each of the named precursors in (a), give their molecules of entry into the gluconeogenic pathway. **(6 marks)**
- c) Explain the role of Phosphofructokinase (PFK) catalyzed reaction in the regulation of both pathways. **(5 marks)**

QUESTION 2

Describe the addition of a glucosyl unit to a growing chain of glycogen molecule and hence the branching of a glycogen molecule being synthesised. **(20 marks)**

QUESTION 3

In detail, describe the regulation of beta oxidation of fatty acids. **(20 marks)**

QUESTION 4

- a) Translation is divided into three (3) main phase with two additional steps at the beginning and at the end. One of the main mechanistic difference between Prokaryotic and Eukaryotic translation is the existence of polycistronic mRNA whose transcription is coupled to translation.
- i) Define Translation and state the components of a complete initiation complex? **(5 marks)**
 - ii) Define polycistronic mRNA and hence explain what the phrase "transcription is coupled to translation" means? **(2 marks)**
 - iii) Briefly, describe how the prokaryotes initiating AUG is distinguished from an internal AUG in a protein coding sequence? **(4 marks)**
- b) A second-year Vet student was given the following nascent (new) prokaryotic protein (fMet-Cys-Gly-Ser-Lys-His) for the study of activation and post translation processing or modifications.
- i) Define "post translation processing or modifications" and hence name the two broad types of post translation modification? **(2 marks)**
 - ii) Clearly, outline by way of reaction equations (without structures) the activation of fMet-Cys-Gly-Ser-Lys-His which only becomes functional in the absence of the formylated Met. **(3 marks)**
 - iii) What is the purpose of using initiator fMet and not Met in prokaryotic Translation? **(1 marks)**
 - iv) Identify the amino acid residues in the activated protein in (ii) above that can undergo post-translation modification and hence name one post translation modification each of the identified amino acid can undergo. **(3 mark)**

QUESTION 5

Write short notes on:-

- a) Peptide bond **(5 marks)**
- b) Sequential feedback mechanism in amino acid biosynthesis **(5 marks)**
- c) Phenylketonuria (PKU) **(5 marks)**
- d) Functions of monosaccharides **(5 marks)**

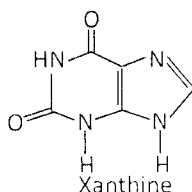
QUESTION 6

- a) What is enzyme inhibition? Give a detailed explanation of the different types of inhibitions, providing an appropriate example(s) in each case. **(15 marks)**
- b) Define K_m and explain the effect of substrate concentration on enzyme activity. **(5 marks)**

QUESTION 7

Purines and pyrimidines are important nitrogenous bases that are components of various important nucleotide containing biomolecules. The degradation of purine based nucleotides lead to a common end product which is excreted in different forms in different organisms.

- a) State the five main functions of nucleotides. **(5 marks)**
- b) Sketch the purine degradation, indicating the final excretory product, in Dalmatian Dogs. (*showing all details including structures*) **(10 marks)**



- c) Give possible explanations why purebred Dalmatian dogs have difficulties in processing purine degradation product(s) compared to other dog breeds. **(5 marks)**

QUESTION 8

- a) Describe how body tissues such as the skeletal muscles are able to utilize energy products/intermediates produced from the liver. **(10 marks)**
- b) Outline the biosynthesis of fatty acids using a pathway with correct structures and enzymes. **(10 marks)**

.....**END OF EXAMINATION**.....

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

DEFERRED/SUPPLEMENTARY EXAMINATIONS 2018/2019 ACADEMIC YEAR
VMB 2302-INTRODUCTORY VETERINARY PHYSIOLOGY

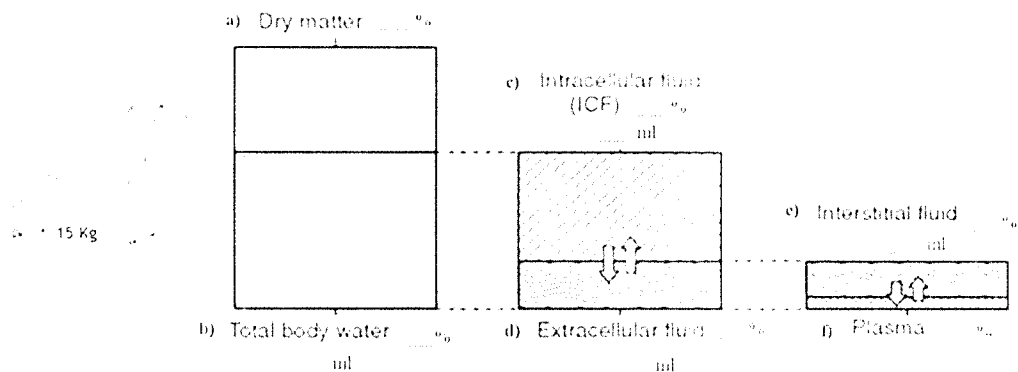
Duration: 3 hours

INSTRUCTIONS

- i. Read all the instructions and each question carefully.
- ii. There are six (6) questions in this paper, **ANSWER ANY FIVE (5)**. All questions carry equal marks.
- iii. Answer each question in a separate booklet
- iv. Write in a legible handwriting

1. The following questions relate to homeostasis and fluid balance:

- a. Using the figure below, estimate the size of the compartments of total body water and dry matter. Expressing your answers as a percentage of body weight for a 15-kg dog, determine the volume of water in each of the compartments shown in the diagram.



(10 marks)

- b. Name 3 organ systems of the body that are involved in homeostasis and briefly explain their function.

(10 marks)

2. With the aid of a well labelled diagram (s), describe in detail the generation and propagation of skeletal muscle action potential, mentioning the various ionic changes at respective stages in the action potential.

