

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE EXAM 2008/2009 1ST AND 2ND SEMESTER

VMC 221.....	Veterinary Embrology
VMC 321.....	Veterinary Histology
VMC 331.....	Veterinary Biochemistry
VMC 341.....	Veterinary Physiology (Deferred/Supplementary)
VMC 511.....	Veterinary Clinical Medicine I
VMC 522.....	Veterinary Operative Surgery I
VMC 522.....	Veterinary Operative Surgery I (Supplementary)
VMC 621.....	Veterinary Operative Surgery II
VMC 622.....	Veterinary Operative Surgery III
VMC 631.....	Theriogenology
VMD531.....	Veterinary Epidemiology
VMD 651.....	Veterinary Public Health
VMP 411.....	General Veterinary Pathology I
VMP 412.....	Veterinary Pathology II (Practical Examination)
VMP 441.....	Veterinary Parasitology

THE UNIVERSITY OF ZAMBIA

FIRST SEMESTER EXAMINATIONS – NOVEMBER/DECEMBER, 2008

VMB 221 –VETERINARY EMBROLOGY

TIME: THREE (3) HOURS

**INSTRUCTIONS: ANSWER ALL THE QUESTIONS IN SECTION A AND ANY
OTHER TWO IN SECTION B. ALL QUESTIONS CARRY EQUAL 20 MARKS**

SECTION A

1. In one or two sentences briefly define the following:

- i) Zona Pellucida
- ii) Primitive Streak
- iii) Gastrulation
- iv) Subaortic Stenosis
- v) Mullerian duct
- vi) Urachus
- vii) Epigenetic theory
- viii) Karyokinesis
- ix) Dizygous twinning
- x) Somite

2. Write short notes on the following:

- i) Conducting system of the heart
- ii) Sperm transport in the female reproductive system
- iii) Developmental abnormalities of the respiratory System
- iv) Three germ layers responsible for tissue and organ formation during embryonic stage of development

3. Briefly discuss

- i) Inter-sex conditions in animals
- ii) Development of skeletal muscles
- iii) Cleavage in birds
- iv) Barriers to fertilization

SECTION B

- 4. The development of the kidney systems in mammals is well understood. In detail describe the sequence of kidney systems development as an example of recapituration
 - 5. The male and female duct systems development are related to the absence or presence of the Y-chromosome. In detail discuss the development of the male and female duct systems not forgetting to mention their derivatives
 - 6. In detail discuss atrial and ventricular septation during cardiac development
-

END OF EXAM

THE UNIVERSITY OF ZAMBIA

FIRST SEMESTER EXAMINATIONS –NOVEMBER 2008

VMB 321 –VETERINARY HISTOLOGY

TIME: THREE (3) HOURS

**INSTRUCTIONS: ANSWER ALL THE QUESTIONS IN SECTION A AND ANY
OTHER TWO IN SECTION B. ALL QUESTIONS CARRY EQUAL 20 MARKS**

SECTION A

1. In a sentence, give brief description of the following:

- a) Macula densa
- b) Dust cells
- c) Mucosa of the GIT
- d) Tunica vaginalis
- e) Histological elements of the seminiferous tubules
- f) Epicardium
- g) Ameloblasts
- h) The Lyssa
- i) Pulvinus dentalis
- j) Spermatocytogenesis

2. Write short notes on the following:

- a) Nephrons
- b) Interstitial endocrine cells
- c) The endocardium
- d) Taste buds
- e) The red pulp

3. In a sentence describe the histology of the following:

- a) Lentiform papillae
- b) Bronchi mucosa
- c) Vomeronasal organ
- d) Epiglottis mucosa
- e) Functional zone of the endometrium

SECTION B

1. Discuss in detail the general organization of the lymphoreticular system

2. Describe in detail the functional histology of the spleen

3. In detail discuss the three splenic blood circulation theories

**THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
2008 ACADEMIC YEAR FIRST SEMESTER
FINAL EXAMINATIONS – NOVEMBER/DECEMBER 2008**

VMB 331: VETERINARY BIOCHEMISTRY I

DURATION: THREE (3) HOURS

INSTRUCTIONS: There are two sections in this paper, A and B. Answer **all** the three questions in SECTION A and **any two** questions in SECTION B. All questions carry equal marks.

