THE UNIVERSITY OF ZAMBIA SCHOOL OF VETERINARY MEDICINE

1. VMB 2100.....VETERINARY GROSS ANATOMY PAPER I
2. VMB 2100..... VETERINARY GROSS ANATOMY PAPER II
3. VMB 2110..... VETERINARY HISTOLOGY AND EMBRYOLOGY PAPER I
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5. VMB 2302.....VETERINARY HISTOLOGY
6. VMB 2500.....ANIMAL PRODUCTION AND NUTRITION
7. VMB 2511..... ANIMAL WELFARE AND BEHAVIOUR
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18. VMD 6609..... PREVENTIVE VETERINARY MEDICINE

19. VMD6701.....VETERINARY JURISPRUDENCE AND EXTENSION
20. VMD 6800.....VETERINARY PUBLIC HEALTH

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE

DEPARTMENT OF BIOMEDICAL SCIENCES

END OF YEAR FINAL EXAMINATIONS-SEPT 2016

VMB 2100: VETERINARY GROSS ANATOMY

PAPER I

TIME: THREE (3) HOURS

INSTRUCTIONS:

1. **ATTEMPT ONLY FIVE (5) QUESTIONS**
2. **ALL QUESTIONS CARRY EQUAL MARKS**
3. **ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK**

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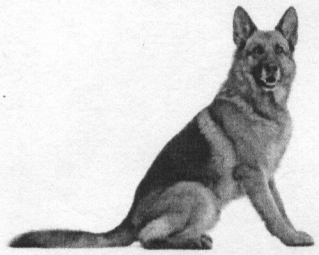
1. Name two muscles that may be involved or affected in each of the below listed clinical situations affecting a dog:
    a. Damage or disorder of signal transmission (Myasthenia gravis) to the caudal pectoral nerve and thoracodorsal nerve.
    b. Myasthenia gravis of the ventral rami of the cervical and thoracic nerves.
    c. Myasthenia gravis of the trigeminal nerve.
    d. Failure to extend and laterally rotate the hip joint
    e. Failure to extend the stifle joint and the tarsal joint.
    f. Inability to bend the neck laterally
    g. Inability to raise the head.
    h. Ectropion (eyelid turned outwards away from the eyeball)
    i. Failure to masticate
    j. Failure to swallow

    (20 marks)

2. In reference to the figure 1 below of a German Shepherd dog:
    a. Which joints of the forelimbs are in flexion and which are in extension?
    b. Which muscles of the forelimb are in contraction and which are in relaxation?
    c. List the joints of the hindlimb that are in flexion and those in extension.
    d. List the muscles of the hindlimb that are in contraction and those in relaxation.
    e. The dog in figure 1 was initially facing its front (to your right in this case). Name three muscles of the neck that moved the head so that the dog could face the camera.

(20 marks)

Figure 1.



3. Draw a concept map for the below listed parts of the canine skeleton
    a. L_1
    b. Appendicular skeleton
    c. Ribs
    d. Skull
    e. Axial skeleton
    f. Frontal bone
    g. Humerus
    h. Os coxae
    i. Sacrum
    j. Greater tronchanter
    k. Atlas
    l. Maxilla
    m. S_1
    n. Ischium
    o. Skeleton
    p. Femur
    q. Infraorbital foramen
    r. Frontal sinus
    s. Dens (odontoid peg)
    t. Scapula

(20 marks)

4. Answer the questions below concerning the anatomy of the cardiovascular system of the dog.
    a. Name the two main parts of the pericardium. **(2 marks)**
    b. Which is the first large artery to branch off of the aorta? **(1 mark)**
    c. What separates the ascending and descending portions of the aorta? **(1 mark)**
    d. Name the two arteries into which the brachiocephalic artery terminates. **(2 marks)**
    e. In the canine animal, is the deep circumflex artery a single artery or a paired artery? **(1 mark)**
    f. Which is the first branch of the abdominal aorta? **(1 mark)**
    g. Briefly differentiate between a macro-circulation and microcirculation. **(2 marks)**
    h. Name three main components of the microcirculation. **(3 marks)**
    i. Name one part of the microcirculation that is not innervated. **(1 mark)**
    j. Arrange the below listed cardiovascular anatomical terms in the order of the direction of flow of blood:
        i. Coronary sinus
        ii. Tricuspid valve
        iii. Aortic semilunar cusps
        iv. Bicuspid valve
        v. Right coronary artery
        vi. Pulmonary semilunar cusps **(6 marks)**

        (20 arks)

5. As a student of veterinary anatomy, a pathologist requests you to:

a. Draw a simple but well labelled diagram of a transverse section of the nasal cavity in the dog. **(5marks)**

b. Briefly describe the pharynx in the dog. **(5marks)**

c. Briefly describe the pleura of the dog. **(5marks)**

d. Name the lobes of the lungs in carnivores. Give two differences between the lungs in carnivores and those of ruminants. **(5marks)**

6. As a student on attachment at a Police Canine Kernel, you are invited to help out with castrations of male dogs, neutering of bitches, and many other activities by the Veterinarian in charge.
    a. The chief surgeon makes an incision (cuts) over the scrotal sac into the testicular proper (parenchyma). What anatomical structures would the scalpel blade (knife) cut through from superficial to deep parenchyma of testis in order? **(4 marks)**

b. Briefly outline the position and relations of the following organs: i. Vagina ii. Right kidney **(4 marks)**

c. Define and state componentsof the following anatomical structures: i. ovarian bursa ii. Trigone **(4 marks)**

d. What is an inguinal canal? Briefly outline the anatomicalstructures that aretransmitted through the inguinal canal in male dogs.**(4 marks)**

e. Define the following terms; i. Renal lobe ii. Urethral tubercle. **(4 marks)**

7. As a student on attachment at a Small Animal Veterinary Hospital, you are invited to help out with routine examinations of dogs that come in with ear and eye problems. The attending surgeon takes advantage to revise her anatomy of the sense organs.

   a. Briefly outline the anatomy of various tunics or layers of the eyeball stating the function of each tunic.**(5 marks)**

   b. Define the terms abduction and adduction as it relates to the eyeball? Briefly outline the extrinsic muscles of the eyeball involved in the two terms you have defined above stating their origin and insertion points. **(5marks)**

   c. Name one intrinsic muscle of the eyeball. Which extrinsic muscle of the eyeball is present in a dog and absent in a 4 year Chinese girl? State the origin, insertion and action of the muscle you named. **(5 marks)**

   d. **Briefly outline** the anatomy of the ear of a 6 year old German Shepherd (GSD) dog. Stating clearly the structures concerned in an orderly manner. **(5 marks)**

END! BEST WISHES!

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE

DEPARTMENT OF BIOMEDICAL SCIENCES

END OF YEAR FINAL EXAMINATIONS-SEPT 2016

VMB 2100: VETERINARY GROSS ANATOMY

PAPER II

TIME: THREE (3) HOURS

INSTRUCTIONS:

1. **ATTEMPT ONLY FIVE (5) QUESTIONS**
2. **ALL QUESTIONS CARRY EQUAL MARKS**
3. **ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK**

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1. (A) Group the below listed spinal cord tracts into either ascending or descending pathways.
    a. Fasciculus gracilis
    b. Tecto spinal tract
    c. Lateral reticulospinal tract
    d. Ventral spinothalamic tract
    e. Dorsal spinal cerebellar tract
    f. Lateral corticospinal tract
    g. Vestibulospinal tract
    h. Lateral spinothalamic tract
    i. Medial reticulospinal tract
    j. Ventral corticospinal tract

(10 marks)

d. Briefly describe the anatomy of the hoof and name any joint found in the hoof **(5 marks)**

6. You accompany a veterinary surgeon to a farm where you find a case of a Friesian heifer reported to have struggled to calve for over 36 hours. The veterinarian describes the situation as an emergence and indicates that surgical intervention is a must. He recommends caesarean section and asks that preparation of the surgical site (area where he will cut or make an incision). You are called upon to help.
    a. Which site or area and side is advisable to make an incision during caesarean section? Give three reasons why you will prefer that area **(5 marks)**
    b. List the nerves liked to be blocked by a veterinarian before an incision is made during C-section and the anatomical landmarks he will use when blocking the respective nerves **(5 marks)**
    c. Briefly describe how you can take arterial pulse in a standing cow and mention the blood vessel you will be targeting **(5 marks)**
    d. Define the following terms: i. Supraomental recess ii. Epiploic foramen **(5 marks)**

7. As a student on vacation and attached to a beef ranch, you receive animal health students on tour and the students learn that you have covered ruminant anatomy in detail. They request you to give a lecture on some topics.
    a. State any two functions of the skeletal system? Briefly describe the osteology of the bovine of the stifle joint. **(5 marks)**
    b. Describe the gross features of ruminant kidneys stating differences in large and small ruminants if any. In addition State how you could differentiate the right bovine kidney from the left kidney if they are placed before you? **(5 marks)**
    c. Briefly describe the anatomy cow intestines with emphasis on the large intestines. Mention the position of the bulky of intestines in a cow **(5 marks)**
    d. List and outline the functions of the ruminoreticulum part of the ruminant stomach **(5 marks)**

END! BEST WISHES!

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c. Knowledge of the horse's neck vertebral column biomechanics is important in understanding normal gait as well as pathological stress on the neck. What are the three main motions that can be observed on the horse's neck? **(3 marks)**

d. The cervical vertebral column of domestic animals can be divided into three basic motion segments based on joint morphology:

   i. List the three main joints in the neck of the horse. **(3 marks)**

   ii. Briefly describe the movements associated with each of the joints you have listed in (i) above. **(3 marks)**

   iii. Approximately what percentage (%) of vertical motion does the neck of a galloping horse undergo and what is the significance of this? **(1 mark)**

4. Answer the questions below related to the thoracic region of domestic animals.

   a. Name the dorsal, ventral, and lateral bony parts of the thoracic cage and briefly describe their anatomy. **(5 marks)**

   b. Name the dorsal, ventral, and lateral musculature of the thoracic cage of the bovine and state their actions. **(5 marks)**

   c. From the below listed vasculature, select 10 blood vessels that can be found in the thoracic cavity:

      i. Brachiocephalic trunk
      ii. Maxillary artery
      iii. Subclavian artery
      iv. Occipital artery
      v. Subclavian vein
      vi. Thoracodorsal artery
      vii. Jugular vein
      viii. Azygous vein
      ix. Bicarotid trunk
      x. Internal thoracic artery
      xi. Internal thoracic vein
      xii. Pulmonary artery
      xiii. Costocervical trunk
      xiv. Cranial vena cava
      xv. Bicipital vein

      (10 marks)

5. You accompany the sixth year students during an ambulatory visit to a farm. During the visit, you learn that one prized cow died from suspected traumatic injuries as it was caught up during a bulls fight. After treating one of the bulls which sustained injuries on the right forelimb, your group also conducts a post-mortem on the cow to ascertain the cause of death. The sixth years asks you to:

   a. Define an omental bursa and state its content in a cow **(5 marks)**

   b. Describe the osteology of the right carpal joint of a bull **(5 marks)**

   c. List two extensor muscles of the carpal joint and briefly outline the general common features of almost all the extensors of the carpal joint **(5 marks)**

1.(B). Draw a diagram showing the following anatomical parts of a transverse section of the spinal cord and the branches of a typical spinal nerve

a. Central canal
b. Dorsal root
c. Dorsal root ganglion
d. Ventral root
e. Sensory pathway
f. Motor pathway
g. Ventral ramus
h. Spinal nerve
i. Ventral horn
j. Dorsal horn

(10 marks)

2. **Neurological clinical case 1:** A 5 year-old female neutered Domestic Short Hair cat is presented to you for evaluation of a 2 week history of anisocoria. The right pupil remains dilated during direct light stimulation of the right eye while the left pupil constricts. During direct light stimulation of the left eye, the left pupil constricts but the right pupil still remains dilated. Both pupils dilate completely in the dark. Menace (blink response) response is present when both eyes are tested. Answer the questions below concerning the foregoing clinical scenario.
   a. Which parts of the autonomic nervous system control pupillary dilation and pupillary constriction? **(2 marks)**
   b. What are the afferent and efferent parts of the pupillary light reflex (PLR)? **(5 marks)**
   c. What is your lesion localisation? **(3 marks)**

   Neurological clinical case 2: A 2 year-old male entire Labrador presented following an acute onset of collapse. The dog is in lateral recumbency and conscious. Answer the questions below concerning the foregoing clinical scenario.

   a. Describe the abnormal posture and its anatomical basis. **(5 marks)**
   b. What are the main differentials considering the acute onset? **(2 marks)**
   c. Define opisthotonus. **(1 mark)**
   d. Which part of the cerebellum is affected in decerebellate posture and how is it affected? **(2 marks)**

3. Answer the questions below related to the cervical region of domestic animals
   a. Briefly explain four reasons or the importance of studying neck anatomy in domestic animals. **(4 marks)**
   b. Briefly describe the comparative anatomy of the atlas bone of the domestic animals. **(6 marks)**

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

FINAL EXAMINATIONS – SEPTEMBER 2016

VMB 2110: VETERINARY HISTOLOGY AND EMBRYOLOGY-PAPER I

TIME: THREE (3) HOURS

INSTRUCTIONS:

1. ANSWER ALL QUESTIONS IN SECTION A, AND ANY TWO IN SECTION B
2. ANSWER EACH QUESTION IN A SEPARATE SET OF ANSWER BOOKS
3. ALL QUESTIONS CARRY EQUAL 20 MARKS

SECTION A

1. Write short notes on:

a. Stratified squamous epithelium **(5 marks)**

b. Macroscopic features of a longitudinal section of a long bone and the microscopic structure of its cross section **(5 marks)**

c. Histological arrangement of nerve fibres in the peripheral nervous system **(10 marks)**

2. Describe in detail

a) Functional histology of the spleen, and Splenic blood circulation **(10 marks)**

b) Brief notes on the microscopic histology of the **(10 marks)**

I. Teat of a goat
II. Spinal Cord of dog
III. Salivary glands
IV. Intramembranous bone under H&E, and Von Kossa Staining
V. Heart muscle of sheep

3.As a student of histology, you asked to share some aspects of histology with third year pathology students.

a. With the aid of a diagram describe the renal nephron and its composition noting the type of epithelium present. **(5 marks)**

b. Briefly describe the histology of testis blood barrier and state its significance **(5 marks)**

c. Briefly describe the histology of the tympanic membrane **(5 marks)**

d. Briefly contrast the histology of "thick" and "thin" skin. How does the histology of the horn compare to that of thin and thick skin {use of simple sketch(es) is encouraged} **(5 marks)**

SECTION B

4. List down:

a. Components of the stroma of compound glands **[4 marks]**

b. Four (4) basic types of tissues of an animal **[4 marks]**

c. Microscopic structure of a cell membrane **[5 marks]**

THE UNIVERSITY OF ZAMBIA

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FINAL EXAMINATIONS – SEPTEMBER 2016