(20 marks)

3. With respect to blood and other body fluids, answer the following questions;
- a. Explain what is meant by cooperative binding of oxygen to haemoglobin. (5 marks)
 - b. Explain the difference between secondary and relative polycythemia. (5 marks)
 - c. State FIVE (5) characteristics of the lymphatic system. (5 marks)
 - d. Describe the transport and regulatory functions of blood. (5 marks)
4. With respect to the Central Nervous System (CNS);
- a. State the properties that qualify acetylcholine as a neurotransmitter. (5 marks)
 - b. Outline the transmission of an impulse across a chemical synapse. (5 marks)
 - c. Describe the physiological changes in the body during the fight/flight response. (10 marks)
5. Discuss the functions of the following structures of the brain in detail;
- a. Limbic system (4 marks)
 - b. Frontal lobe of the brain (4 marks)
 - c. Parietal lobe of the brain (4 marks)
 - d. Temporal lobe of the brain (4 marks)
 - e. Occipital lobe (4 marks)
6. Write brief notes on each of the following
- a. Primary and secondary active transport (5 marks)
 - b. Endocytosis (5 marks)
 - c. Functions of the cell membrane proteins (5 marks)
 - d. Diffusion potential and state how it affects the membrane potential of a cell (5 marks)

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

**THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
DEFERRED/SUPPLEMENTARY EXAMINATIONS-2018/19 ACADEMIC YEAR**

ANIMAL WELFARE AND BEHAVIOUR (VMB 2511)

Duration: 3 hours

INSTRUCTIONS:

1. Please read the instructions and each question carefully.
 2. Answer any **FIVE (5)** questions .
 3. Write the answers to each question in a separate examination answer book.
 4. **ALL** questions carry equal marks.
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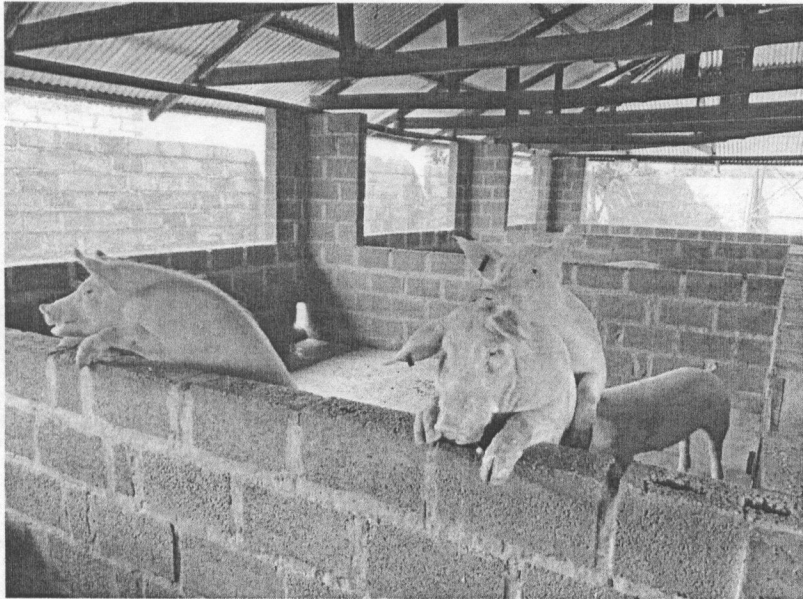
QUESTION 1

Horses may have been domesticated about 6000 years ago probably initially as a food source.

- a) Outline the traits that made horses good candidates for domestication. **(8 marks)**
- b) Discuss how domestication has changed horses' normal behaviour leading to behaviour problems. **(6 marks)**
- c) Describe the behaviour of a horse that may require the veterinarian to be more careful when handling it. **(4 marks)**
- d) Outline how a horse's sense of hearing is well adapted to its ability to detect danger. **(2 marks)**

QUESTION 2

Compare and contrast the welfare concerns/issues in the two pig-rearing systems A and B shown below. (20 marks)



System A



System B

QUESTION 3

Write short notes on how each of the following may affect welfare of an animal:

(5 marks each)

- a. Transportation vehicle
- b. Farm workers
- c. Housing
- d. Water

QUESTION 4

A good understanding of the horse's nature enables veterinarians to learn how to work more safely and more effectively with horses and allows for their easy management.

a) Briefly outline the following normal behaviours of horses **(2 marks each)**.

- i. Ingestive behaviour
- ii. Eliminative behaviour
- iii. Play behaviour
- iv. Investigative behaviour
- v. Vigilance behaviour

b) List and outline **five (5)** stereotypic behaviours of horses that may be harmful to humans or to the animal's health **(2 marks each)**.

QUESTION 5

Write short notes on the following:

- a. Qualities of an ideal euthanasia method. (10 marks)
- b. One acceptable euthanasia method for each of the following: (10 marks)
 - i. Pig
 - ii. Chicken
 - iii. Horse
 - iv. Laboratory mice
 - v. Bull

QUESTION 6

Write short notes on the common welfare issues found in the following:

(5 marks each)

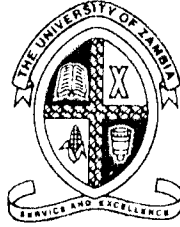
- a) Dairy cow
- b) Layers
- c) Piglets
- d) Dogs

QUESTION 7

Give a detailed description of how you would carry out a welfare audit of broiler chickens at a commercial slaughter house.