SECTION A - 60 MARKS

Q1

- a) Define the term, 'peptide bond' and show how this bond is formed. [2]
- b) Draw the structure of the following peptide:
Arginyl-aspartyl-alanyl-phenylalanyl-histidine. [3]
- c) Name and define the different levels of structural organization of proteins. [4]
- d) With the aid of diagrams, describe in detail, the forces that stabilize the tertiary and quaternary structure of a protein. [11]

Q2 a) Haemoglobin is a molecule that typifies structural organisation of proteins

- i) Name and state the number of subunits making up the major adult vertebrate haemoglobin molecule. [2]
- ii) What is the function of haemoglobin and briefly, explain the advantage of the presence of the number of these subunits in haemoglobin mentioned in (i) above to its function? [2]
- iii) Explain the effect of 2, 3 bisphosphoglycerate (2, 3 BPG) on oxygen affinity of haemoglobin and show this effect graphically, in the presence and absence of 2, 3 BPG. [4]
- iv) Name two genetic diseases in which the structure of haemoglobin is affected and explain briefly how the haemoglobin structure in each of these diseases is affected. [2]

- b)
- What are enzyme inhibitors and state the two broad types of enzyme inhibition? [2]
 - Define competitive enzyme inhibition, state how it can be overcome and describe one practical application of competitive enzyme inhibition. [5]
 - Define enzyme group specificity and, state and explain briefly whether the practical application of competitive enzyme inhibition uses the phenomenon of enzyme group specificity. [3]

Q3 Describe, in detail, the glycolytic metabolism of the disaccharide maltose. Outline only the reactions in which ATP is involved, giving names, full structures and the enzymes responsible for the reactions you have outlined. Using these reactions, calculate the total and net number of ATP molecules synthesized in the glycolytic metabolism of two molecules of the disaccharide, maltose. [20]

SECTION B – 40 MARKS

- Q4 a) Name the three proton pumps found in the electron transport chain and which of the named pump(s) is/are inhibited by the cyanide ions (CN^-), azide ions (N_3^-) and carbon monoxide (CO). [4]
- b) By way of deducing the overall reaction equation of the oxidation of FADH_2 by oxygen, calculate the change in standard oxidation-reduction potential, $\Delta E_o'$, and standard free energy change, ΔG° , for the oxidation of one mole of FADH_2 by oxygen (O_2) responsible for the driving force of oxidative phosphorylation given the following information;
- $$\begin{array}{ll} \frac{1}{2}\text{O}_2 + 2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2\text{O} & E_o' = +0.820\text{V} \\ \text{FAD}^+ + 2\text{H}^+ + 2\text{e}^- \rightarrow \text{FADH}_2 & E_o' = -0.220\text{V} \end{array}$$
- (Faraday's constant = $23.06 \text{ kcal V}^{-1}\text{mol}^{-1}$)
- Show **all** your working!* [6]
- c) Gluconeogenesis and glycolysis are not a reverse of each other. Clearly, write the four gluconeogenesis reactions and the enzymes that catalyze these reactions, which are used to bypass the three irreversible reactions of glycolysis. [10]

- Q5 Describe the degradation of glycogen and state how the products of glycogen degradation are transported out of the cells. Hence show how the product(s) are converted to suitable precursor(s) for subsequent metabolism and name the pathway in which they can be metabolized. [20]
- Q6 a) In NOT more than five sentences for each, write clear notes on each of the following;
- i) Photolysis of water and the Hill equation
 - ii) Non-cyclic photophosphorylation
 - iii) Relationship of the light and dark reactions of photosynthesis
 - iv) Sources of ATP and NADPH used in the reduction of carbon dioxide in the Calvin cycle of photosynthesis
 - v) Photosynthetic carboxylation [15]
- b) The purple autotrophic sulphur bacteria derive their carbohydrates from hydrogen sulphide, H_2S and carbon dioxide while releasing elemental sulphur, S and water. Write a plausible chemical equation similar to photosynthesis for this. [5]
- Q7 Fatty acids are one of the major sources of energy in the body. Describe the complete oxidation of the fatty acid $17:2\Delta^{9,12}$ and prepare an energy balance sheet. [20]