VMB 2110: VETERINARY HISTOLOGY AND EMBRYOLOGY-PAPER I

TIME: THREE (3) HOURS

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SECTION A

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SECTION B

4. List down:

a. Components of the stroma of compound glands **[4 marks]**

b. Four (4) basic types of tissues of an animal **[4 marks]**

c. Microscopic structure of a cell membrane **[5 marks]**

d. Names of monocytes and lymphocytes found in connective tissue **[2 marks]**

e. Types of cellular junctions **[5 marks]**

5. Write short notes on the following: (20 marks)

a. Sustentacular cells and their function
b. Histology of cerebellar cortex
c. Lactating mammary gland histology
d. Uterine caruncle
e. Histology of cornea

6. 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].**

7. In detail discuss the histology of the heart (20 marks)

END OF EXAM

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

FINAL SUPPLEMENTARY EXAMINATIONS – NOVEMBER 2016
VMB 2110: VETERINARY HISTOLOGY AND EMBRYOLOGY-PAPER I

TIME: THREE (3) HOURS
INSTRUCTIONS:

1. ANSWER ALL QUESTIONS IN SECTION A, AND ANY TWO IN SECTION B
2. ANSWER EACH QUESTION IN A SEPARATE SET OF ANSWER BOOKS
3. ALL QUESTIONS CARRY EQUAL 20 MARKS

SECTION A

1. Write short notes on:

a. Components of the stroma of compound glands **[4 marks]**
b. Four (4) basic types of tissues of an animal **[4 marks]**
c. Microscopic structure of a cell membrane **[5 marks]**
d. Names of monocytes and lymphocytes found in connective tissue **[2 marks]**
e. Types of cellular junctions **[5 marks]**

2. With the aid a diagram, discuss the histological structural differences of the following:

a) Mucous versus serous secreting glands
b) Hypsodont versus Brachydont teeth
c) Three types of capillaries
d) Conical versus Fungiform papillae

3. Write short notes on the following:

a) Adaptation to respiration of the lungs
b) Functions of the Liver
c) The Nephron
d) The Endocrine Cells of the Fundic Region of the Stomach

SECTION B

4. Write short notes on the following: **(20 marks)**

a. Sustentacular cells and their function
b. Histology of cerebellar cortex
c. Lactating mammary gland histology
d. Uterine caruncle
e. Histology of cornea

5. 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].**

6. **Briefly describe the histological features of the following organs as seen under a light microscope: (20 marks)**
   a) Liver of the Pig
   b) Esophagus of the Cow
   c) Aorta of the cat
   d) Lingual glands of a dog
   e) Gall bladder of the cat
   f) Pancreas of a dog
   g) Tongue of a sheep
   h) Urinary bladder of a dog
   i) Thyroid of a cow
   j) Colon of a dog

END OF EXAM

5. 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].**

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END OF EXAM

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE

FINAL SUPPLEMENTARY EXAMINATIONS – NOVEMBER 2016
VMB 2110: VETERINARY HISTOLOGY AND EMBRYOLOGY-PAPER II

TIME: THREE (3) HOURS
INSTRUCTIONS:
1. ANSWER ALL QUESTIONS
2. ALL QUESTIONS CARRY EQUAL 20 MARKS

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1. **In detail discuss the process of cleavage in domestic animals**

2. **Describe in detail the abnormalities of cardiac development**

3. **Write brief notes on the following:**
   a) Barriers to fertilization
   b) Cojoined or fused symmetrical twins
   c) Derivatives of the midgut and hindgut
   d) Intersex conditions in a developing foetus

4. **In detail describe:**
   a) the atrial and ventricular septation
   b) the three kidney systems in a developing embryo

5. **Discuss in detail the process of gastrulation in animals**

END OF EXAM

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE

FINAL EXAMINATIONS – SEPTEMBER 2016
VMB 2110: VETERINARY HISTOLOGY AND EMBRYOLOGY-PAPER II

TIME: THREE (3) HOURS
INSTRUCTIONS:
1. ANSWER ALL QUESTIONS
2. ALL QUESTIONS CARRY EQUAL 20 MARKS

1.Give a brief description of the following Philosophers' and/or Theologians' contribution to early Embryology

(a) Democritus

(b) Ernst Haeckel

(c) Aristotle

(d) Hieronymus Fabricius Acquapendente

(e) Zacharias Jansen

2. Describe in detail the abnormalities of cardiac development

3.Write brief notes on the following:

a) Barriers to fertilization

b) Cojoined or fused symmetrical twins

c) Derivatives of the midgut and hindgut

d) Intersex conditions in a developing foetus

4. In detail describe:

a) the atrial and ventricular septation

b) the three kidney systems in a developing embryo

5. The genital system develops a little later than the urinary system though both systems have a common origin, the urogenital ridge. Therefore, at an early stage the male and female organs cannot be distinguished and are morphologically the same. Having this in mind, and the inter-relationship of the urinary and genital system, discuss the development and differentiation of the male and female organs through respective duct systems and their derivatives in a developing embryo.

END OF EXAM

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE

FINAL EXAMINATIONS – SEPTEMBER 2016
VMB 2110: VETERINARY HISTOLOGY AND EMBRYOLOGY-PAPER II

TIME: THREE (3) HOURS
INSTRUCTIONS:
1. ANSWER ALL QUESTIONS
2. ALL QUESTIONS CARRY EQUAL 20 MARKS

1.Give a brief description of the following Philosophers' and/or Theologians' contribution to early Embryology

(a) Democritus

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END OF EXAM

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

Veterinary Physiology, VMB 2302 Supplementary Examination

INSTRUCTIONS:

Answer any five (5) Questions. All questions carry equal marks. Answer each question in a separate booklet.

Time: 3 hours **November, 2016**

Question 1

Cell membranes are made of different types of molecules that are in specific proportions to achieve its functions.

a. Name the two (2) main types of proteins and the three (3) major lipids found in cell membranes. Hence state the four (4) functions of cell membranes. **(8 marks)**

b. Clearly and step by step, outline the mechanism of the sodium-potassium ATPase pump and state two main functions of the pump, explaining how the named functions are achieved.

(12 marks)

Question 2

Neuron cells are important in the transmission of impulses from the sensory organs through the central nervous system and ultimately to the effector organs. in line of this:

a. Define a reflex arc **(2 marks)**

b. Describe how action potentials are generated and propagated **(9 marks)**

c. Give a concise description of synaptic transmission **(9 marks)**

Question 3

Discuss the granulocytes you know. **(20 marks)**

Question 4

a. Compare and contrast the various muscle types in the body **(10 marks)**

b. With respect to the interactions of various proteins and ions, give a concise discussion on skeletal muscle contraction **(10 marks)**

Question 5

a. Clearly, outline the degradation of aged red blood cells and hence name three (3) possible clinical conditions that maybe associated with heme degradation and state how each of the named three clinical conditions arise. **(14 marks)**

b. Using appropriate examples, differentiate co-transport from counter transport. **(6 marks)**

Question 6

The autonomic nervous system consists of two parts that oppose each other in terms of functionality. With respect to this;

a. State the various parts of the autonomic nervous system **(2 marks)**

b. State which part of the ANS is involved in the mechanism of accommodation and proceed to discuss the said mechanism **(9 marks)**

b. Describe in detail the physiological changes that take place in an animal's body during stress. inclusion of the various receptors involved is highly recommended. **(9 marks)**

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

Veterinary Physiology, VMB 2302 Examination

INSTRUCTIONS:

Answer any five (5) Questions. All questions carry equal marks. Answer each question in a separate booklet.

Time: 3 hours **Date: 29th September, 2016**

Question 1

A variety of membrane proteins contribute to the fluid mosaic structural description of membranes and are well known for their immerse contribution to the life and functions of cells

a. Briefly, name the cell membrane proteins and their importance. **(4 marks)**

b. What are membrane glycoproteins and state which of the membrane proteins named in (a) are glycoproteins. **(2 marks)**

c. Outline the mechanism of the sodium-potassium ATPase pump and explain its importance.

(14 marks)

Question 2

Neuron cells are important in the transmission of impulses from the sensory organs through the central nervous system and ultimately to the effector organs. in line of this:

a. Define a reflex arc **(2 marks)**

b. Describe how action potentials are generated and propagated **(9 marks)**

c. Give a concise description of synaptic transmission **(9 marks)**

Question 3

a. Define each of the following conditions, stating the causes in each case.

I. Polycithemia **(3 marks)**
II. Myelocytic leukaemia **(3 marks)**

b. Agranulocytes are white blood cells that are similar structurally, but are functionally distinct and unrelated cell types. Based on this statement, discuss the agranulocytic white blood cells.

(14 marks)

Question 4

a. Compare and contrast the various muscle types in the body **(10 marks)**

b. With respect to the interactions of various proteins and ions, give a concise discussion on skeletal muscle contraction **(10 marks)**

Question 5

a. Give a **step-by-step** describe of the fate of aged red blood cells and hence discuss the possible clinical conditions that maybe associated with the fate of heme degradation. **(16 marks)**

b. Briefly, define the term "anemia", giving its **main** causes and hence state the types of anemia you know? **(4 marks)**

Question 6

The autonomic nervous system consists of two parts that oppose each other in terms of functionality. With respect to this;

a. State the various parts of the autonomic nervous system **(2 marks)**

b. State which part of the ANS is involved in the mechanism of accommodation and proceed to discuss the said mechanism **(9 marks)**

b. Describe in detail the physiological changes that take place in an animal's body during stress. inclusion of the various receptors involved is highly recommended. **(9 marks)**

THE UNIVERSITY OF ZAMBIA

FINAL EXAMINATIONS – JUNE/JULY 2015

VMB 2500: ANIMAL PRODUCTION AND NUTRITION

INSTRUCTIONS:

1. TIME: **THREE (3)** HOURS
2. ANSWER A TOTAL OF **FIVE (5)** QUESTIONS ONLY.
3. ALL QUESTIONS CARRY EQUAL MARKS OF 20 EACH.

SECTION A – ANSWER ANY THREE QUESTIONS FROM THIS SECTION

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1. a). Discuss in detail pre-independence and post-independence dairy production in Zambia. [10 marks]

   b). Mention and discuss conditions required in setting up a dairy farm enterprise. [10 marks]

2. a). Diagrammatically discuss a typical lactation curve indicating all the phases here-to. [10 marks]

   b). Draw and discuss a cross-section of a teat cut indicating all the two phases during the process of milking. [10 marks]

3. a). Draw a cross-section of a dip tank indicating movement of cattle in and out of the tank. [10 marks]

   b). Mention and discuss the advantages and disadvantages of a plunge dip. [10 marks]

4. a). Briefly discuss the distribution of ticks and tick-borne diseases as outlined by FAO in 1982. [10 marks]

   b). Advice a peasant farmer the economic impact of ticks and how to manage ticks on his animals. [10 marks]

SECTION B – ANSWER ONE QUESTION FROM THIS SECTION

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5. What do you understand by the term vitamin? Vitamin A is classified as a 'Fat Soluble' vitamin. State possible sources of this vitamin and its functional forms. Give a detailed discussion of the functions of vitamin A in the animal body. [20 marks]

6. With the aid of an illustration (diagram) give a detailed explanation of the process of lipid digestion and absorption in a monogastric animal. [20 marks]

SECTION C – ANSWER ONE QUESTION FROM THIS SECTION

7. a) The proximate analysis of a sample fishmeal indicates the following figures (in % of FM):

- The DM-% is 92
- The OM-% is 77
- The EE-% is 10
- The NFE-% is 1

i) What will be the percentage of ashes in this fishmeal?
ii) What is the percentage of moisture in the fish meal
iii) What will be the percentage of CP in this fishmeal?
iv) How many grammes of crude protein (CP) are there in 1 kg of fishmeal?
v) How many grammes of DM are there in 1kg of fishmeal? [10 marks]

b. Why are the following feedstuffs restricted when formulating rations for poultry?

i). cottonseed cake ii) sunflower cake iii) sorghum iv) fish meal v) Cassava [5 marks]

c. Two small scale poultry farmers formulated their own layers mash for feeding layers. Samples of their feed were brought to UNZA laboratory for analysis. The analysis revealed the following information:

Feed Source	ME (Mcal/kg)	CP %	Ca %	P %
Farmer A	2.1	10	1.0	0.2
Farmer B	2.8	17	4	0.6

i) What would be your comment on the feeds formulated by the two farmers?
ii) What would be your advice to each farmers?

[5 marks]

8. Formulate 100 kg of Broiler Finisher using the following feedstuffs:Maize, Soyabean meal (Full fat), Dicalcium phosphate, Limestone flour, Salt and Premix. The ration should be balanced in terms of calcium, phosphorus and crude protein. Please use the following restrictions: Salt 0.5%, premix 0.3%. [20 marks].

Table 1: Nutritional Requirements of Poultry(Expressed per kg of diet) – Standard

FEED	**ME (Mcal/kg)**	**CP%**	**MAXIMUM**		**Lys %**	**Meth %**	**M+C %**	**Ca %**	**P %**
			EE %	**CF%**					
Chick Mash	2.8	20	5	5	1.0	0.45	0.8	1.0	0.7
Growers Mash	2.8	16	5	5	0.80	0.32	0.7	1.0	0.6
LAYERS									
Complete	2.8	16.5	6	5	0.70	0.28	0.6	3.5	0.6
High Energy	2.85	17	5	5	0.75	0.30	0.65	3.5	0.6
BROILERS									
Starter	3.1	22	9	3.5	1.2	0.50	0.9	1.0	0.8
Finisher	3.2	20	10	3.5	1.0	0.45	0.8	1.0	0.7
Parent Stock	2.7	16	5	6	0.7	0.28	0.6	3.0	0.7

Table 2.Common Feed Ingredients Available in Zambia and their NutrientLevels

FEED STUFF	ME (Mcal/ kg	CP %	LYS %	M+C %	MET %	Ca %	P %	Moist %
Maize	3.34	8.7	0.22	0.35	0.2	0.04	0.30	13.1
Sorghum	3.26	10.0	0.23	0.35	0.16	0.03	0.30	12.6
Cassava	3.09	2.0	0.07	0.05	0.03	0.15	0.10	12.5
Maize bran	2.74	11.0	0.36	0.36	0.17	0.10	0.50	12.5
Soyabean meal(fullfat)	4.00	40.0	2.27	1.03	0.51	0.23	0.52	11.5
Soya bean meal low fat	2.18	43.5	2.65	1.26	0.61	0.31	0.65	12.0
Sunflower seed meal	1.37	28.5	0.97	1.11	0.63	0.33	1.08	11.7
Sunflower seed cake	1.51	29.1	0.99	1.13	0.64	0.36	1.16	9.5
Cotton seed meal	1.51	36.6	1.39	1.21	0.59	0.20	1.03	10.1
Cottonsed cake	1.84	37.1	1.41	1.22	0.59	0.24	1.09	8.0
Blood meal	3.02	87.5	8.4	2.27	1.14	0.17	0.17	9.4
Bone meal	1.5	40.7	1.83	0.77	0.45	16.04	7.42	9.5
Meat meal	3.09	58.2	3.26	1.4	0.87	6.0	2.9	5.2
Fish meal	3.32	65.9	5.07	2.44	1.85	3.5	2.6	8.3
Soya oil	9.3	-	-	-	-	-	-	0.5
Animal fat	8.5	-	-	-	-	-	-	0.5
Dicalcium Phosphate	-	-	-	-	-	24.0	18.0	1.0
Limestone	-	-	-	-	-	38.0	-	1.0
Salt(NaCL)	-	-	-	-	-	-	-	-

END OF EXAM

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

DEPARTMENT OF BIOMEDICAL SCIENCES

2015/16 ACADEMIC YEAR FINAL EXAMINATIONS

VMB 2511: ANIMAL WELFARE AND BEHAVIOUR

TIME: THREE 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.