(20 marks)

END OF EXAMINATION



THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
SUPPLIMENTARY/DEFFERED EXAMINATIONS-2019 ACADEMIC YEAR
VETERINARY PHYSIOLOGY (VMB 3311)

Duration: 3 hours

INSTRUCTIONS:

1. Please read the instructions and each question carefully
 2. Answer **FIVE (5)** questions only
 3. **ALL** questions carry equal marks
 4. Write in a legible handwriting
 5. Answer each question in a separate booklet
-

QUESTION 1

- a) The digestive function is closely monitored by endocrine and nervous control systems to ensure supply and demand of nutrients are matched. In detail describe the two control systems, mentioning both the intrinsic and extrinsic controls. **(16 marks)**
- b) State four functions of the digestive system. **(4 marks)**

QUESTION 2

With the aid of a diagram show and discuss the relationships of the following hormones in each of the four estrus phases of the estrus cycle in dairy cow: **(20 marks)**

- a. GnRH
- b. FSH
- c. LH
- d. Progesterone
- e. Estradiol-17 β
- f. PGF2 α

QUESTION 3

You are presented with a dog with a history of weakness, weight loss, increased pulse rate and increased skin pigmentation. Your lab analysis reveals reduced serum sodium ions (Na⁺), reduced osmolarity, increased serum potassium ions (K⁺) and arteriole blood gases consistent with metabolic acidosis.

- a) What is your diagnosis? **(2 marks)**
- b) In detail, give a concise discussion of how the above observations could have come about? **(18 marks)**

QUESTION 4

Temperature regulation is a very important part of the animal's physiology.

- a) Why is it important for an animal to control its' temperature? **(2 marks)**
- b) Describe the physiological and behavioural responses occurring in a canine on a hot day, in order to achieve thermoregulation? **(12 marks)**
- c) Briefly explain how the hypothalamus plays a role in maintaining body temperature. **(6 marks)**

QUESTION 5

- a) Outline the factors affecting lactation in domestic animals. **(5 marks)**
- b) Briefly describe the maternal recognition of pregnancy in the sow. **(5 marks)**
- c) Describe the endocrinological aspects of parturition in the cow. **(10 marks)**

QUESTION 6

The digestive system plays an important role in ensuring that the animal's body is adequately supplied with nutrients needed for its growth and maintenance. Major components in feed include carbohydrates and proteins. Explain how these would be digested in the following animals:

- a) Dog **(8 marks)**
- b) Goat **(12 marks)**

.....**END OF EXAMINATION**.....

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE

SUPPLEMENTARY/DEFERRED EXAMINATIONS – JANUARY 2020

-2018/19 ACADEMIC YEAR

VETERINARY PHARMACOLOGY - VMB 3600

INSTRUCTIONS:

1. **Duration:** 3 hours
2. Answer ALL questions from Section A and two (2) questions from Section B.
3. ALL questions are 20 marks each
4. Write in LEGIBLE handwriting
5. Write questions 1, 2, 5 and 6 in answer books separate from questions 3, 4, 7 and 8.

| |
|--|
| SECTION A: [Answer ALL questions in this section] |
|--|

QUESTION 1

The effectiveness of drugs depends on their characteristic properties. Briefly discuss the following properties of drugs and their pharmacological importance.

- | | |
|-----------------------------------|--|
| a) Potency (2 marks) | f) Biotransformation (2 marks) |
| b) Bioavailability (2 marks) | g) Liver microsomal enzyme induction (2 marks) |
| c) Biological half-life (2 marks) | h) Adverse reactions (2 marks) |
| d) Efficacy (2 marks) | i) Therapeutic index (2 marks) |
| e) Plasma clearance (2 marks) | j) Loading dose (2 marks) |

QUESTION 2

Write short notes on the following, with particular emphasis on mode of action and clinical uses:

- a) Ranatidine
- b) Prednisolone
- c) Fentanyl
- d) Atropine

QUESTION 3

Discuss in detail properties and mode of action of two (2) drugs used to treat each of the following infections:

- a) *Theleiria parva parva*
- b) *Cryptococcus neoformans*
- c) *Babesia canis*
- d) Coccidiosis

QUESTION 4

Discuss the mechanism of action, pharmacological actions/effects, and uses of captopril

SECTION B: [Answer TWO (2) questions in this section]**QUESTION 5**

Discuss the general properties, mode of action, clinical use and side effects of the following drugs:

- a) Cephalosporines [5 marks]
- b) Diaminopyrimidines [5 marks]
- c) Griseofulvin [5 marks]
- d) Quinapyramine [5 marks]

QUESTION 6

Discuss the general properties, mode of action, clinical uses and side effects of the following classes of drugs:

- a) Potentiated sulphonamides [10 marks]
- b) Tetracyclines [10 marks]

QUESTION 7

Name the mode of action and one disease that can be treated by each one of the following drugs [1 mark each]:

| | | |
|-------------------|-------------------|-----------------------|
| i. Moxidectin | v. Monensin | xiii. Clorsulon |
| ii. Morantel | vi. Cloxacillin | xiv. Chlorpyrifos |
| iii. Ketoconazole | vii. Deltamethrin | xv. Isometamidium |
| iv. Amprolium | viii. Parvaquone | xvi. Niclosamide |
| | ix. Albendazole | xvii. Dimetronidazole |
| | x. Vincristine | xviii. Amitraz |
| | xi. Praziquantel | xix. Norfloxacin |
| | xii. Lasalocid | xx. Imidocarb |

QUESTION 8

Discuss the mode of action, pharmacological effects, and clinical uses of pethidine in the dog.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
DEFERRED/SUPPLEMENTARY EXAMINATIONS 2018/19 ACADEMIC YEAR

PROPAEDEUTICS TO CLINICAL VETERINARY MEDICINE (VMC 4101)

Duration: 3 hours

INSTRUCTIONS:

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

.....**SECTION A**.....