THE UNIVERSITY OF ZAMBIA
UNIVERSITY FIRST SEMESTER EXAMINATIONS- DECEMBER, 2008
DEFERRED/SUPPLEMENTARY EXAMINATION

VMB 341
VETERINARY PHYSIOLOGY 1

INSTRUCTIONS:

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

1. Give and explain the classification of nerve fibres [20 marks].
2. Write short notes on each of the following:
 - a). Hering- Breuer reflex [5 marks].
 - b). Bohr's effect [5 marks].
 - c). Action potential of the cardiac muscle [5 marks]
 - d). Dead space air [5 marks].
3. (a). Describe the anatomy of barocedceptors [10 marks]
(b) Explain the response of baroreceptors to changes in arterial blood pressure [10 marks].
4. Describe the process of transport of oxygen from the lungs to tissues. [20 marks]
5. Discuss the role of the gastrointestinal tract in the control of food intake with particular reference to the nutritional factors and alimentary factors. [20 marks]
6. a). What are the components of bile that are important in digestion and absorption. [10 marks].
b). Discuss the control of biliary secretion. [10 marks]

7. Write short explanatory notes on the following:-

- a). Rumination
- b). The stimuli or signals determining calorific requirement
- c). Gastrin
- d.) The drinking centre and causes of thirst.

[20 marks).

END OF EXAMINATION

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

**2008/9 ACADEMIC YEAR FIRST SEMESTER
FINAL EXAMINATIONS**

VMC 511: VETERINARY CLINICAL MEDICINE I

TIME: THREE HOURS

INSTRUCTIONS:

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

SECTION A

1. Miss Tula calls you to say that her five-month-old Boxer dog is having problems with his breathing.
 - a) What would you like to know from Miss Tula concerning the history of this dog? **(6 marks)**
 - b) Describe how you would carry out the clinical examination of this Boxer in detail, noting the abnormalities you would be looking out for. **(14 marks)**
2. Examination of the pulse in conjunction with examination of the heart, superficial veins and circulating blood can enable a clinician formulate an opinion of the state of the cardiovascular system.
 - a) Describe anatomical location(s) and techniques you would use to examine the pulse of an old dairy cow. **(5 marks)**
 - b) Describe the properties of pulse that you would examine for in domestic animals and state their importance. **(10 marks)**
 - c) List any **five (5)** factors that would cause variation in the properties of pulse. **(5 marks)**
3. Discuss the diagnostic techniques used in the diagnosis of gastro-intestinal tract conditions of horses. **(20 marks)**

SECTION B

4. Dr Chong, a fellow veterinarian, refers a Bull mastiff to you with a note "Has problem with lymphatic system, please investigate."
- To what structures would you direct your investigation? **(6 marks)**
 - What are the possible abnormalities you may encounter in your palpation of the structures in (a) above? **(10 marks)**
 - What other investigatory tools would you employ beyond the physical examination of the patient? **(4 marks)**
5. Neurology is a medical speciality dealing with disorders of the nervous system. Specifically, it deals with the diagnosis and treatment of all categories of disease involving the central, peripheral, and autonomic nervous systems, including their coverings, blood vessels, and all effector tissue, such as muscle.
- Discuss the common motor and sensory disturbances that can affect the nervous system in small animals. **(8 marks)**
 - Do the disturbances in (a) add value in identifying disease conditions? Justify your answer. **(4 marks)**
 - Describe the challenges that you may encounter in demonstrating disturbances related to sensitivity (analgesia), hearing (deafness), sight (blindness), smell (anosmia) and taste. **(8 marks)**
6. Give a brief account of how you would investigate the following:
- A two-year-old mongrel with a bilateral otic discharge. **(10 marks)**
 - A six-year-old Labrador with corneal oedema and neo-vascularization of the cornea **(10 marks)**
- 7.
- A two-year-old male dog is presented to your private practice with a history of anuria. The owner tells you that the dog has been weak and dull for two days. On examination, you find that the dog has halitosis and congested mucous membranes.
 - What condition do you suspect? **(2 marks)**
 - Outline in detail how you would systematically examine this patient to come up with a definitive diagnosis. **(8 marks)**
 - What other physical findings do you expect in the condition in (i) above? **(5 marks)**
 - Briefly explain how you would comprehensively examine the external genitalia in a male dog. **(5 marks)**

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

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

**2008/9 ACADEMIC YEAR SECOND SEMESTER
FINAL EXAMINATION**

VMC 522: OPERATIVE SURGERY I

TIME: THREE HOURS

INSTRUCTIONS

Please read the instructions and each question carefully.