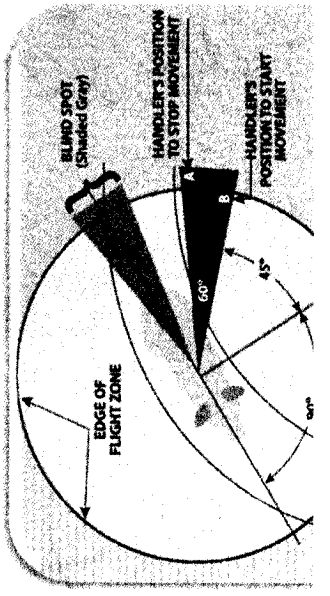
****

1. Animal is handling can be very dangerous to human beings and to the animals themselves. This is especially important when handling the large farm animals. The figure displayed below helps you understand basic concepts of livestock handling.

   a) Briefly discuss the five points on the diagram and how you can utilize this knowledge at a farm. (**10 marks**)

   b) What factors Causes of 'Hard to Handle' Cattle? (**5 marks**)

   c) What do you understand by the principles of low stress restraint of farm animals? (**5 marks**)



2. A veterinarian should be able to recognize animal welfare issues on the farm whenever they exist. Outline the common welfare problems you are likely to encounter on a dairy farm. (**20 marks**)

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

DEPARTMENT OF BIOMEDICAL SCIENCES

2015/16 ACADEMIC YEAR FINAL EXAMINATIONS

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INSTRUCTIONS:

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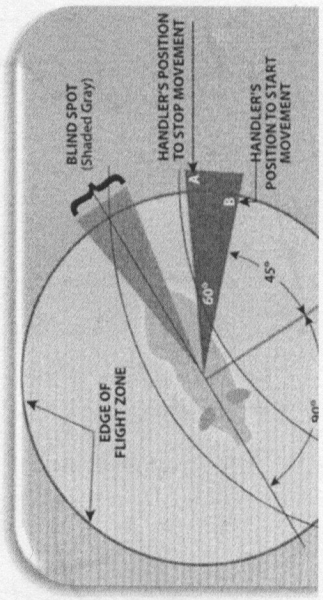

2. A veterinarian should be able to recognize animal welfare issues on the farm whenever they exist. Outline the common welfare problems you are likely to encounter on a dairy farm. (**20 marks**)

3. Give a detailed description of how physiological responses may be used to measure the welfare in an animal **(20 marks)**

4. Write short notes on the following: **(5 marks each)**
    a. Importance of consideration of animal welfare during euthanasia
    b. The three Rs considered in the welfare of animals used in education and research
    c. Outline how disease reduces the welfare of an animal.
    d. Welfare concerns found in pet animals

5. The European Union (EU) registers its interest to import animal products from your country. One of their conditions is that animals must be in good welfare with regards farm husbandry practices, transportation and slaughter. Give a detailed description of measures that you would recommend to government to put in place at all those stages to ensure that the EU requirements are met. **(20 marks)**

6. 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).**
    c.
7. Write short notes on the following: (10 marks each)
    a. Any **five (5)** types of aggression seen in dogs.
    b. How body postures and facial expressions are used for communication by dogs and cats

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE
DEPARTMENT OF BIOMEDICAL SCIENCES

YEAR END EXAMINATIONS -NOV 2016

DEFFERED/SUPPLIMENTARY EXAMINATIONS

VMB 3121

COMPARATIVE AND APPLIED VETERINARY ANATOMY

TIME: THREE (3) HOURS

INSTRUCTIONS:

1. **ATTEMPT ONLY FIVE (5) QUESTIONS**
2. **ALL QUESTIONS CARRY EQUAL MARKS**

1. Give a detailed description of the morphology of ribs in the domestic fowl. Point out any morphological differences with those of other domestic mammals.

2. Compare and contrast the kidney in the horse and the pig. How is the kidney in these two species differ morphologically and topographically to that of the domestic fowl?

3. Describe in detail the equine colon. Explain why the colon in this animal is prone to volvulus (abnormal twisting) and impaction.

4. Give a detailed description of the structure of the equine incisor tooth noting features that aid in age estimation of the animal.

5. Explain the role the following structures play in the equine hindlimb passive stay apparatus.
   a. Fibularis (peroneus) tertius muscle
   b. Gastrocnemius muscle
   c. Suspensory ligament
   d. Superficial and Deep digital flexor muscles

6. Give a detailed account of the frontal sinus in the bovine.

END OF EXAM

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE
DEPARTMENT OF BIOMEDICAL SCIENCES

YEAR END EXAMINATIONS -SEPT 2016

VMB 3121

COMPARATIVE AND APPLIED VETERINARY ANATOMY

TIME: THREE (3) HOURS

INSTRUCTIONS:

1. **ATTEMPT ONLY FIVE (5) QUESTIONS**
2. **ALL QUESTIONS CARRY EQUAL MARKS**
3. **ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK**

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1. As third year student, you receive an invitation to do a presentation at the Veterinary Association of Zambia's Continuous Profession Development (CPD) seminar. You are requested to emphasize some aspects of avian anatomy.
    a. Outline the various divisions of an avian kidney and state how these divisions are achieved. What could be a visible sign of advanced cancer of the kidney in a 3 years old cockerel? (5 marks)
    b. Briefly compare and contrast the ovary of a 3 years old hen and that of a 3 years old cow. (5 marks)
    c. Define the term bronchial tree. Briefly outline the bronchial tree of a 53 weeks old layer {use of a schematic diagram(s) is encouraged}. (5 marks)
    d. Name and briefly outline the origin, insertion and action of the major flight muscles of an African fish eagle. (5 marks)

2. On a routine visit to a horse stable at Sikanze Police Camp, the officer in charge engages you in some discussion and requests you to:
    a. Briefly compare and contrast the prepuce of a Billy goat and that of the stallion (5 marks)
    b. Define the term Passive Stay Apparatus (PSA). Briefly outline the check apparatus of the equine pelvic and thoracic limbs, noting the differences and how they contribute to the PSA. (5 marks)
    c. Briefly outline and contrasting the anatomy of the ovaries in the bovine and equine species (5 marks)
    d. Briefly outline and contrast the anatomy of the hoof of the equine and bovine species (5 marks)

3. A visiting equine veterinarian specialist learns you have adequately covered anatomy and she asks you on clinical aspects of anatomy.
    a. Briefly outline the clinical implications on the hind limb of a mare if the following nerves are damaged: i. Tibial nerve ii. Common Peroneal nerve (5 marks)
    b. Briefly outline the peculiar features of the clitoris in the mare and why is the clitoris of concern when exporting horses. (5 marks)
    c. Briefly outline the normal vulva conformation in a mare. What are the implications of the loss of the conformation you have described? What is the name of procedure used to correct the lost conformation?(5 marks)
    d. By way of a schematic diagram, briefly outline the nerve supply of the equine distal limb with respect of the palmar aspect of the limb (5 marks)

4. A second year student approaches you. He complains to you that the new curriculum does not leave the student with enough time to assimilate what has been learnt. He points out that paranasal sinuses and guttural pouches are so confusing more so in that they seem related to the nasopharynx.
   Help him understand by explaining the following in the horse:
    a. What paranasal and guttural pouches are, their functions and clinical relevance? (5 marks)
    b. Naming the five pairs of paranasal sinuses found in the horse and the two systems of paranasal sinuses that are recognised due to their intercommunication. (5 marks)
    c. A brief anatomy of the horse's frontal sinus and how it communicates with nasal cavity. (5 marks)

d. How the guttural pouches communicate with the nasopharynx and also the three surgical approaches associated with the guttural pouches. (5 marks)

5. Briefly describe the innervation of the oral cavity of a cow under the following: (20marks)
   a. Mucosa of the tongue
   b. Mucosa of the palate
   c. Mucosa of the cheeks
   d. Innervation of teeth

6. Write short notes on the following in the porcine. (20marks)
   a. Internal anatomical appearance of the stomach
   b. Liver
   c. Ovary and mammary glands
   d. Male accessory glands

END OF EXAM

UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

VMP 3100 VETERINARY PATHOLOGY EXAMINATIONS – September 2016

TIME: **Three (3) hours**

INSTRUCTIONS: **(i) Answer all questions in this paper**

(ii) Answer each question in a separate answer book let

Q1. Write short notes on any **four (4)** of the following:

(a) Parvo virus enteritis (5 marks)

(b) Pathophysiology of diarrhea (mechanisms of diarrhea) (5 marks)

(c) Factors affecting wound healing (5 marks)

(d) Suppurative inflammation (5 marks)

(e) Endometrial hyperplasia (5 marks)

(f) White Muscle Disease (5 marks)

Q2. Write short notes on any **four (4)** of the following:

(a) Name and describe 5 noninfectious diseases and conditions affecting the placenta and developing fetus (5 marks)

(b) Myasthenia gravis (5 marks)

(c) Osteoporosis (5 marks)

(d) Hypertrophic osteopathy (5 marks)

(e) Sertoti cell tumor (5 marks)

(f) Cryptorchidism (5 marks)

Q3. Write short notes on any **four (4)** of the following:

(a) Porphyrins (5 marks)

(b) Serous atrophy of fat (5 marks)

(c) Dysplasia (5 marks)

(d) Pyotraumatic dermatitis (5 marks)

(e) Endocrine hyperactivity secondary to diseases of other organs (5 marks)

(f) Dermatophilosis (5 marks)

Q4. Answer any **two (2)** of the following

(a) Compare and contrast between malignant and non-malignant neoplasms (10 marks)

(b) Discuss haemosiderosis in detail (10 marks)

(c) Discuss hyperparathyroidism in detail (10 marks)

Q5 Write short notes on any **four (4)** of the following

(a) Define and list the causes of degeneration (5 marks)

(b) Define neuronophagia (5 marks)

(c) Discuss the different types of calcification (5 marks)

(d) Define intracellular and intercellular degenerative changes and list any four intracellular and four extracellular degenerations (5 marks)

(e) Write short notes on cerebellar 'coning' in animals (5 marks)

(f) Briefly outline the Virchow'S triad (5 marks)

Q6 Write short notes on any **four (4)** of the following

(a) Describe the types and causes of edema seen in neurons (5 marks)

(b) Describe the pathology of fatty liver (5 marks)

(c) List any five (5) complications of bronchopneumonia (5 marks)

(d) What is cerebellar hypoplasia? Describe its pathogenesis (5 marks)

(e) Define 'etiology' in detail (5 marks)

(f) Describe the types of emboli in detail (5 marks)

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER EXAMINATION 2015-2016

VETERINARY MICROBIOLOGY AND IMMUNOLOGY (VMP 3300)

TIME: 3 HOURS

ANSWER ALL THE QUESTIONS

EACH QUESTION MUST BE ANSWERED IN A SEPARATE ANSWER BOOKLET

==========

SECTION I: IMMUNOLOGY

Q1. Write brief and informative comments on ANY FOUR (4) of the following:

a) IgA **(5)**

b) MHC Class I **(5)**

c) Consequences of complement activation **(5)**

d) $CD4^+$ T cells **(5)**

e) Antibody class switching **(5)**

f) Properties of an ideal vaccine **(5)**

g) Primary immune responses **(5)**

SECTION II: BACTERIOLOGY

Q2. Bacteria are prokaryotic cells of microscopic size which are normally capable of independent life. With the aid of a diagram, list the important structures of a bacterial and discuss the principal components of the gram positive and gram negative bacteria cell wall **(20)**

Q3. Write brief and informative comments on ANY FOUR (4) of the following:

a) List 10 different genera that come under Enterobacteriaceae family **(5)**

b) Significance of plasmids in Veterinary science **(5)**

c) Types of infections caused by bacteria **(5)**

d) Simple and differential stains **(5)**

e) Pathogenic factors of members of the genus Staphylococcus **(5)**

f) Why *Rickettsia (Cowdria) ruminantium* is considered to be a bacterium **(5)**

SECTION III: VIROLOGY

Q4.

a. Describe the replication mechanisms of RNA viruses, DNA viruses and retroviruses. **(5)**

b. Describe the three types of mutants that may arise due to mutation of viruses of veterinary importance? **(5)**

c. Give a detailed account of RNA viruses. **(5)**

d. The *Herpesviridae* family contains viruses of veterinary importance. List TEN (10) viruses from this family and the diseases they cause in animals. **(5)**

SECTION IV: MYCOLOGY

Q5. Briefly and concisely comment on ANY FOUR (4) of the following:

a) Lactophenol Cotton Blue Mounting Solution **(5)**

b) Arthrospores **(5)**

c) Phylum Ascomycota **(5)**

d) Invasive pattern mechanisms observed in a *Saprolegnia* and *Aphanomyces invadans* infections in fish **(5)**

e) Rough classification of fungal toxins **(5)**

f) Inhalation as one of the major routes of fungi infection leading to Mycotic abortion **(5)**

UNIVERSITY OF ZAMBIA

END OF YEAR EXAMINATIONS – SEPTEMBER 2016

VETERINARY PARASITOLOGY (VMP 3400)

TIME: THREE (3) HOURS

ANSWER: ALL QUESTIONS

ANSWER EACH SECTION IN A SEPARATE ANSWER BOOK

SECTION A: PROTOZOOLOGY

Q1. Clearly DISCUSS protozoan parasites of economic importance in Zambia (20 marks).

Q2. Write **BRIEF NOTES** on **ANY FOUR (4)** of the following topics:

(a) Locomotion in Sarcomastigophora protozoan parasites (**5 marks**).

(b) Reproduction in protozoan parasites (**5 marks**).

(c) Transmission of protozoan parasites belonging to the Order Kinetoplastida (**5 marks**).

(d) Nutrition in protozoan parasites (**5 marks**).

(e) Transmission in apicomplexan protozoan parasites (**5 marks**).

(f) Piroplasmida (**5 marks**).