QUESTION 1

In equine practice, it is important that a veterinarian knows the description of a horse presented to him/her. Further, to be able to handle the horse, the veterinarian needs to be aware of the various methods of restraint used in equine practice.

- a) Outline the reasons why a full description of a horse is important. **(2 marks)**
- b) Describe the various characteristics used in the full description a horse. **(8 marks)**
- c) Outline the types of restraint available in equine practice. **(6 marks)**
- d) Give the best method of restraint for each of the following: **(1 mark each)**
 - i. Carry out a full physical examination of a horse.
 - ii. Palpate the knee of a fidgety mare.
 - iii. Carry out an oral examination of a gelding.
 - iv. Give an intramuscular injection to a horse with a traumatic history with injections.

QUESTION 2

The initial clinical examination includes medical history taking, general inspection and examination of vital parameters.

- a) Briefly describe what medical history is and its importance in veterinary practice. **(5 marks)**
- b) Describe the types of history that you would normally take during a general clinical examination. **(5 marks)**
- c) Describe any five (5) factors you would examine during a general inspection of veterinary patients. **(10 marks)**

QUESTION 3

Conditions affecting the urinary system are common in small animals. A thorough history and physical examination are essential in arriving at an aetiological diagnosis.

- a) List the **eight (8)** clinical signs associated with chronic kidney disease. (4 marks)
- b) Describe in detail how you would investigate the following; (8 marks each)
 - i. Incontinence in a dog.
 - ii. Haematuria in a cat.

.....SECTION B.....

QUESTION 4

Ruminants contain a multi-chambered digestive system (polygastric) that allows the animal to gain the majority of their nutritional needs from forages and other roughages. In ruminants volatile fatty acids (VFA's) are produced in large amounts through ruminal fermentation and are important in providing more than 70% of the ruminant's energy supply.

- a) Discuss the available methods you have to examine a cow suffering from traumatic reticulitis. (10 marks)
- b) Why is the continuous removal of VFA's from the rumen important? (4 marks)
- c) List the **three (3)** major VFA's absorbed from the rumen and their ratios. (6 marks)

QUESTION 5

Gastrointestinal conditions are some of the most common medical problems you will come across in Small Animal Practice. Briefly describe how you would differentiate the following:

- a) Vomiting and regurgitation. (10 marks)
- b) Large and small intestinal diarrhoea. (10 marks)

QUESTION 6

A five-year old castrated male dog is presented to your small animal practice with head shaking and ear scratching. Describe in detail how you would investigate this case. (20 marks)

QUESTION 7

Horses are primarily kept for their athletic abilities and therefore used in many equestrian events throughout the world. A healthy musculoskeletal system of the horse is important in the optimal performance of the athletic horse. A derangement of this body system renders the horse to perform poorly or not at all.

- a) Outline the clinical manifestations of a musculoskeletal disorder in a horse. **(2 marks)**
- b) Discuss the clinical examination of a horse's muscles and bones highlighting the pathologies associated with the musculoskeletal system. **(10 marks)**
- c) Discuss the lameness grading system of the Association of American Equine Practitioners. **(5 marks)**
- d) Outline how you would examine a horse's foot, including instruments you would use, to come up with a diagnosis of the cause of lameness. **(3 marks)**

.....**END OF EXAMINATION**.....

**THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
DEFERRED/SUPPLEMENTARY EXAMINATIONS-2018/19 ACADEMIC YEAR**

PRINCIPLES OF COMPANION ANIMAL MEDICINE (VMC 4112)

Duration: 3 hours

INSTRUCTIONS:

1. Please read the instructions and each question carefully.
2. Answer **All** questions from section A and **THREE (3)** questions from section B
3. Write the answer to each question on a separate answer sheet.
4. All questions carry equal marks

.....**SECTION A**.....

QUESTION 1

During a visit to the Zambia Police stables, you are presented with a 14-year-old mare that has lame and swollen lower hind limbs. You are informed that the problem has been there for over three months and that it started off as a nodule on one of the hind limbs. Your physical examination reveals a normal temperature but reactive local lymph nodes. A closer examination of the hind limbs reveals lesions showing cycles of ulceration, granulation, partial healing and renewed eruptions. The skin surrounding the lesions is hardened, variably painful and swollen. Some scars can also be observed in the affected area.

- a) What is your tentative diagnosis? **(2 marks)**
- b) Give **two (2)** differential diagnoses. **(2 marks)**
- c) Briefly outline how you would confirm the diagnosis in (a) above. **(4 marks)**
- d) Outline how the condition in (a) above is transmitted. **(2 marks)**
- e) Discuss how you would manage and control the condition in (a) above. **(10 marks)**

QUESTION 2

A 7-year old male Labrador is presented to your small animal clinic with anorexia and vomiting of two days duration. The owner tells you that she has been giving the dog her ibuprofen medication as she thought that the dog did not seem to be himself lately. The vomitus appeared like 'coffee grounds' and was sometimes blood-tinged.

- a) What is your tentative diagnosis ? (2 marks)
- b) List two (2) differential diagnoses. (2 marks)
- c) Briefly outline the pathophysiology of the condition in (a) above. (4 marks)
- d) Outline the ancillary tests and expected findings that you would carryout to reach a definitive diagnosis. (4 marks)
- e) Discuss the management for the condition in (a) above. (8 marks)

QUESTION 3

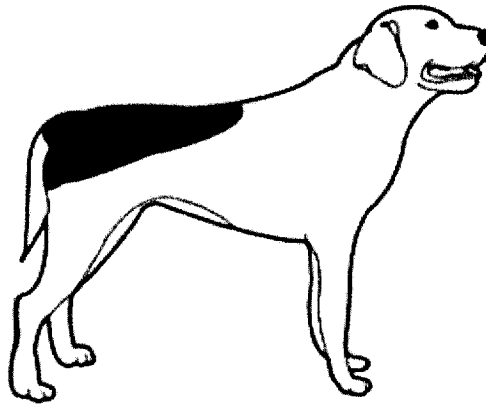
A 5-year-old female domestic shorthair is presented to your small animal veterinary clinic for left forelimb lameness that progressed to paralysis over a 5-month period. According to the owner, the cat lives strictly indoors, is fed exclusively a home-made diet based on raw pork liver. There is no history of trauma and it is the only cat in the household.

- a) What is your tentative diagnosis? (2 marks)
- b) Outline the ancillary tests that you would carry out and the expected findings in order to reach a definitive diagnosis for the condition in (a) above. (8 marks)
- c) Describe is the pathophysiology of the condition in (a) above. (4 marks)
- d) Briefly describe the prognosis of this case. (4 marks)
- e) Outline how you would manage the condition in (a) above? (2 marks)

.....SECTION B.....

QUESTION 4

A 1-year-old male German shepherd dog is presented with severe pruritus of a month's duration. On physical examination there is evidence of alopecia around the shaded area shown in the image below. There was also evidence of erythema, papules and lichenification. Deworming and vaccination were up to date.



- a) What is your tentative diagnosis? (2 marks)
- b) List two (2) differential diagnosis. (2 marks)
- c) Outline the pathogenesis of the condition in (a) above. (5 marks)
- d) Outline the ancillary tests that you would carry out and the expected findings in order to reach a definitive diagnosis for the condition in (a) above. (4 marks)
- e) Discuss the management options for the condition in (a) above. (7 marks)

QUESTION 5

Cardiovascular disease is diagnosed less commonly in the equine compared to colic.

- a) List the common manifestations of cardiovascular disease in the horse. (6 marks)
- b) Discuss the relationship between the cardiovascular system disorders and respiratory manifestations of these disorders. (8 marks)
- c) List common equine cardiovascular diseases and write short notes on **one** of these diseases. (6 marks)

QUESTION 6

You are presented with a client's only two horses both with weight loss, icterus, decreased reactivity to stimuli, and abnormal behaviour. A quick check of the premises reveals complete overgrazing with the horses now grazing on plants that are normally unpalatable to them. Upon observation, the horses appear to be walking aimlessly in circles with head-pressing and ataxia. Suspecting liver disease you obtain samples for haematology and serum biochemistry as well as a liver biopsy. The liver biopsy reveals centrilobular and periportal fibrosis and biliary hyperplasia.

- a) What is your tentative diagnosis? **(4 marks)**
- b) Briefly outline the cause of this condition in (a) above. **(2 marks)**
- c) Describe the serum biochemistry findings associated with your diagnosis in (a) above. **(4 marks)**
- d) Discuss the management of this case. **(10 marks)**
- e) Outline your client education. **(2 marks)**

QUESTION 7

Write short notes on the following:

(5 marks each)

- a) Staging of chronic kidney disease in small animals.
- b) Significance of renin-angiotensin-aldosterone system blockade in the management of chronic kidney disease.
- c) Struvite urolithiasis in dogs.
- d) Management of acute kidney injury.

.....**END OF EXAMINATION**.....

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
JANUARY DEFERRED/SUPPLEMENTARY EXAMINATIONS-2018/19 ACADEMIC YEAR

PRINCIPLES AND INTRODUCTION TO VETERINARY SURGERY AND
DIAGNOSTIC IMAGING (VMC 4200)

Duration: 3 hours

INSTRUCTIONS:

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

.....**SECTION A**.....

QUESTION 1

Wildlife veterinary practice poses challenges to the veterinarian as most animals cannot be handled in the same manner as domestic animals.

- a) Outline the most appropriate anaesthetic protocols for the following cases:
(2 marks each)
 - i. A baboon with a wound on its scrotum
 - ii. A python with prolapsed cloaca
 - iii. A lioness with dystocia
 - iv. A rat with an ocular tumour
- b) In the case of the lioness above, you decide to carry out a caesarian section. Outline, in detail, the surgical preparation for the lioness and laparotomy approach including closure.
(8 marks)
- c) If the procedure in (b) was carried out at South Luangwa National Park, what concerns would the surgeon have and how would they be addressed to ensure that the lioness recovers from anaesthesia uneventfully.
(4 marks)

QUESTION 2

Rectal prolapse in cattle is usually a sequela to tenesmus of many causes and therefore it is important that the initiating cause be addressed for effective management of the condition.

- a) List three (3) surgical techniques used to treat/prevent rectal prolapse. **(6 Marks)**
- b) From the surgical techniques listed in (a) above, describe the best surgical option you would use to correct a prolonged rectal prolapse with severe necrosis or damage of rectal tissues. Include the pre-surgical preparation, anaesthetic protocol, surgical technique, and postoperative care. **(10 Marks)**

- c) Outline the surgical complications associated with the procedure described in (b) above. (4 Marks)

QUESTION 3

You are dealing with a well-granulated wound over the distal aspect of the front limb of a cat. The wound is too large to close by undermining alone.

- a) Describe why such a wound would benefit from reconstructive surgery. (5 marks)
- b) What would be the main considerations in the choice of a reconstructive technique to employ in this case? (5 marks)
- c) List two (2) reconstructive techniques, which may be applied in the immediate wound area, which may be tried to close the defect. Describe each technique briefly (exclude anesthesia). (10 marks)

.....SECTION B.....

QUESTION 4

Write short notes on **four (4)** of the following (5 marks each).