PLEASE TURN OVER

SECTION B: HELMINTHOLOGY

Q3. You are a head of the Parasitology Unit at some government research institution in Sinda district. A farmer, Mr. Runningmate Phiri gives you a report that one of his pigs has suddenly died. Upon conducting a post mortem 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. Phiri wants to know how his pig got the infection. What would you tell him? **(6 Marks)**

(e) What advice would you give Mr. Phiri 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)**

Q4. Write **SHORT NOTES** on **ANY FOUR (4)** of the following topics:

(a) Larval inhibition and its initiating factors **(5 Marks).**

(b) Parasitic stages of trematodes (**5 marks**)

(c) The cattle eyeworm

(d) Compare and contrast the life cycle of *Fasciola hepatica* and *Schistosoma matheei* (**10 marks**)

(e) List **five** (**5**) *Schistosoma* species that you know and their hosts. (**5 marks**)

(f) The "rat tail" syndrome in horses **(5 Marks).**

PLEASE TURN OVER

SECTION C: ENTOMOLOGY

Q5. You are the Chief Veterinary Entomologist of the Department of Veterinary Services in Lusaka. Your Director has tasked you to lead a team of different professionals to control animal trypanosomiasis, transmitted by tsetse flies (*Glossina*) in a very large area that has high human and cattle population with many streams of water and small dams. The area shares a 35km long border with a Wildlife National Park which is a source of tsetse flies invasion. Given that you have adequate human, financial and technological support, describe practical and proven methods you would use to control the disease and keep the area permanently free of trypanosomiasis.

Using the following guide to help you plan;

(a) Describe the technologies you would employ based on vector behaviour in respect to responding to stimuli such as moving objects or smell and order **(5marks).**

(b) Given the ecology of the area (densely populated, plenty of open water bodies) which chemical application method would you **NOT** use. Give reasons. **(5 marks)**

(c) Explain how you would stop re-invasion of the controlled area by tsetse flies **(5 marks).**

(d) What complementally roles would entomologists and parasitologists play in the control program from the start to the finish of the control program **(5 marks).**

Q6. Make **BRIEF NOTES** on **ANY FOUR (4)** of the following topics:

(a) Some insects do not lay eggs but give birth to young. Explain by giving an example **(5 marks).**

(b) Sub-Order Brachycera of the Order Diptera of the Class Insecta contains many insects that cause myiasis. Briefly discuss myiasis and how these insects cause myiasis **(5 marks).**

(c) Soft ticks have a thick exoskeleton and are more adapted to harsh dry conditions. Name any three distinquishing characteristics of hard and soft ticks in terms of morphology, behaviour and ecology **(5 marks).**

(d) Briefly explain the difference between holometabolus and hemimetabolous type of reproduction in arthropods **(5 marks).**

(e) Give four major differences between insects and ticks **(5 marks).**

(f) What role do salivary glands in arthropods (such as mosquitoes or tsetse flies) play in the transmission of protozoan parasites **(5 marks).**

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER EXAMINATION 2015-2016

VETERINARY MICROBIOLOGY AND IMMUNOLOGY (VMP 4300)

TIME: 3 HOURS

ANSWER ALL THE QUESTIONS

EACH QUESTION MUST BE ANSWERED IN A SEPARATE ANSWER BOOKLET

==========

SECTION I: IMMUNOLOGY

Q1. Write brief and informative comments on ANY FOUR (4) of the following:

a) IgA **(5)**

b) MHC Class I **(5)**

c) Consequences of complement activation **(5)**

d) $CD4^+$ T cells **(5)**

e) Antibody class switching **(5)**

f) Properties of an ideal vaccine **(5)**

g) Primary immune responses **(5)**

SECTION II: BACTERIOLOGY

Q2.

a) Discuss the process of infection and disease production by bacteria under the following headings:

i. Entrance and establishment of bacteria within the host **(5)**

ii. Mechanisms of disease production **(5)**

b) Give an account of normal bacterial flora, with examples showing their contribution to animal health and disease **(10).**

Q3. Write brief and informative comments on **ANY FOUR (4)** of the following:

a) Isolation and identification of *Salmonella gallinarum* from an infected poultry flock **(5)**

b) The division of *Clostridium* species based on their disease producing mechanism **(5)**

c) Types of infections caused by bacteria **(5)**

d) *Corynebacterium renale* **(5)**

e) Pathogenic factors of members of the genus Staphylococcus **(5)**

f) Why *Rickettsia (Cowdria) ruminantium* is considered to be a bacterium **(5)**

SECTION III: VIROLOGY

Q4.

a. Describe the replication mechanisms of RNA viruses, DNA viruses and retroviruses **(5)**

b. Describe the three types of mutants that may arise due to mutation of viruses of veterinary importance? **(5)**

c. Give a detailed account of RNA viruses. **(5)**

d. The *Herpesviridae* family contains viruses of veterinary importance. List TEN (10) viruses from this family and the diseases they cause in animals. **(5)**

SECTION IV: MYCOLOGY

Q5. Briefly and concisely comment on **ANY FOUR (4)** of the following:

a) Lactophenol Cotton Blue Mounting Solution **(5)**

b) Arthrospores **(5)**

c) Phylum Ascomycota **(5)**

d) Rough classification of fungal toxins **(5)**

e) *Candida albicans* mechanism of virulence **(5)**

f) Inhalation as one of the major routes of fungi infection leading to mycotic abortion **(5)**

UNIVERSITY OF ZAMBIA

END OF YEAR EXAMINATIONS – SEPTEMBER 2016

VETERINARY PARASITOLOGY (VMP 4400)

TIME: THREE (3) HOURS

ANSWER: ALL QUESTIONS

ANSWER EACH SECTION IN A SEPARATE ANSWER BOOK

SECTION A: PROTOZOOLOGY

Q1. Clearly **OUTLINE** the classification of protozoan parasites (**20 Marks**).

Q2. Write **BRIEF NOTES** on **ANY FIVE** (5) of the following topics (**20 Marks**).

a. **Nutrition** in protozoan parasites **(5 Marks).**

b. **Transmission** in Sarcomastigophora **(5 Marks).**

c. Modes of **reproduction** protozoan parasites **(5 Marks).**

d. Modes of **locomotion** in protozoa in protozoan parasites **(5 Marks).**

e. **Enzootic stability** in protozoan disease outbreak **(5 Marks).**

f. Habitats of protozoan parasites of veterinary importance **(5 Marks).**

PLEASE TURN OVER

SECTION B: HELMINTHOLOGY

Q3. Lymphatic filariasis, commonly known as elephantiasis, is one of the neglected tropical diseases (NTDs). Infection occurs when filarial parasites are transmitted to humans. The disease is characterized by gross enlargement of an area of the body, especially the limbs and external genitals. The involvement of these parts could either be uni or bilateral.

a) **Name** and **classify** the causative agent of this disease condition **(4 marks)**

b) In your view, what causes the swelling of the affected parts of the body in a person with this condition? **(2 marks)**

c) Pathologically what name is given to this "Swelling or inflammation"? **(2 marks)**

d) Briefly describe how humans get the infection **(8 Marks).**

e) If you are to arrive at a definitive (true) diagnosis of this disease, what sample would you get and what do you expect to find in this sample? **(2 Marks)**

f) At what time of the day would you get this sample and for what reasons would you want to get at this time? **(2 Marks).**

Q4. Write **SHORT NOTES** on **ANY FOUR (4)** of the following topics:

a) Structure and function of the digestive system of trematodes. **(5 marks).**

b) *Syngamus trachea.* **(5 Marks)**

c) The life cycle of *Dicrocaelium dendriticum.* **(5 Marks)**

d) The cucumber worm of carnivores. **(5 Marks)**

e) Factors that influence production of metacercarie in the life cycle of *Fasciola.* **(5 Marks)**

f) The significance of soil mites in cattle production. **(5 Marks)**

PLEASE TURN OVER

SECTION C: ENTOMOLOGY

Q5. You are the Chief Veterinary Officer in the Department of Veterinary Services in Lusaka. Your Director has tasked you to lead a team of different professionals to control an outbreak of Theileriosis, transmitted by ticks and in this case the *Rhipicephalus appendiculutas*. The outbreak is in two different geographical areas of Zambia namely; the Zambezi Valley which is one of the driest regions of Zambia and in Mkushi area of Zambia which is one of the wettest regions of the country with plenty of water unlike the Zambezi Valley where water is scarce. However, both areas have many dip tanks if you choose to use them.

Given that you have adequate human, financial and technological support;

a) Describe practical and proven integrated disease control methods you would use to control the disease taking into account seasonal variations in disease pattern in both Lower Zambezi and Mkushi. **(10 marks)**
b) Describe the suitability of each vector control method you have chosen to use in the two different geographical areas. **(5 marks)**
c) Based on your own assessment, explain or give reasons for not using any available method at your disposal if there are any methods that you have decided not to use. **(5 marks)**

Q6. Make **BRIEF NOTES** on **ANY FOUR (4)** of the following topics:

a) Generally myiasis causing insects lay their eggs onto host. How does *Dermatobia hominis* that effectively does not come into contact with host cause myiasis in animals including man? **(5 marks)**
b) Giving an example of Tabanus and Mosquitoes, briefly discuss the difference between mechanical and biological vectors of disease. **(5 marks)**

c) Name the vectors at Order and Genus level and the difference in terms of mode of transmission between the African trypanosomiasis and the South American Trypanosomiasis. **(5 marks)**

d) Some insects larviposit while greater majority oviposit. Briefly explain the meaning and differences between larviposition and oviposition. **(5 marks)**

e) Spermatheca are found in female insects. Briefly discuss their function. **(5 marks)**

f) Sterile Male Insect Technique or Sterile Insect Technique (SIT) has been used on an Island in Tanzania along other vector control methods to control tsetse flies. Briefly explain the technique and its limitations if it was used on a main land or an open terrain without any physical barriers as the case is for an island. **(5 marks)**

END OF EXAMINATION

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

2015/2016 ACADEMIC YEAR
END OF YEAR FINAL EXAMINATIONS

VMC 5200: PRINCIPLES AND INTRODUCTION TO VETERINARY SURGERY

TIME: THREE HOURS

INSTRUCTIONS:

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

SECTION A

1. Very little porcine digestive surgery is conducted in large animal practice. However, some valuable pigs do warrant gastrointestinal surgery during which conditions such as atresia ani and gastric ulcers can be corrected.
    a) Outline the clinical signs associated with atresia ani and gastric ulcers in affected pigs. **(2 marks)**
    b) Briefly outline an anesthetic protocol you would use to carry out abdominal surgery in an adult pig. **(2 marks)**
    c) Describe in detail how you would surgically manage atresia ani in a three-week old female piglet with a rectovaginal fistula allowing faeces to come out through the vagina (Include patient preparation, anaesthesia and post-operative care). **(12 marks)**
    d) Outline the post-operative complications of the case in (c) above. **(2 marks)**

6. You are a recent graduate of Veterinary Medicine at the University of Zambia and you were the best graduating student in your class. The Head of Department of Clinical Studies invites you to give a special lecturer on shock in small animals to a 5thYear class. She specifically requests you to talk about what shock is, the types, the pathophysiology and what exactly happens in different organ systems during these pathophysiological processes. The lecture should end with parameters that can be used to identify an animal that is in shock. (**20 marks**)

7. A hernia is a bulge or protrusion of an organ through the structure or muscle that usuallycontains it.
    a. How are the hernias classified in small animal surgery? Give **three(3)** examples in each classification.**(5 marks)**
    b. Describe how diaphragmatic hernias and tears are managed [include pre-, peri- and post-operative considerations, anaesthesia and surgical approach(es)]. **(10 marks)**
    c. In the correction of bilateral perineal hernias, discuss fully how the knowledge of the pelvic diaphragm assists the surgical team? **(5 marks)**

The End!!

2. Aseptic technique is an essential facet of any surgical procedure.
    a. Describe the order of preparatory actions that a surgeon needs to take in order to prepare him/herself for surgery. **(10 marks)**
    b. List **six (6)** rules of asepsis in a surgical theatre. **(6 marks)**
    c. Outline how the design of a theatre has an impact on asepsis. **(4 marks)**

3. Outline the radiographic findings in each of the following conditions: **(4 marks each)**
    a. Foetal death and maceration
    b. Intestinal intussusception
    c. Pericardial effusion
    d. Persistent right aortic arch
    e. Bilateral renomegaly

SECTION B

4. Laparatomy is often carried out in large farm animals for various reasons
    a. List **five (5)** indications for doing a laparotomy in a cow. **(5 marks)**
    b. Describe in detail an approach for a caesarean section in a cow. Include in your description pre-operative preparation, anaesthetic procedure and post-operative care. **(15 marks)**

5. Good quality veterinary surgery requires a competent, skilled veterinary surgeon, a competent and diligent surgical support team, as well as adequate good quality equipment and consumables. Write short notes on any **four (4)** of the following:**(5 marks each)**
    a. The Mapelson alphabet
    b. Comprehensive description of surgical suture needles
    c. Classification criteria of large animal hernias
    d. Leak testing of an anaesthetic machine
    e. Properties of an ideal suture material

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

DEPARTMENT OF CLINICAL STUDIES

2015/16 ACADEMIC YEAR DEFERRED SUPPLEMENTARY EXAMINATIONS

VMC 5309: INTRODUCTION TO VETERINARY REPRODUCTION AND OBSTETRICS

TIME: THREE HOURS

INSTRUCTIONS:

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

SECTION A

1. a) Ovarian acyclicity is a major problem in dairy cows resulting in substantial economic loss to the dairy industry due to prolonged inter-calving interval. As a student of reproduction, explain in detail the intervention plan that would stimulate ovarian activity based on a number of hormonal agents for possible breeding within a month. **(10 marks)**

   b) Describe in detail the relationships of the following hormones with regards to estrus cycle regulation in cattle: Estrone sulphate, Estradiol 17β, Inhibin, GnRH, FSH, Relaxin and LH. **(10 marks)**

2. It is important to understand the normal reproductive physiology of animals in order to be able to detect abnormalities.
    a) Outline the periods of time associated with each stage of the oestrous cycle in a bitch and in a queen. **(4 marks)**
    b) Describe the physiological events associated with metoestrus/dioestrus in a bitch and explain the discrepancy in its length. **(4 marks)**
    c) Explain how it is possible for one bitch to have a litter fathered by different sires. **(2 marks)**
    d) Explain the concept of "induced ovulation". **(3 marks)**
    e) Describe the findings of abdominal palpation at different stages of pregnancy in the bitch. **(3 marks)**
    f) Outline the advantages of using ultrasonography in pregnant animals. **(4 marks)**

3. The mare is described as a seasonal breeder and its cyclicity is greatly influenced by factors such as plane of nutrition and general body condition.
    a) Discuss the anatomy of the mare's uterus, how it differs from that of the cow and how this anatomy plays a role in the maternal recognition of pregnancy. **(6 marks)**
    b) Describe how day length influences cyclicity in the mare. **(4 marks)**
    c) Outline the three stages of parturition in the mare. **(8 marks)**
    d) As many as thirty unfertilized eggs can be flushed from the mare's oviducts early in the breeding season. Briefly explain how this comes about. **(2 marks)**

SECTION B

4. A farmer invites you to examine one of his dairy cows that is not showing signs of heat. On physical examination you notice that there is pus coming from the vulva and palpation per rectum or the reproductive tract reveals a symmetrically enlarged uterus and presence of an active corpus luteum on the right ovary.
    a) What is your tentative diagnosis? **(4 marks)**
    b) Give one differential diagnosis. **(2 marks)**
    c) Describe how the condition may have developed. **(5 marks)**
    d) Describe the treatment for the condition? Include in your description the mechanism of action of the agents used. **(7 marks)**
    e) What advice to the farmer would be appropriate in this case? **(2 marks)**

5. A farmer reports to your clinic that one of his prized cows that was due to calve down and had been showing signs of eminent parturition has suddenly ceased to do so now for more than 24 hours. You examine the cow per rectum and feel some parts of a fully developed foetus. Vaginal examination reveals that the cervix is fully dilated but with no calf in the pelvic cavity.
    a) What is your tentative diagnosis? (**2 marks**)
    b) Briefly outline the factors that predispose to the condition you suspect in (a) above. **(4 marks)**
    c) Describe in detail how you would manage this condition. **(12 marks)**
    d) Concisely outline your client education. (**2 marks)**

6. Write short notes on **four (4)** of the following. **(5 marks each)**
    a) Indications for induction of parturition in the cow and how you would induce it.
    b) Effect of body condition score (BCS) at calving on early return to postpartum ovarian cyclicity in high yielding dairy cows.
    c) Functions and uses of non-pituitary gonadotrophins in the cow.
    d) Necrotic vaginitis immediately postpartum in the cow.
    e) Effect and mechanism of action of suckling on return to postpartum cyclicity in beef cows.