- a) With the aid of drawings or line drawings/sketches concisely discuss the Mapleson alphabet classification criteria for anaesthetic breathing circuits.
- b) Discuss the classification criteria for suture materials.
- c) Write short notes on the pin index system on an anaesthetic machine.
- d) Concisely discuss the importance of surgical haemostasis.
- e) The advantages of inhalation anaesthesia over total intravenous anaesthesia.
- f) Concisely discuss the retrograde insertion of an endotracheal tube.

QUESTION 5

An endoscope is a fiberoptic piece of equipment that is used to look inside internal parts of the body of a horse in order to identify abnormalities. One of the most commonly examined organ systems in the horse is the respiratory system.

- a) List the other system(s) that can be endoscopically examined in the horse. (2 marks)
- b) List the common clinical signs that warrant 'scoping' of a horse. (4 marks)
- c) Describe in detail how you would place an endoscope in a 9-year-old mare to examine its respiratory tract giving examples of conditions that you can diagnose as the scope is advanced up the tract (Include patient/instrument preparation and patient restraint). (12 marks)
- d) A cystoscopic examination of a 9-year-old gelding with chronic weight loss revealed a purulent fluid pulsating into the bladder from both ureters. What would be your diagnosis? (2 marks)

QUESTION 6

A referral case of perineal hernia involving a 4-year-old German Shepherd male Dog has been sent to you for your attention as consultant surgeon. As part of the surgical intervention, you have to consider answers to the following questions.

- a) List the components of the pelvic diaphragm. (2 marks)
- b) What is the main aim of performing the surgical procedure? Justify your answer. (4 marks)
- c) Indicate the commonly herniated structures encountered in a perineal hernia. (2 marks)
- d) Discuss in detail how the hernia can be successfully managed (exclude anesthesia). (8 marks)
- e) Name the possible complications arising from the operation in (d) above. (4 marks)

QUESTION 7

For each of the following, outline any **four (4)** typical radiographical findings: (5 marks each)

- a) Malignant maxillary tumour
- b) Chronic osteomyelitis
- c) Hepatomegaly
- d) Hip dysplasia
- e) Diaphragmatic rupture.

.....**END OF EXAMINATION**.....

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
DEFERRED/SUPPLEMENTARY EXAMINATIONS-2018/19 ACADEMIC YEAR
INTRODUCTION TO VETERINARY REPRODUCTION AND OBSTETRICS
(VMC 4309)

Duration: Three (3) 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 booklet
4. **ALL** questions carry equal marks
5. Write in a legible handwriting

.....**SECTION A**.....

Question 1

The regulation of the oestrous cycle in cattle remains one of the most complex physiological occurrences in a mature animal involving the various endogenous hormones. In your own understanding of the oestrous cycle in cattle, relate the functional relationship of the following hormones when applied in order to bring about fertile oestrus in a cow diagnosed with persistent corpus luteum and first degree endometritis: **(20 marks)**

- Gonadotrophin Releasing Hormone
- Estradiol benzoate
- Prostaglandin-F₂ α
- Luteinizing Hormone
- Progesterone

Question 2

Outline the oestrous cycle of the bitch. Include in your answer the hormonal profile, clinical signs and vaginal smear findings for the various stages. **(20 marks)**

Question 3

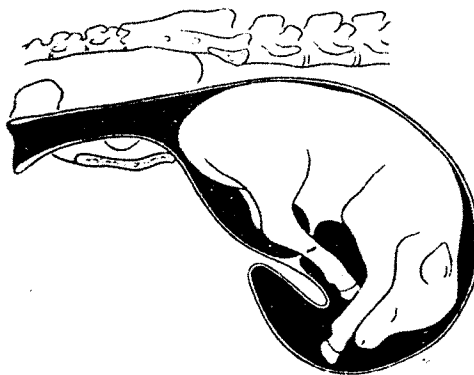
The mare is described as a seasonal polyoestrous breeder.

- a) Describe how day length influences cyclicity in the mare. (4 marks)
- b) List the positive behavioural signs of overt oestrus in the mare. (4 marks)
- c) Briefly explain the mechanism by which as many as thirty unfertilized eggs can be flushed from the mare's oviducts early in the breeding season. (2 marks)
- d) Write short notes on endometrial cups. (4 marks)
- e) Briefly describe events that occur during second stage labour in the mare. (6 marks)

.....SECTION B.....

Question 4

Closely examine the picture below and answer the questions that follow.



- a) Describe the orientation of the foetus. (5 marks)
- b) Discuss what could have led to the development of the condition shown in the image above. (5 marks)
- c) Describe **two (2)** methods you would use to manage the condition. (10 marks)

Question 5

Write notes on any **four (4)** of the following

(5 marks each)

- a) Factors affecting the length of the puerperium in cattle.
- b) Pregnancy diagnosis using ultrasound in cattle.
- c) Functions and uses of PGF_{2α} in livestock reproduction.
- d) The third stage of labour.
- e) Hydrometra in the doe.

Question 6

Induction of abortion or parturition in cattle is done for a variety of reasons.

- a) List eight (8) indications for terminating pregnancy in cattle. **(4 marks)**
- b) Name the drug (s) of choice in terminating pregnancy between five and eight months of pregnancy in cattle. **(2 marks)**
- c) For the drug(s) in (b) above state the mechanism (s) of action. **(4 marks)**
- d) List three (3) main impediments to the induction of parturition. **(3 marks)**
- e) Discuss in detail the endocrinological aspects of Parturition. **(7 marks)**

Question 7

The examination of bulls for breeding soundness (BSE) needs clinical competency, acquaintance with bull's psychology, patience, common sense, knowledge of clinical pathology and objectiveness.

- a) List four (4) basic reasons why male animals are presented for breeding soundness examinations. **(4 marks)**
- b) List four (4) pathological colours of semen that a veterinarian may collect from bulls during BSE and state what each colour signifies. **(4 marks)**
- c) In a systematic way, describe in detail how you would carry out breeding soundness evaluation in bulls. **(12 marks)**

.....**END OF EXAMINATION**.....

**THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
END OF YEAR DEFERRED/SUPPLEMENTARY EXAMINATIONS-2018/19
ACADEMIC YEAR**

VETERINARY OPERATIVE SURGERY (VMC 5210)

Duration: 3 hours

INSTRUCTIONS:

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

.....**SECTION A**.....

QUESTION 1

Successful fracture reduction/alignment and fixation require the understanding of various biomechanical and biological principles that govern orthopaedic surgery. Implants that are used in orthopaedic surgery also have various properties that allow them to be used in certain fractures and may be contraindicated in other fractures.

- a) Discuss the principle of tension band wiring. **(5 marks)**
- b) With the aid of sketches or line drawings discuss the various surgical repair options available for the repair of an avulsion fracture of the acromion in a dog. **(10 marks)**
- c) Discuss the use of a linear external skeletal fixator in dog presented with a severely comminuted fracture of the humerus following a shotgun injury. **(5 marks)**

QUESTION 2

A horse trainer asks you for advice on a 12-year-old racehorse that is showing poor performance and a “roaring” sound when exercised. The problem has become worse over a period of one month.

- a) What is your tentative diagnosis? **(2 marks)**
- b) How can you confirm the diagnosis? **(2 marks)**

- c) List the various options available for the surgical correction of your diagnosis in (b) above. (4 marks)
- d) Describe, in detail, a procedure or combination of procedures from (c) above that would result in a marked reduction of the roaring sound. (include anaesthesia and post operative care). (12 marks)

QUESTION 3

Write short notes on any **four (4)** of the following in dogs. (5 marks each)

- a) Natural defense mechanisms of the oral cavity
- b) Indications for- and procedure of episiotomy (exclude anaesthesia)
- c) Management of an advanced case of periodontitis
- d) Pre-anaesthetic and preoperative considerations in a case of closed pyometra
- e) Regional mastectomy

.....SECTION B.....

QUESTION 4

Approximately 20% of all reported fractures in dogs involve the pelvis.

- a) Briefly indicate the general considerations when planning for surgery of the pelvis. (4 marks)
- b) List the **two (2)** indications for surgical repair of a pelvic fracture. (2 marks)
- c) Explain how you would manage concurrent ischial and ilial fractures. (6 marks)
- d) Discuss, in detail, how you would treat highly comminuted acetabular fractures? (8 marks)

QUESTION 5

Congenital luxation of the patella represents one of the most common orthopaedic conditions in small animal practice. Medial luxations account for 75% to 80% of cases in all breeds. The majority of patients are small breed dogs.

- a) Outline clinical signs of patella luxation in puppies and young dogs. **(5 Marks)**
- b) List three (3) small breed dogs that are commonly presented with patella luxation. **(3 Marks)**
- c) With the aid of a schematic diagram, briefly, describe the radiographic findings of an adult poodle with a grade 4 medial patella luxation. **(4 Marks)**
- d) Briefly describe the principle behind **three (3)** surgical techniques commonly used to correct patella luxation in dogs. **(8 Marks)**

QUESTION 6

A dressage horse working at Grand Prix level shows a unilateral hindlimb lameness that is abolished by injection of local anaesthetic into the metatarsophalangeal digital flexor sheath.

- a) List four (4) differential diagnoses for this problem. **(4 marks)**
- b) Describe how you would investigate the case in order to arrive at a definitive diagnosis. **(4 marks)**
- c) For each condition listed in (a) above, briefly outline any useful treatment and the likely prognosis. **(12 marks)**

QUESTION 7

Write brief notes on the following surgical procedures

(5 marks each)

- a) Lung lobectomy.
- b) Permanent tracheostomy.
- c) Eye enucleation.
- d) Holtz Celsus Technique for correction of entropion.

THE END



THE UNIVERSITY OF ZAMBIA
2018/ 2019 SUPPLIMENTARY/ DIFFERED EXAMINATIONS
JANUARY 2020

VETERINARY EPIDEMIOLOGY (VMD 4201)

Duration: 3 HOURS

INSTRUCTIONS:

1. Please read the instructions and each question carefully
 2. Answer **all** questions
 3. State **all** assumption use
 4. Show **all** calculations
-

QUESTION 1

You are asked to investigate an outbreak of a disease at a piggery. You decide to choose another piggery with low levels of the disease that has similar management to the one reporting the outbreak. Your suspicion is that the feed may be the source. Your investigation reveals that the composition of the feed is the same except that on the farm with an increase in the incidence of the disease, there is an additional ingredient of groundnut cake which is not provided on the piggery without the outbreak. There are 100 pigs on each piggery. However, the piggery experiencing an increase in the disease incidence has 30 cases while the one with endemic level of the disease has only 5 cases.

- a) Define the term "Association". **(2 marks)**
- b) What measure of association would you use to determine whether the groundnut cake is responsible for the outbreak? **(2 marks)**
- c) Draw a 2X2 contingency table to summarise the results of disease on the two farms. **(4 marks)**
- d) What method would you have used to come up with the hypothesis that groundnut cake is the cause of the outbreak? **(2 marks)**
- e) From your table in (c) above, calculate the following proportions **(7 marks)**:
 - i) Exposed
 - ii) Diseased
 - iii) Diseased and Exposed
 - iv) Diseased in the Exposed group

- v) Diseased in the non-exposed group
- vi) Exposed in the diseased group
- vii) Exposed in the non-diseased group.

f) Calculate the risk ratio, odds ratio and attributable rate.

(3 marks)

QUESTION 2

- a) Compare and contrast between experimental and observational studies **(5 Marks)**
- b) Describe the key characteristics of cohort, case-control and cross-sectional studies regarding subject selection, data collection and analysis **(15 Marks)**

QUESTION 3

- a) Distinguish cluster sampling from stratified random sampling **(10 Marks)**
- b) Diagnostic tests are important in the disease control activities both at individual and population level. Using appropriate illustrations, discuss how interpretation of diagnostic test results can be useful or detrimental to disease control efforts **(10 Marks)**.

QUESTION 4

- a) Define an outbreak and state the relationship between an outbreak and an epidemic. Provide a detailed definition of an outbreak investigation and briefly discuss any investigative procedure you know.
- b) What is epidemiological surveillance and/ or monitoring? Differentiate between epidemiological surveillance and epidemiological monitoring and state how they are related to Epidemiological diagnosis. State the primary objective of epidemiological surveillance.
- c) Briefly discuss considerations required when designing an epidemiological monitoring programme.

(This question carries 20 marks)

QUESTION 5

- a) Define OIE List A and List B diseases and name any 5 diseases under each list that affect livestock in the SADC.
- b) Suppose you were a district veterinary officer, what would you do if a list A disease broke out in an area in your district?
- c) What is EMPRES and what role does EMPRES play? Define Trans-boundary diseases and classify them according to EMPRESS. State which of these classes are regarded as most important and how they are important.

(This question carries 20 marks)

.....**END OF EXAMINATION**.....

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
2018/19 ACADEMIC YEAR SUPPLEMENTARY EXAMINATIONS-JANUARY 2020

VETERINARY PARASITOLOGY (VMP 3400)

Duration: 3 hours

INSTRUCTIONS:

1. Please read the instructions and each question carefully
 2. Answer **ALL** questions
 3. **EACH SECTION** must be answered in a separate answer booklet
 4. **ALL** questions carry equal marks
 5. Write in a legible handwriting
-

SECTION A: PROTOZOOLOGY

QUESTION 1

Imagine that you are posted to Pemba in Southern Province of Zambia soon after graduating as a veterinary doctor. Soon on your arrival you are informed that cattle in Kanchomba area of Pemba district are dying of a disease which is mainly killing animals of six (6) months and above with swellings below their ears.

- a) What would be your tentative diagnosis? (2 Marks)
- b) What steps would you take to confirm your tentative diagnosis? (6 Marks)
- c) What control measures would you recommend against this outbreak. (12 Marks)

QUESTION 2

Write **SHORT NOTES** on **ANY FOUR (4)** of the following topics:

- a) Antigenic variation in a known protozoan parasite (5 Marks)
- b) Schizogony (5 Marks)
- c) Tran-stadial and Trans-ovarial transmissions (5 Marks)
- d) Modes of reproduction in protozoan parasite (5 Marks)
- e) Enzootic stability in a named protozoan parasite (5 Marks)
- f) Piroplasmida (5 marks).

PLEASE TURN OVER

SECTION B: HELMINTHOLOGY

QUESTION 3

You are a head of the Parasitology Unit at some government research institution in Katete district. A farmer, Mr. Bottle Banda gives you a report that one of his pigs has suddenly died. Upon conducting a postmortem, you find that the whole carcass is infected with what seems to be small pea shaped bladders with a clear fluid. At a centre or thereabout of each of these little bladders is a whitish spot. These same bladders are all over the muscles including the heart. However, the lungs, liver, kidneys and the intestines look normal.

- a) What would be your diagnosis? **(2 marks)**
- b) Define the condition or disease you have mentioned in (a) above **(2 marks)**
- c) **Identify and classify** the worm species responsible for this condition to species level **(4 Marks)**.
- d) Mr. Banda wants to know how his pig got the infection. What would you tell him? **(6 Marks)**
- e) What advice would you give Mr. Banda on how to prevent the occurrence of this condition in pigs? **(4 Marks)**
- f) If these findings were to be in a carcass of cattle, what would have been the cause? **(2 Marks)**

QUESTION 4

Write **SHORT NOTES** on **ANY FOUR (4)** of the following topics:

- a) Thelaziosis in cattle **(5 marks)**.
- b) The equine ascarid **(5 marks)**.
- c) List **five (5)** factors that limit the accuracy and significance of fecal examination **(5 marks)**.
- d) Effect of liver flukes on the host **(5 Marks)**.
- e) List **five (5)** *Schistosoma* species and their hosts **(5 Marks)**.
- f) Life cycle of paramphistomes **(5 marks)**.

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SECTION C: ENTOMOLOGY

QUESTION 5

During one of your lectures in the Helminthology component of Parasitology, you learnt that the intermediate host of the **cucumber worm** is one of the arthropods which you learnt about in the Entomology component of this same course (Parasitology).

- a) What is the **intermediate host** of the cucumber worm (2 marks)
- b) To what **Phylum, Class, Order** and **genus** does the intermediate host of the cucumber worm belong? (8 marks)
- c) Explain in detail the life cycle of the **intermediate host** of the cucumber worm. (8 marks)
- d) What developmental stage of the **cucumber worm** is found **in the arthropod**? (2 marks)

QUESTION 6

Write **SHORT AND CONCISE** notes on **ANY FOUR** of the following:

- a) Laboratory diagnosis of demodicosis (5 marks)
- b) Life cycle and veterinary significance of *Melophagus ovinus* (5 marks)
- c) Biological transmission of parasites and the conditions necessary for it to take place (5 marks)
- d) Give four major differences between insects and ticks (5 marks)
- e) Some insects do not lay eggs but give birth to young. Explain by giving an example (5 marks).
- f) Four basic ways in which arthropod-borne diseases may be controlled (5 marks)

END OF EXAMINATION