7. In order to maximise on production in commercial pig husbandry one needs to be familiar with heat detection and record keeping.
    a) What are the clinical signs of oestrus in a sow? (**8 marks**)
    b) Why does a sow have many piglets per farrowing while cattle only have one calf or at most two per calving? (**4 marks**)
    c) What are the main factors leading to failure to detect heat in Sows? (**8 marks**)

.....END.....

UNIVERSITY OF ZAMBIA END OF YEAR EXAMINATION-2016

VMD 5201 (Infectious Diseases of Livestock)

September 2016

Instructions:
There are **SEVEN (7)** questions in this paper.
Answer **ANY FIVE (5)** questions. Each question carries **equal marks.**
Answer each question in a separate booklet
Total marks: 100
Duration: Three (3) hours

Question1.
Foot-and-mouth disease is an acute, highly infectious viral disease that affects cloven-hoofed wild and domestic animals such as buffalo, cattle, goats, sheep and pigs.

(i) Describe the epidemiology of foot and mouth disease in Zambia.
(ii) What are the risk factors responsible for the disease in the foot-and-mouth high-risk areas in Zambia?
(iii) Discuss the constraints encountered in the control of foot-and-mouth disease in Zambia.
(iv) Briefly describe the measures for the prevention and control of foot-and-mouth disease in Zambia.

Question 2.
Compare and contrast the epidemiology, pathogenesis, clinical presentation and diagnosis of a disease known as "Symptomatic anthrax" and hemorrhagic septicemia in cattle.

Question 3.
You receive a report of cattle dying at a farm in Mazabuka District of Southern Province. Your team visits and conducts both clinical and laboratory investigations on some of the affected cattle at the farm with the following findings: labored breathing, enlarged parotid, pre-scapular and subcutaneous lymph nodes and fever with temperatures exceeding 40° C in most cattle examined. Other clinical signs included salivation, lacrimation and depression. The team also collected blood and lymph smears. Based on your clinical observations and the geographical location of the District:

(i) What disease would you suspect?
(ii) With respect to the disease you mention in (i), what would you expect to see or find on laboratory examination of the collected blood and lymph smears if the samples were positive?
(iii) Explain the control measures you would institute on the farm?
(iv) What control measures would you apply in the entire District of Mazabuka to curb this disease?

Question 4.
Since ancient times, Rabies has been one of the most feared zoonotic diseases. In Zambia, it is endemic in all the provinces of the country. As a District Veterinary Officer, you have received reports suggesting an increase in the number of jackal sightings in your District. With this information, proceed to give a concise discussion on the following:

(i) Implications of having jackals in your district

(ii) How would you engage the community in your District for effective Rabies prevention and control?

Question 5.
(i) Give an overview of Rift Valley Fever (RVF) and its distribution in Zambia. How would you recognize an outbreak of RFV?

(ii) State any similarities and differences in the transmissions of RVF and Crimean- Congo hemorrhagic fever (CCHF) to animals and man, specifying which animal hosts are involved.

Question 6.
Outline corynebacterium by defining what it is, synonyms of this disease, aetiology, epidemiology, how it is diagnosed, clinical forms, treatment and preventive measures. In your discussion, show how the disease is sometimes misdiagnosed as tuberculosis (TB). Also, name the specie(s) of animal(s) in which misdiagnosis of this disease often occurs.

Question 7.
Compare and contrast avian influenza and Newcastle disease under the following headings:
(i) Aetiology
(ii) Maintenance in nature
(iii)Molecular basis of pathogenicity
(iv)Clinical signs
(v) Prevention and control

END OF EXAMINATION!!

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

DEPARTMENT OF CLINICAL STUDIES

2015/16 ACADEMIC YEAR FINAL EXAMINATIONS

VMC 6110: VETERINARY CLINICAL MEDICINE

TIME: THREE HOURS

INSTRUCTIONS:

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

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SECTION A

1. You are a District Veterinary Officer in Monze when one morning you receive a report from one of your Veterinary Assistants (VA) stationed in Munyumbwe. The report states that some cattle, sheep and goats in the area are succumbing to a mysterious disease. The affected animals show a wide range of clinical signs including high fever, nervous signs that include a peculiar high-stepping gait and at post-mortem there is hydrothorax and oedema of the lungs and brain and the animals end up dying.
    a) What is your tentative Diagnosis? (**2 marks**)
    b) What other clinical and post-mortem findings do you think your VA omitted in the report? (**6 marks**)
    c) Briefly discuss **two (2)** differential diagnoses of this condition. (**6 marks**)
    d) How do you treat this common ruminant disease? (**4 marks**)
    e) What would you client education be? (**2 marks**)

2. Polyuria and polydpsia are common presenting problems cause by several conditions. What is the tentative diagnosis and expected urinalysis findings for the following cases. (**5 marks each**)
    a) A 6-year-old dog with polydypsia, polyuria and weight loss.
    b) A 9-year old male dog with non-pruritic symmetrical alopecia, thin skin, polydypsia and polyuria.
    c) A 6-month-old cat with polydypsia polyuria and no abnormalities on physical examination.
    d) A 14-year-old cat with polydypsia, polyuria, anaemia, anorexia and oral ulcerations.

3. A 5-year-old dairy cow presents with 6 weeks' history of increasing abdominal distension and loss of condition. The cow's appetite is poor and there are only scant hard faecal balls coated in mucus in the rectum. The cow has an arched-back appearance and an anxious expression. The abdomen is markedly distended and 'papple-shaped'. The rectal temperature is 38°C and pulse rate is 38 beats per minute. The force and rate of ruminal contractions is approximately three to four cycles per minute. The withers pinch test (Williams' test) is negative. Passage of a stomach tube releases only a small amount of gas.
    a) What is your tentative diagnosis? (**2 marks**)
    b) Give **two (2)** differential diagnoses. (**4 marks**)
    c) Describe how you would investigate this case of abdominal distention. (**10 Marks**)
    d) How would you confirm your diagnosis in (a) above? (**2 marks**)
    e) State how you would manage this condition. (**2 marks**)

SECTION B

4. A 6-year-old intact male Domestic Short-Haired cat is presented due to weight loss of a month's duration. On physical examination intractable gingivitis/stomatitis, rhinitis, diarrhoea, skin disease and uveitis are evident. Further tests following faecal culture reveal that the diarrhoea is due to salmonellosis. It is an out-door cat and is vaccinated against rabies, feline influenza and FeLV.
    a) What is your tentative diagnosis? (**2 marks**)
    b) List **two (2)** differential diagnoses. (**2 marks**)
    c) Briefly outline the pathogenesis of the condition in (a) above. (**4 marks**)
    d) Outline **two (2)** ancillary tests that you would carry out in order to reach a definitive diagnosis. (**2 marks**)
    e) State and justify your prognosis **(2 mark)**
    f) Outline the management of this case in (a) above. (**8 marks**)

5. A 3-year-old intact male Mongrel is presented due to your practice with an eye problem of two weeks duration. On ophthalmic examination the dog has blepharospasm, photophobia, lacrimation, conjunctival hyperemia, cilliary flush and hypopyon.
    a) What is your tentative diagnosis? (**2 marks**)
    b) List **two (2)** differential diagnoses. (**2 marks**)
    c) Give a detailed description of the pathogenesis of the condition in (a) above. (7 **marks**)
    d) Outline the ancillary tests that you would carry out in order to reach a definitive diagnosis. (**2 marks**)
    e) Outline the management of this case. (**7 marks**)

6. You are presented with a 6-year-old gelding with a problem of coughing and nasal discharge, a week after the horse came back from a horse jumping show in another city.
    a) Discuss in detail how you would carry out a thorough investigation of the case to come up with a diagnosis (include diagnostic tests). **(10 marks)**
    b) List **two (2)** viral and **two (2)** bacterial infections that result in coughing and nasal discharge in horses. **(2 marks)**
    c) For **one (1)** of the diseases listed in (b) above, outline how you would manage it. **(8 marks)**

7. Your classmates have had an argument on the way from the pig farm visit as to what could have caused the diarrhoea observed in piglets and weaners. The main suspected diseases included Coccidiosis, Salmonellosis and Clostridial enteritis.
    a) Compare and contrast the pathogeneses of the three suspected conditions . (**6 marks**)
    b) What differences would you see at post-mortem in each of the three conditions? (**6 marks**)
    c) Explain to your colleagues how to treat each one of the above conditions? (**3 marks**)
    d) Discuss the supportive treatment of scours in a piggery. (**5 marks**)

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

DEPARTMENT OF CLINICAL STUDIES

2015/16 ACADEMIC YEAR SUPPLEMENTARY EXAMINATIONS

VMC 6210: VETERINARY OPERATIVE SURGERY II

TIME: THREE HOURS

INSTRUCTIONS:

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

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SECTION A

1) Upper respiratory conditions are a common occurrence in brachycephalic dogs and in severe cases can greatly compromise the quality of life of the affected dog.

    a) List **four (4)** surgical conditions that are part of the brachycephalic syndrome. **(4 marks)**
    b) Define the terms tracheotomy and tracheostomy and explain when you would need to perform each one of them. **(6 marks)**
    c) Briefly describe the surgical procedures of **two (2)** of the conditions you have listed in (b) above (Procedures only). **(10 marks)**

2) Surgery of the urinary tract in small animals can be very challenging as a balance must be struck at deciding whether to operate or treat medically.

    a) Discuss how the understanding of appropriate anatomy assists in the successful and efficient operations of the urinary system? (**3 marks**)
    b) Outline the indications for a nephrectomy? (**3 marks**)
    c) List the types of ectopic ureters that can be found in small animals. (**2 marks**)
    d) List the different surgical methods that can be employed for the removal of urethral calculi in the male dog? (**4 marks**)
    e) Describe in detail one of the methods listed in (d) above (Procedure only). (**8 marks**)

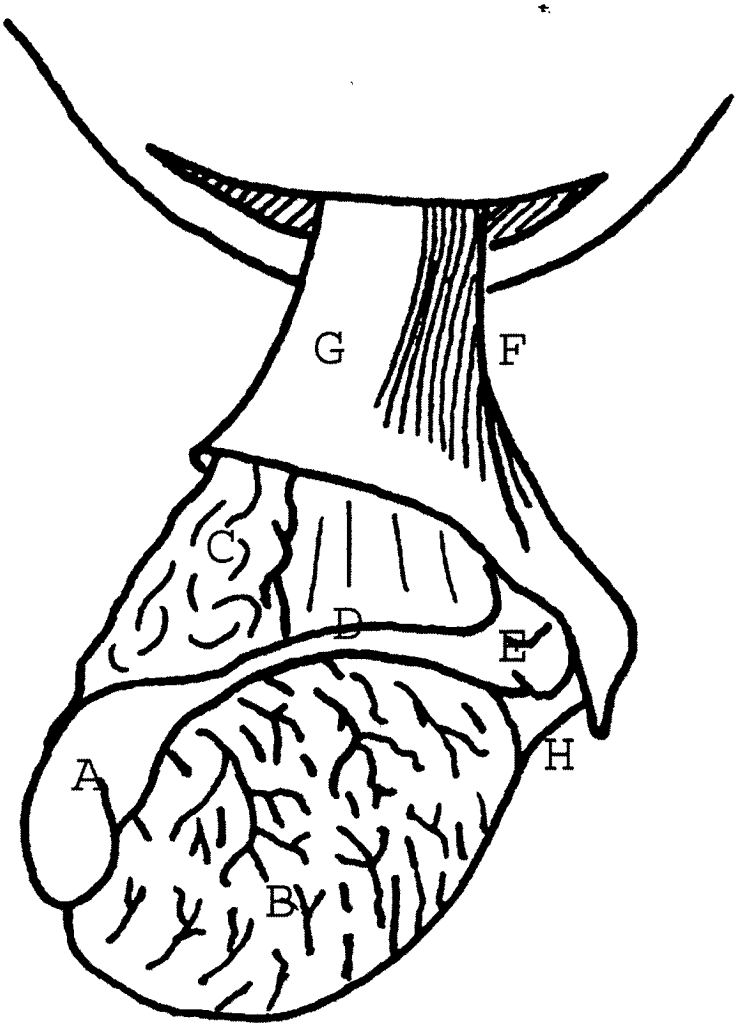
3) Write brief but concise notes on any **four (4)** of the following. Use of illustrations or schematic diagrams is encouraged. Each question carries **5 marks**.

    a) Indications, types, sources and functional applications of autogenous cancellous bone grafts.
    b) Basic principles and surgical considerations of treatment of physeal fractures.
    c) Possible causes, diagnosis and management of cranial cruciate ligament injuries.
    d) List the soft tissue and orthopaedic techniques of patella luxation repair. Choose **one (1)** procedure from the list and briefly outline the technique.
    e) Compare and contrast acute and chronic osteomyelitis in terms of their clinical presentations, radiographic findings and management.

SECTION B

4) Write short notes on any **FOUR (4)** of the following **(5 marks each)**:
   a) Pin-hole castration technique in the caprine
   b) The aetiopathogensis of canine elbow dysplasia
   c) The use of a locking plate in veterinary orthopaedic surgery
   d) Goekels cystotomy
   e) Complications that may arise following bovine castration

5) Castration may be carried out in many animal species. Effective castration requires a good knowledge of the functional anatomy of the male reproductive tract of each species. This enables the surgeon to perform a castration with minimal intraoperative and postoperative complications.
   a) The sketch below schematically represents an incised equine scrotum with the testicle hanging out. Identify the structures labelled A – H in the sketch and mention one possible complication that each structure may be involved in peri-operatively. **(8 marks)**



   b) With the aid of a sketch or line drawings, outline how you would carry out amputation of the penis in the horse or the dog. **(8 marks)**
   c) List the options available for surgically managing canine paraphimosis. **(4 marks)**

SECTION B

4) Write short notes on any **FOUR (4)** of the following **(5 marks each)**:
   a) Pin-hole castration technique in the caprine
   b) The aetiopathogensis of canine elbow dysplasia
   c) The use of a locking plate in veterinary orthopaedic surgery
   d) Goekels cystotomy
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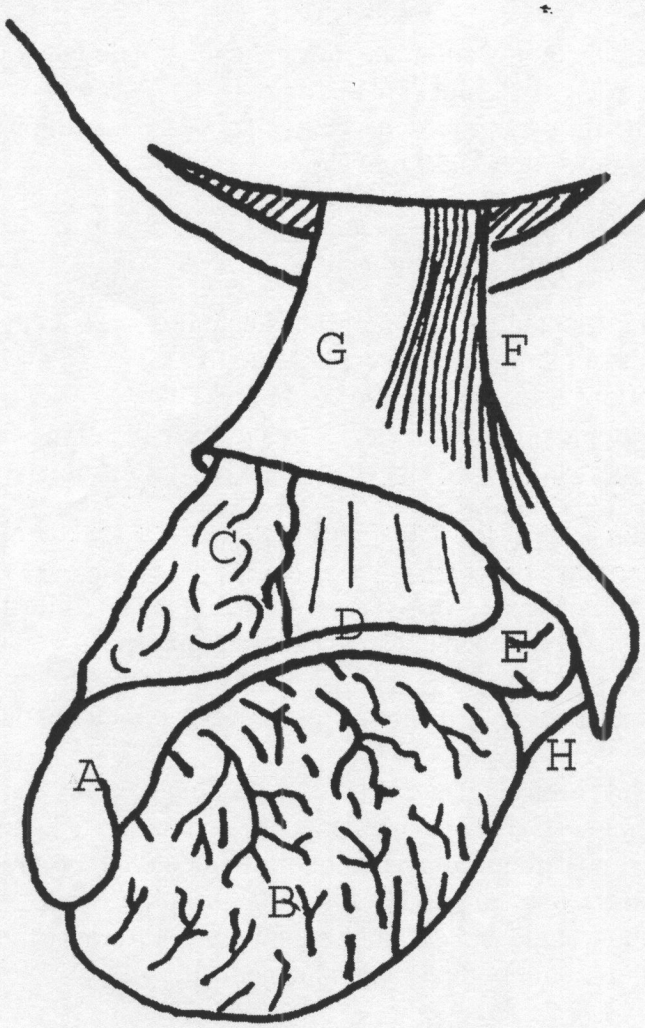

   b) With the aid of a sketch or line drawings, outline how you would carry out amputation of the penis in the horse or the dog. **(8 marks)**
   c) List the options available for surgically managing canine paraphimosis. **(4 marks)**

6) A farmer calls you to examine one of her 8-year-old Holstein-Friesian cows with an eye problem. Physical examination reveals that the left eye has a nodular, cauliflower-like, bloody, ulcerated, friable and foul smelling growth on the nictitating membrane and it appears to be affecting the lower and upper eyelids. Histopathological examination of a biopsy sample reveals that the lesion is a squamous cell carcinoma. Describe in detail surgical management of this case. Include in your description pre-operative preparation, **two (2)** possible analgesic techniques and post-operative care.

   a) Outline **two (2)** possible analgesic techniques you would use in the surgical management of this case. **(4 marks)**
   b) Describe, in detail how you would surgically mange this case (include pre-operative care). **(12 marks)**
   c) Briefly outline the post-operative care of this case. **(4 marks)**

7) Colic is one of the most common emergencies encountered in equine practice. Among the many causes, impactions of segments of the large colon are a major cause of colic in horses.

   a) List the sites of the large intestines where impactions commonly occur. **(2 marks)**
   b) Briefly outline the pathophysiology of a caecal impaction due to sand. **(2 marks)**
   c) Outline the medical management of an impaction in a 9-year old mare. **(2 marks)**
   d) Discuss the factors that would determine surgical management of an impaction. **(2 marks)**
   e) Discuss how you would surgically manage an impaction of the small colon (Include pre-operative management, anaestheisa and post-operative care). **(12 marks)**

END OF EXAMINATION

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THE UNIVERSITY OF ZAMBIA

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DEPARTMENT OF CLINICAL STUDIES

2015/16 ACADEMIC YEAR FINAL EXAMINATIONS

VMC 6210: VETERINARY OPERATIVE SURGERY II

TIME: THREE HOURS

INSTRUCTIONS:

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

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SECTION A

1) A client presents a 12-year old polocrosse gelding stating that its performance had declined after he heard it "roaring". He goes on to say that initially the horse "roared" only at a gallop but that the condition has worsened as it is now "roaring" even at a trot. Your examination reveals that all parameters are within normal range. You examine the horse at a trot and you hear an inspiratory "roaring" sound.
   a) What is your diagnosis and how would you confirm it? **(2 marks)**
   b) List **two (2)** differential diagnoses. **(2 marks)**
   c) List the surgical technique(s) you would use to manage the condition in (a) above. **(4 marks)**
   d) Considering that the client would like to take back the horse to playing polocrosse, discuss in detail a technique(s) listed in (c) above you would use to manage the case (Include anaesthesia and post-operative care). **(12 marks)**

2) Female genital surgery is commonly done in small animals
   a) Outline the indications for episiotomy and how you would perform the procedure in a 3-year-old boxer. **(8 marks)**
   b) You are presented with a 7-year-old female cross breed dog that has lumps on its three (3) cranial *mammae* on the left chain for over a year. One has an abnormal discharge while the other two are ulcerated. Discuss in detail how you would manage this case. **(12 marks)**

3) a) Large animal fracture cases are often managed using external coaptation and where that is possible salvage slaughter or euthanasia are considered. One minimally invasive management technique available is the hanging limb technique.
      i. With the aid of line or sketch drawings, describe how a veterinary professional can carry out this technique. **(5 marks)**

ii. List complications that may be seen when external coaptation is used as method of choice for managing fractures. **(3 marks)**

3) b) You are presented with a five and a half (5½) month old Boerboel puppy with a primary complaint of weight bearing lameness of the right forelimb. The owner reports that the same limb has been progressively bending and shortening over the past few weeks although it does not seem painful (Figure 3.1). Clinical examination, reveals normal vital parameters but a non-painful deformity of the forelimb. Radiology was carried out and the following radiographs were obtained (Figures 3.2a to 3.2c).

i. What is your diagnosis? **(3 marks)**
ii. With the aid of line or sketch drawings, outline how you would surgically manage this case. **(9 marks)**

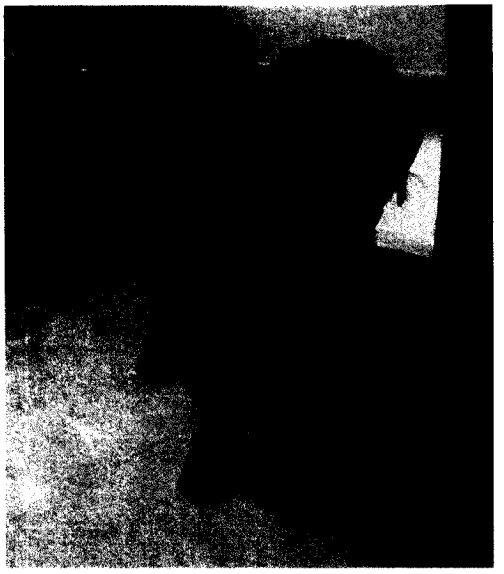

Figure 3.1. Photograph of the patient

Figure 3.2a. Photograph of the Medial-lateral view of the right forelimb

Figure 3.2b. Photograph of the Medial-lateral view of the left forelimb

Figure 3.2c. Photograph of the Cranio-caudal view of both forelimbs

ii. List complications that may be seen when external coaptation is used as method of choice for managing fractures. **(3 marks)**

3) b) You are presented with a five and a half (5½) month old Boerboel puppy with a primary complaint of weight bearing lameness of the right forelimb. The owner reports that the same limb has been progressively bending and shortening over the past few weeks although it does not seem painful (Figure 3.1). Clinical examination, reveals normal vital parameters but a non-painful deformity of the forelimb. Radiology was carried out and the following radiographs were obtained (Figures 3.2a to 3.2c).

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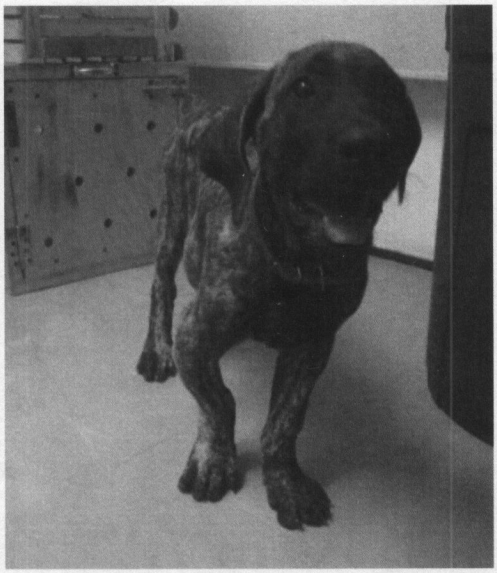

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SECTION B

4) A 10-year-old gelding used for hacking on a game ranch is presented to you with lameness. Your investigation reveals distal left forelimb lameness and radiography (Figure 4.1A, white arrow) confirms a diagnosis of a parasagittal fracture of the distal sesamoid bone. The fracture was corrected using an interfragmentary screw (Figure 4.1B) and the horse was allowed stable rest with controlled turnout after two (2) weeks. Four (4) weeks later, you are informed that the horse is now lame on the other forelimb. Your examination localizes the pain to be in the foot and hoof tester examination reveals pain all around the hoof. A lateral view radiograph of the hoof is taken and shown in Figure 4.2.

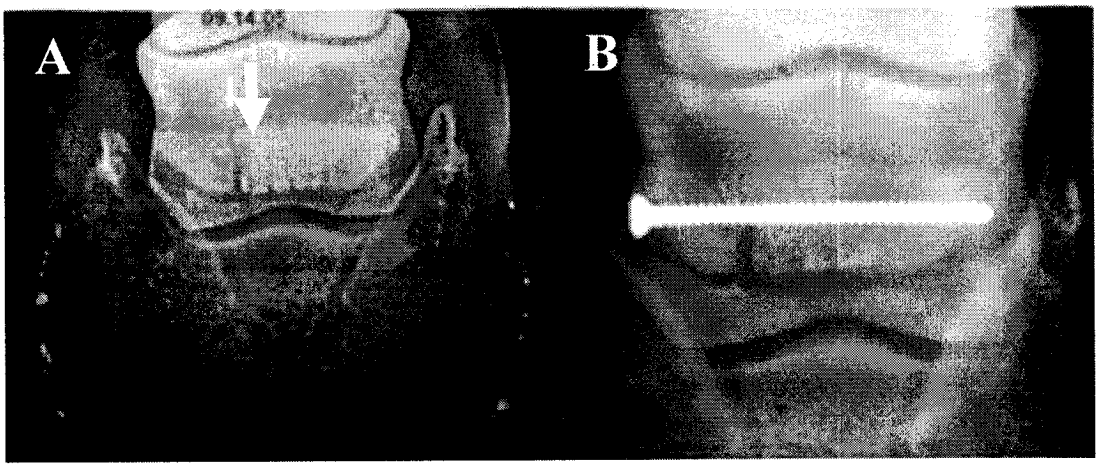

Figure 4.1: Parasagittal fracture of the distal sesamoid bone: **A**, pre-operative radiographic dorsal palmer view; **B** post-operative radiograph showing an interfragmentary screw in place.

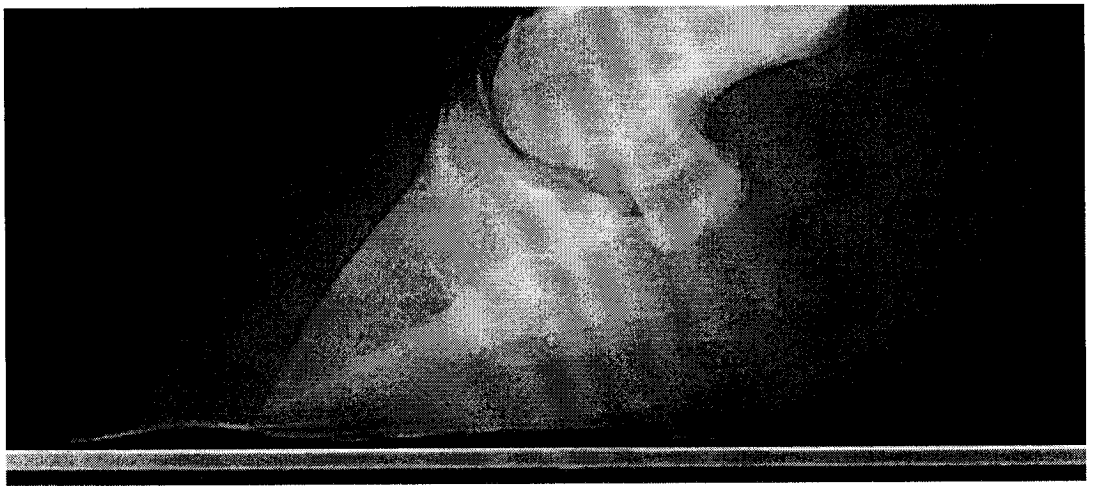

Figure 4.2: A lateral view radiograph of the affected hoof.

a) Briefly outline the abnormalities(s) that you can see in Figure 4.2. **(2 marks)**
b) What is your diagnosis in Figure 4.2? **(2 marks)**
c) Outline what would have resulted in the condition in (b) above in this case. **(2 marks)**
d) Discuss the measure(s) you would have put in place during the management of the distal sesamoid bone fracture to prevent the occurrence of the condition in (b) above. **(2 marks)**
e) Discuss in detail how you would manage your diagnosis in (b) above. **(12 marks)**

SECTION B

4) A 10-year-old gelding used for hacking on a game ranch is presented to you with lameness. Your investigation reveals distal left forelimb lameness and radiography (Figure 4.1A, white arrow) confirms a diagnosis of a parasagittal fracture of the distal sesamoid bone. The fracture was corrected using an interfragmentary screw (Figure 4.1B) and the horse was allowed stable rest with controlled turnout after two (2) weeks. Four (4) weeks later, you are informed that the horse is now lame on the other forelimb. Your examination localizes the pain to be in the foot and hoof tester examination reveals pain all around the hoof. A lateral view radiograph of the hoof is taken and shown in Figure 4.2.

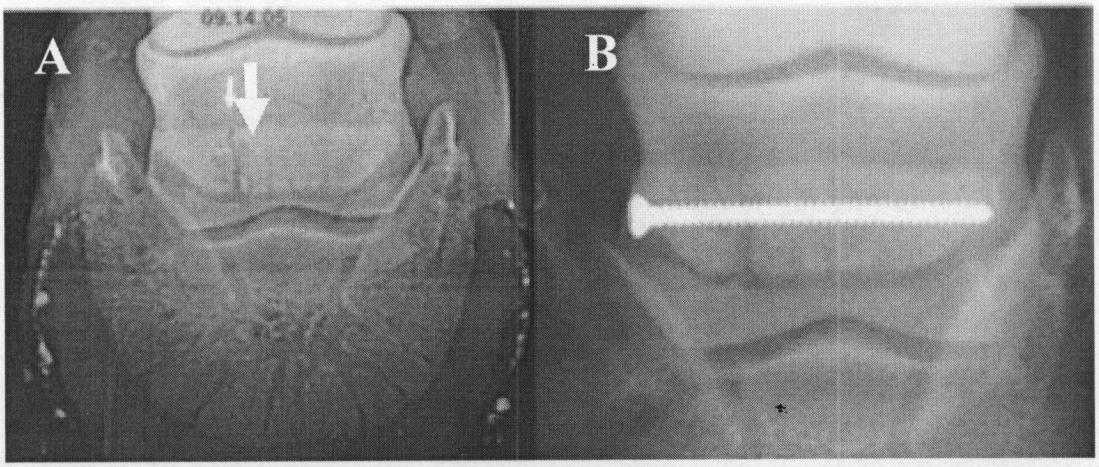

Figure 4.1: Parasagittal fracture of the distal sesamoid bone: **A**, pre-operative radiographic dorsal palmer view; **B** post-operative radiograph showing an interfragmentary screw in place.

Figure 4.2: A lateral view radiograph of the affected hoof.

a) Briefly outline the abnormalities(s) that you can see in Figure 4.2. **(2 marks)**
b) What is your diagnosis in Figure 4.2? **(2 marks)**
c) Outline what would have resulted in the condition in (b) above in this case. **(2 marks)**
d) Discuss the measure(s) you would have put in place during the management of the distal sesamoid bone fracture to prevent the occurrence of the condition in (b) above. **(2 marks)**
e) Discuss in detail how you would manage your diagnosis in (b) above. **(12 marks)**

5) Ophthalmic surgery is one of the most common of the specialized surgeries conducted in small animals.

a) List **six (6)** contents of a basic ophthalmic set that are not found in a general surgical pack. **(3 marks)**
b) List **five (5)** effects of pre-anaesthetic and anaesthetic agents on the eye. **(5 marks)**
c) Indicate how temporary tarsorrhaphy differs from permanent tarsorrhaphy with regard to indications and surgical procedure. **(6 marks)**
d) Write brief notes on the guiding principles surrounding the management of a proptosed canine eye. **(6 marks)**

6) You are a recent graduate and working at UNZA Veterinary Clinics. A client presents to you a 9-year-old crossbreed dog with halitosis and inappettance. The owner tells you that the dog appears to be in pain and refuses to eat. An oral examination reveals a crack in the right maxillary canine tooth.

a) Discuss in detail how you would manage this case (include pre-operative assessment, anaesthesia and postoperative care and possible complications (**15 marks**)
b) Outline the natural defense mechanisms of the oral cavity. (**5 marks**)

7) Salvage procedures are commonly encountered in orthopaedic surgery. A clear understanding of their usefulness and application are essential for a favourable outcome in small animal patients.

a) What is your understanding of the term "*salvage procedure*"? **(2 marks)**
b) List **four (4)** the salvage procedures in orthopaedic surgery. **(4 marks)**
c) Name one such procedure listed in (b) above and fully describe its indications, possible location where it is performed, pre- and post-operative considerations as well as the actual procedure itself. **(10 marks)**
d) How would you plan and execute client education for your chosen procedure in (c) above? Include what you would consider to be practical application(s) of your advice. **(4 marks)**

END OF EXAMINATION

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THE UNIVERSITY OF ZAMBIA END OF YEAR SUPPLEMENTARY EXAMINATIONS

NOVEMBER 2016

VETERINARY PREVENTIVE MEDICINE (VMD 6609)

TIME: **THREE HOURS**

ANSWER : **ALL QUESTIONS**

Q.1. a) Define Veterinary Preventive Medicine (VPM) and state how it is related to Epidemiology? What is the significance of the evolutionary phases of the development of VPM to its current practice?

b) Briefly discuss the concept and principle of nucleic acid-based vaccination and outline the merits and demerits of this mode of vaccine delivery in the control of livestock diseases.

c) Transmission of biological agents is cardinal in the spread of infectious diseases. Using the avian influenza virus as a model, discuss the intricate nature of this element in the perpetuation of diseases.

d) Discuss the general principles governing the enforcement of livestock movement control. **12 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. How would you implement this strategy in an anthrax outbreak situation where you find carcasses in the kraal?

d) What is disinfection? Briefly describe disinfection methods; **12points**

Q.3. a) Briefly define and describe the Test and Slaughter and Depopulation Methods. Compare and contrast the two;

b) Briefly describe Strategic treatment as a disease management strategy giving examples of possible implementation.

c) Name and briefly describe the main Tick Vector Control strategies and state which one would be most appropriate for your country and why?;

d) Discuss the issues involved in planning disease control programmes **12 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 farmers participating in a herd health programme.

c) Briefly define performance targets and shortfalls.

d) What are the main causes of reproductive inefficiency in the dairy herd and how would you address them?

e) Briefly how would you assess the mastitis status of the dairy herd? **14 points**

Q.5. a) What is the major objective of a beef cattle herd health programme? What is a weaned calf crop?

b) List the type of farm records you would require for an assessment of the annual performance of the beef herd.

c) What is the primary objective of a herd health programme in the feedlot?

d) What are the major causes of production and reproductive inefficiencies in the swine herd? **12 points**

Q.6. a) What are the objectives of studying fish diseases?

b) Briefly describe the methods used in the vaccination of fish and state the factors that may affect the efficacy of fish vaccines.

c) Give a brief description of any fish disease you have learnt about and discuss how you would treat or prevent this disease.

d) Briefly discuss the diagnostic methods in fish diseases. **12 points**

Q.7. a) Newcastle disease is the leading infectious disease deterrent to the development of the village poultry subsector in Zambia. Briefly discuss this disease under the following headings:

i) Aetiology

ii) Natural reservoir host(s) and transmission patterns

iii) Clinical signs

iv) Molecular basis of pathogenicity

v) Laboratory diagnosis

vi) Prevention and control

b) Disease outbreaks cost poultry producers and related industries millions of dollars a year in lost revenue. To minimize the losses, methods and practices must be followed.

i) Discuss disease control measures in poultry establishments under the collective term - **bio-security**.

ii) Explain the influence of modern methods of management in poultry disease occurrence.

iii) As a veterinarian explain the significance of nutrition and maternal antibodies in the production of quality chicks and list the factors that may influence them in breeder hens **13 points**

Q.8. a) During a recreational retreat at a crocodile farm, you are introduced to the owner of the farm as a UNZA trained veterinarian. The farmer, excited by this piece of news then tells you about a certain condition that had been affecting his crocodiles. This particular year being extremely cold, he has similar cases already and he takes you personally to check on the crocodiles. As you are moving around with him, you gather the following information:

Signalment: Various ages affected, ranging from Juveniles, rearing to parent stock.

History: In mid June, when it was extremely cold, with minimum night temperatures averaging 2°C and maximum day temperatures oscillating between 14°C and 7°C, some crocodiles were seen to become "*immobilized*". The farmer had thought this was a normal trend as he had previously experienced similar problems, but this year is worse as he is also experiencing mortalities. You further gather from him that he only feeds condemned beef, pork, lamb and other available "red meats."

General examination: Upon checking the ponds where the crocodiles are, you immediately note that when food is thrown in, some crocodiles are unable to move despite looking alert and seemingly interested in the food. Others can barely carry themselves on their legs.

Gross Pathology: You conduct a Post-mortem and find formation of peri-vascular shunts in the venous drainage of the abdominal cavity, accompanied by excessively enlarged kidneys..

The farmer is now hopefully looking up to you as having an answer that will solve his problems.

i) What are you going to tell this hopeful farmer? In your answer, use terms that he will understand and include details concerning the causative agent if any and predisposing factors.
ii) In your diagnostic approach at this farm, what other organs would you wish to have examined and why?
iii) Are there any other complications that may result or occur due to the said condition? What corrective measures can you advice the farmer?

b) At a recent "*media breakfast*" held at the School of Veterinary Medicine and hosted by the Ministry of Agriculture and Livestock (MAL), the Minister announced that they were to spend US $1. 9 million to eradicate rabies in jackals in the newly created Mafinga District of Muchinga Province. Conservationists have advised the Government not to kill the jackals as a way of disease eradication, but to vaccinate them.

i) Define rabies and state how the causative agent is transmitted to humans?
ii) Give a brief outline of clinical signs of a rabid jackal?
iii) In detail, is this vaccination campaign likely to succeed in eradicating this disease in Mafinga District? Support your answer with plausible scientific thinking and arguments?

13 points

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA END OF YEAR EXAMINATIONS

SEPTEMBER 2016

PREVENTIVE VETERINARY MEDICINE (VMD 6609)

INSTRUCTIONS

TIME: 3 HOURS

TOTAL MARKS: 100%

ANSWER ALL QUESTIONS

Question 1

As an expert in Preventive Veterinary Medicine in charge of Southern Province of Zambia, you are tasked by the Minister of Fisheries and Livestock (MoFL) to free the Province from Foot and mouth disease (FDM) using regular vaccination in order to promote export of beef to the EU.

a) Prepare a brief response to the Minster's request explaining the concept of declaration of freedom from disease.
b) Through a method of your choice describe how you would achieve "FMD freedom" in Southern Province.
c) Outline the measures you would put in place before and after you achieve the state of disease freedom.

15 marks

Question 2

a) Define Preventive Veterinary Medicine (PVM) and describe the relationship between PVM and Epidemiology.
b) As a government veterinary officer, briefly discuss how you would enforce the movement of livestock from one country to another within the SADC Region.
c) Briefly discuss how you would mitigate the effects of factors that influence the animals' response to vaccination.
d) Define and classify Environmental Hygiene. Describe how you would carry out disinfection and environmental control measures in the case of a suspected Anthrax outbreak where cattle are found dead in the kraal?
e) Briefly define and describe the Test and Slaughter and Depopulation methods and give examples of their current application in Zambia or elsewhere.

16 marks

Question 3

a) One of the fundamental requirements of a successful herd health programme is **a simple, reliable system of recording** animal health events and production performance. What are the fundamental requirements of such a system?

b) List the components of a herd health programme and provide a brief summary of what they entail to the success of the programme.

c) Discuss the components of a well planned swine herd health programme.

d) What is the main objective of a herd health programme in the dairy and how can it be achieved? What are the methods for achieving optimum reproductive efficiency in the dairy?

15 marks

Question 4

a) Name the parameters that determine the profitability of a beef cattle herd health programme. To which influences are they subject?

b) What are the objectives of herd health programme in a feedlot set-up?

c) Discuss the different treatment methods in fish management.

d) Briefly discuss how you would investigate a disease outbreak in the fish pond.

15 marks

Question 5

a) As a veterinarian, explain the significance of nutrition and maternal antibodies in the production of quality chicks and list the factors that may influence them in breeder hens.

b) As a manager of an upcoming hatchery. Discuss disease management in a hatchery with emphasis on:

   i) Prevention of disease transmission (Biosecurity)

   ii) Problems of chicks after hatching

12 marks

Question 6

a) Briefly outline the difference(s) in clinical signs caused by velogenic strains of Newcastle disease and highly pathogenic avian influenza in village chickens.

b) What are the challenges of prevention and control of Newcastle disease in village chickens?

c) Suggest mitigatory measures that would improve poultry production in the traditional sector.

12 marks

Question 7

a) What are the advantages of Game ranching over other types of farming?

b) Explain in detail how game capture can be a risk undertaking, including considerations before capture and after.

c) Before capturing an animal, you need to assess its health status. What pertinent physiological parameters should you assess and how do you go about doing that?

d) With necessary detail, explain the phases of drug "response" in a darted animal, clearly outlining what one shall see in each of the phases.

15 marks

END OF EXAMINATION

UNIVERSITY OF ZAMBIA END OF YEAR EXAMINATION
SEPTEMBER 2016

VETERINARY JURISPRUDENCE AND EXTENSION (VMD 6701)

Instructions:
This paper has five questions. You should attempt all of them
All questions carry equal Marks
Time: 3 hours

Question 1

A. What do you understand by the term "participatory extension"? Explain, giving suitable example of such a project you know leading to animal disease control. (10)

B. Write the important criteria you would use to select an extension agent to work in a sub-area of a rural Zambian district. (10)

Question 2.

How would you introduce a test-and-slaughter CBPP campaign in a traditional farming sector of Zambia? Describe the approach you would undertake to obtain stakeholders cooperation to achieve the intended target. (20)

Question 3.

What are the different Zambian laws affecting veterinarians / livestock workers. Describe each one of them briefly. Mention common offences against animals that are punishable under Zambian law.(20)

Question 4

A. Describe the reasons and different methods in detail of blood examination from forensic point of view. Which one is the most acceptable in the court of law? (15)

B. Write the morphological characteristics of the RBCs in cattle, horse, dog and chicken. (5)

Question 5.

What is Euthanasia? Write the common methods of euthanasia being practiced in the veterinary profession. What are the different indications for a veterinarian to present euthanasia as an option. (20)

The University of Zambia End of Year Examinations

Veterinary Public Health (VMD 6800)

September, 2016

INSTRUCTIONS

This Examination paper has two sections: Section A and Section B
Answer ALL questions in Section A and choose ANY THREE (3) questions from Section B.
Each question must be answered on a separate booklet.
ALL questions carry equal marks
Total Marks: 100
Time: 3 hours

SECTION A

QUESTION 1

Schistosomiasis and cryptosporidiosis are some of the important zoonotic parasitic diseases affecting man. In a table format, outline the following aspects of each disease in animals.

i. Causes
ii. Transmission
iii. Clinical disease
iv. Public health importance

10 marks

QUESTION 2

You are invited by the Environmental Council of Zambia to give a talk to second year students on the effects of man's activities on the environment. Using as much as possible simple terminology, what would you include in this talk relating to pollution as a result of man's activities. In your talk, include the effects of these pollutions on life support systems, their sources and how they can be prevented or controlled once pollution has occurred.

10 marks

QUESTION 3

What is waste water?

Briefly but with necessary detail discuss the following

i. Chemical oxygen demand (COD)
ii. Biochemical oxygen demand (BOD).
iii. Elaborate succinctly on carcinogenic and mutagenic pollutants
iv. Elaborate succinctly on sociological and psychological hazards

v. Elaborate succinctly on properties of natural water
vi. Elaborate succinctly on water pollution

10 marks

QUESTION 4

Ebola virus disease (EVD), formerly known as Ebola hemorrhagic fever is a severe acute viral illness, often fatal in humans.

a) Name the family and the five species of the genus *Ebolavirus* that causes Ebola virus disease?
b) How is the Ebola virus perpetuated in nature?
c) Mention at least 5 symptoms of Ebola virus disease
d) Briefly explain how, starting from the forest, an Ebola virus disease can break-out in the community. i.e. Ebola virus transmission at the human animal-interface
e) Describe the infection prevention measures for Ebola virus disease.

10 marks

SECTION B

QUESTION 5

a) Define Yellow fever and discuss how it can be transmitted.

b) Name the most important vectors of Yellow fever and their most likely breeding sites.

c) Discuss how RVF in humans can be prevented.

d) Discuss the historical basis of the name RVF. Why should we know and worry about it in our Region?

20 marks

QUESTION 6

As a recent graduate, the Lusaka Water & Sewerage Company engages you on a one year contract, with intention of making the position permanent based on performance. The panel of interviewers for the company gives you the following synopsis:

"Water quality is a major issue concerning Lusaka Water and Sewerage Company with routine issues being:

1) Leakages or rupture of pipes and other reticulation networks);
2) Runoff from agricultural fields where animal waste has been improperly applied and the emerging issues of herbicides usage and abattoir waste water discharges.

These nonpoint discharges may result in surface runoff with high concentrations of ammonia, biochemical oxygen demand (BOD), total and faecal coliform bacteria, total suspended solids, and phosphorus which can cause low dissolved oxygen (DO) in streams. Ecosystem impacts may include fish kills, changes in the natural food webs, algae growth, and losses of biological diversity in stream habitat. Both the structure and function of aquatic ecosystems can be impaired. Impacts may include increased cost for drinking water, treatment of surface water supplies, reduced harvest of fish and loss of aesthetic beauty of such streams."

Then you are asked to answer the following questions:

i) Given the above scenario, what remedial measures will you put in place at the water treatment plant which abstracts water from such a stream affected by the above scenario?

ii) With necessary detail explain how you can assure portability of drinking water from such a source?

20 marks

QUESTION 7

Vector-borne zoonoses have serious public health and social-economic implications, mainly in tropical and subtropical regions.

a) List four (4) vector-borne protozoan parasitic zoonoses

b) Discuss one (1) such vector-borne protozoan parasitic zoonosis under the following headings:

i) Causative agent and transmission

ii) Disease in animals

iii) Disease in humans

iv) Prevention and control

20 marks

QUESTION 8

Zoonotic helminth infections are reported to have either newly appeared in human populations or have always existed but are increasing in incidence or geographic range. Many of these are of major economic and public health importance in developing countries like Zambia and their control is urgently needed.

a) Briefly outline the public health importance for each one of the following zoonotic helminthes (**2 marks each**)

i. *Taenia solium*

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ii. *Taenia saginata*

iii. *Echinococcus granulosus*

iv. *Trchinella spiralis*

b) With reference to its life cycle and risk factors, outline the control options for *Taenia solium* in endemic communities and the challenges you would face in implementing them. (**4 marks**)

c) *Hymenolepis nana* or the dwarf tapeworm is described as the smallest tapeworm infecting man and is found worldwide. Outline its life cycle and its pathogenesis in humans. (**4 marks**)

d) Outline how *Dipylidium caninum* is transmitted to humans and the clinical symptoms associated with the infection in the human host. (**4 marks**)

20 Marks

END OF EXAM

THE UNIVERSITY OF ZAMBIA END OF YEAR SUPPLEMENTARY EXAMINATIONS

NOVEMBER 2016

VETERINARY PREVENTIVE MEDICINE (VMD 6609)

TIME: **THREE HOURS**

ANSWER: **ALL QUESTIONS**

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b) Briefly discuss the concept and principle of nucleic acid-based vaccination and outline the merits and demerits of this mode of vaccine delivery in the control of livestock diseases.

c) Transmission of biological agents is cardinal in the spread of infectious diseases. Using the avian influenza virus as a model, discuss the intricate nature of this element in the perpetuation of diseases.

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General examination: Upon checking the ponds where the crocodiles are, you immediately note that when food is thrown in, some crocodiles are unable to move despite looking alert and seemingly interested in the food. Others can barely carry themselves on their legs.

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The farmer is now hopefully looking up to you as having an answer that will solve his problems.

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END OF EXAMINATION

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i) What are you going to tell this hopeful farmer? In your answer, use terms that he will understand and include details concerning the causative agent if any and

[redacted]

examined and why?

iii) Are there any other complications that may result or occur due to the said condition? What corrective measures can you advice the farmer?

b) At a recent "*media breakfast*" held at the School of Veterinary Medicine and hosted by the Ministry of Agriculture and Livestock (MAL), the Minister announced that they were to spend US $1. 9 million to eradicate rabies in jackals in the newly created Mafinga District of Muchinga Province. Conservationists have advised the Government not to kill the jackals as a way of disease eradication, but to vaccinate

History: In mid June, when it was extremely cold, with minimum night temperatures averaging 2°C and maximum day temperatures oscillating between 14°C and 7°C, some crocodiles were seen to become "*immobilized*". The farmer had thought this was a normal trend as he had previously experienced similar problems, but this year is worse as he is also experiencing mortalities. You further gather from him that he only feeds condemned beef, pork, lamb and other available "red meats."

General examination: Upon checking the ponds where the crocodiles are, you immediately note that when food is thrown in, some crocodiles are unable to move despite looking alert and seemingly interested in the food. Others can barely carry themselves on their legs.

Gross Pathology: You conduct a Post-mortem and find formation of peri-vascular shunts in the venous drainage of the abdominal cavity, accompanied by excessively enlarged kidneys..

The farmer is now hopefully looking up to you as having an answer that will solve his problems.

i) What are you going to tell this hopeful farmer? In your answer, use terms that he will understand and include details concerning the causative agent if any and predisposing factors.
ii) In your diagnostic approach at this farm, what other organs would you wish to have examined and why?
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i) Define rabies and state how the causative agent is transmitted to humans?
ii) Give a brief outline of clinical signs of a rabid jackal?
iii) In detail, is this vaccination campaign likely to succeed in eradicating this disease in Mafinga District? Support your answer with plausible scientific thinking and arguments?

13 points

END OF EXAMINATION

Question 3

Give a concise description of the classification of enzymes (use of examples is highly recommended). [20 marks]

Question 4

Carbamoyl phosphate is at the biosynthetic hub of urea and pyrimidines.

a) How is the competition for use of carbamoyl phosphate avoided between the two pathways. [2 marks]

b) Outline with structures, synthesis of urea. [12 marks]

c) Draw the general structure of a pyrimidine including the numbering of the atoms and the sources of these atoms. [6 marks]

Question 5

Glycogen degradation is NOT the same as glycogen synthesis because the two processes proceed through two distinct pathways.

a) Give a three (3) point explanation of why glycogen synthesis and breakdown proceed through two distinct pathways. [3 marks]

b) Describe the step by step enzymatic degradation of glycogen. [17 marks]

Question 6

With respect to porphyrin synthesis

a) Give an outline of the porphyrin synthesis pathway (use of structures is optional) [10 Marks]

b) Describe the role of glucose in the pathway above and provide a logical explanation why this is as such. [5 Marks]

c) Describe how ingestion of oil based paints can affect an animal. [5 Marks]

End of Examination

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

UNIVERSITY SUPPLEMENTARY EXAMINATIONS - November, 2016

VMB 2200 - VETERINARY BIOCHEMISTRY

TIME : **THREE (3) HOURS.**

INSTRUCTIONS : **THERE ARE SIX (6) QUESTIONS, ANSWER ANY FIVE (5) QUESTIONS**

ALL QUESTIONS CARRY EQUAL MARKS.

Question 1

The success of translation depends on the correct formation of the initiation complex.

a) Clearly, give a step by step description of the formation of the initiation complex in prokaryotes. [15 marks]

b) Peptidyl transferase possesses the enzymatic activity of the 50S subunit. Name one antibiotic that targets this activity of the enzyme and explain why the named antibiotic is not widely used. [5 marks]

Question 2

Describe the various features of DNA. [20 marks]

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UNIVERSITY OF ZAMBIA

SUPPLEMENTARY EXAMINATIONS – OCTOBER 2016

VETERINARY PARASITOLOGY (VMP 4400)

TIME: THREE (3) HOURS

ANSWER: ALL QUESTIONS

ANSWER EACH SECTION IN A SEPARATE ANSWER BOOK

SECTION A: PROTOZOOLOGY

Q1. Clearly **EXPLAIN** the term piroplasms to sub-species levels (**20 Marks**).

Q2. Write **BRIEF NOTES** on **ANY FOUR (4)** of the following topics (**20 Marks**).

a) **Protozoa (5 Marks).**

b) ***Trichomonus foetus*** infection in cattle **(5 Marks).**

c) Transmission in **Tick-borne** protozoan parasites **(5 Marks).**

d) Modes of **reproduction** protozoan parasites **(5 Marks).**

e) Modes of **locomotion** in protozoa in protozoan parasites **(5 Marks).**

f) **Biotic potential** in protozoan disease outbreak **(5 Marks).**

PLEASE TURN OVER

SECTION B: HELMINTHOLOGY

Q3. You are a recent veterinary graduate from UNZA and have been posted to Mongu, western province. A cattle farmer comes to you for professional advice. He informs you that he took two of his animals to the abattoir for slaughter to raise money for his children's school fees. He says that after meat inspection, he was informed that the livers from the animals were condemned and could not be sold because they contained *Fasciola* parasites.

a) Explain to the farmer what these parasites are (**2 marks**)
b) How did the cattle get these parasites and how did the parasites get to the liver (**10 marks**)
c) The farmer would also like to find out if there are factors that influence the production of the infective stages of the parasite. Outline these factors if any (**5 marks**)
d) What effects do these parasites have on the cattle? (**3 marks**)

Q4. Write **SHORT NOTES** on **ANY FOUR (4)** of the following topics:

a) *Ascaridia gali.* **(5 marks).**

b) *Thelezia gulosa.* **(5 Marks)**

c) The life cycle of *Echninococcus granulosus.* **(5 Marks)**

d) A tapeworm whose definitive host is a ruminant. **(5 Marks)**

e) Cutaneous larval migrans (CLM). **(5 Marks)**

f) Abdominal cysticercosis. **(5 Marks)**

PLEASE TURN OVER

SECTION C: ENTOMOLOGY

Q5. You are the Chief Veterinary Entomologist of the Department of Veterinary Services in Lusaka. Your Director has tasked you to control animal trypanosomiasis in Chirundu District of Lusaka Province. The area shares a long border with the Lower Zambezi National Park.

a) Identify the Order and Genus of the main vector of trypanosomiasis in Chirundu (**5 marks**)

b) List any three vector control strategies you can use to combat the disease. **(5marks)**

c) Given the ecology of the area (densely populated, plenty of open water bodies), explain the limitations of using aerial chemical spraying. **(5 marks)**

d) How would you stop re-invasion of the controlled area by the vector **(5 marks).**

Q6. Make brief notes on **ANY FOUR (4)** of the following:

a) Define larviposition and give example of an insect that larviposits **(5 marks).**

b) Briefly discuss myiasis and how insects cause myiasis **(5 marks).**

c) Name any three distinguishing characteristics between hard and soft ticks **(5 marks).**

d) What is the difference between holometabolus and hemimetabolous reproduction in Arthropoda **(*5 marks*).**

e) List any four morphological differences between insects and ticks **(5 marks).**

f) What role do salivary glands of arthropods (such as mosquitoes or tsetse flies) play in the transmission of protozoan parasites **(5 marks).**

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA END OF YEAR SUPPLEMENTARY EXAMINATION –October/November 2016

Veterinary Clinical Pathology - VMD 5100

Instructions	:	**Answer ALL questions**
Time	:	**3 Hours**
Total	:	**100 marks**

Question 1.

Give the most appropriate specimen to be collected collected and preservative to be used in each of the following suspected diseases of livestock for laboratory confirmation.

(A) 1. Foot and Mouth Disease, 2. African Horse Sickness 3. Rabies 4. New Castle Disease. 5.African Swine Fever and 6. Enzootic Bovine Leucosis

(B) 1. Haemorrhagic Septicaemia, 2. Anthrax, 3. Contagious Bovine Pleuro-pneumonia, 4. Brucellosis 5. Para-tuberculosis and 6. Black leg

(C) 1. Heartwater , 2. East Coast Fever, 3. Globidiosis , 4. Babesiosis, 5.Trypanosomiasis and 6. Cryptosporidiosis

(D) 1. Bovine Schistosomiasis, 2. Brooder Pneumonia, 3. Mange, 4. Subclinical bovine Mastitis, 5. Ascariasis and 6. Haemonchosis (24)

Question 2

A. Describe the objectives of the canine vaginal cytology. Give a brief cytological account of the different stages of the oestrus cycle in dogs. (6)

B. A 9 year old German shepherd dog was presented to a veterinarian with a complaint of weight loss, polyuria, depression and occasional vomiting. The following are the laboratory findings given in the table below. (10)

Haematology		**Values**	**Urine examination**		**Values**
1	PCV	42 %	12	Colour	Yellow
2	HB	14 gms / dl	13	SPG	1.031
3	Plasma Protein	6 gms /dl	14	pH	6.3
4	TWBC	12,000/ul	15	Glucose	+++++
5	Seg Neut	9,600/ul (80%)	16	Ketones	+++
6	Band Neut	0 (0%)	17	Sediment - Microscopic	-ve
7	Lymphocyte	1800 /ul (15%)	**Blood Chemistry**		**Values**
8	Monocyte	360/ul (3%)	18	Glucose	400 mg /dl
9	Eosinophils	240 /ul (2%)	19	Cholesterol	280 mg/dl
10	Platelets	200,000 /ul	-	-	-
11	Reticulocytes	10,000 /ul	-	-	-

Interpret **all the 19** parameters given above with that of normal you know in dogs and discuss the deviated findings giving your **laboratory diagnosis** of this patient. (10 marks)

Question 3

i. Define biomarkers. Justify the principle of biomarkers (2+5 marks).

ii. Using BNP as a prototype, describe the properties of an ideal biomarker (5 marks).

iii. Write short notes on Troponin (5 marks)

iv. Write short notes on urine specific gravity (3 marks)

Question 4

Discuss the following;

a) Monocytosis (3 marks).
b) Lugol's iodine (3 marks).
c) Hemopoiesis (4 marks).
d) Type III hypersensitivity (4 marks).
e) Schilling index (3 marks)
f) Bone marrow examination indications and locations of specimen collections (3 marks)

Question 5

a) Compare and contrast Gamma-Glutamyl Transferase and Alkaline Phosphatase (5 marks).
b) Discuss the evaluation of liver damage and liver function (5 marks).
c) Discuss in detail the principle of using a hemocytometer in the laboratory for blood cell enumeration and evaluation (7 marks).
d) Write all you know about alloantibodies, major cross and minor cross matching (3 marks)