1. Answer **ALL** questions in Section A and **THREE** questions in Section B.
 2. Write the answers to each question in a separate answer book.
 3. **ALL** questions carry equal marks.
 4. Use of diagrams to illustrate answers is encouraged.
-

SECTION A

1. You are presented with a gilt that has become completely anorectic. The history is such that the gilt is kept as a pet in the household and that the owner first noticed brown-black tarry faeces a few days before presentation. He says its appetite reduced until it is now completely anorectic. You carry out a physical examination and your notable findings include a rapid shallow respiration with a slightly subnormal temperature.
 - a) What is your diagnosis? **(5 marks)**
 - b) Describe how you would surgically manage the condition. (Including patient preparation, anaesthesia and post operative care.) **(15 marks)**
2. Diagnostic imaging is a significant part of the process of arriving at a definitive diagnosis in veterinary practice.
 - a) Explain the production of x-rays. **(5 marks)**
 - b) Explain how a sonographic image is produced in B-mode machines. **(4 marks)**
 - c) Briefly outline **six (6)** hinderances to the production of a diagnostic radiograph. **(6 marks)**
 - d) Define and give examples in the following terms: **(5 marks)**
 - i. Acoustic impedance
 - ii. Hyperechoic
 - iii. Anechoic
 - iv. Hypoechoic
 - v. Echogenic

3. Surgery of the oesophagus (cervical, thoracic, and abdominal) in small animal practice is considered more difficult than surgery on other parts of the digestive tract. Discuss this in terms of:
- a) Surgical anatomy. **(5 marks)**
 - b) Pre-operative care/assessment. **(5 marks)**
 - c) Surgical techniques performed. **(5 marks)**
 - d) Postoperative care and possible complications. **(5 marks)**

SECTION B

4. Outline the clinical correlations and the radiographical findings of the following:
- a) Malignant nasal neoplasm **(5 marks)**
 - b) Nutritional Secondary hyperparathyroidism **(5 marks)**
 - c) Megaoesophagus **(5 marks)**
 - d) Generalised cardiomegaly **(5 marks)**
5. Breeding for more productive dairy cows has led to cows with larger and deeper abdominal cavities which allow for more movement of the abomasum. This leads to the abomasum being displaced to either the left or the right side.
- a) Describe the conservative therapy in abomasal displacement. **(4 marks)**
 - b) **List** the surgical options available in the management of left-sided displacement of the abomasum. **(4 marks)**
 - c) Describe in detail the procedure of any one of the options listed in (b), including anaesthesia and advantages and disadvantages of the procedure. **(12 marks)**
6. Fistulae in veterinary surgery can be surgically repaired using various techniques
- a) **List** the available techniques of fistulae repair. **(4 marks)**
 - b) With the aid of appropriate sketches, choose one technique in (a) above and describe it in detail (excluding anaesthesia). **(8 marks)**
 - c) What are the cause(s), preoperative considerations, postoperative care/assessment and possible complications of acquired oronasal fistulae in small animals? **(8 marks)**
7. Colic is a common cause of morbidity and mortality in equine practice.
- a) Comprehensively discuss how you would collect peritoneal fluid in an adult horse with colic and aspects of how peritoneal fluid analysis is carried out, interpreted, and its use as a prognostic determinant. **(10 marks)**
 - b) Outline the salient differences in the clinical examination of a colicky foal and the examination of an adult horse with colic. **(5 marks)**
 - c) **List** the **five (5)** main areas targeted in the medical management of equine colic. **(5 marks)**

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

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

**2008/9 ACADEMIC YEAR SECOND SEMESTER
SUPPLEMENTARY EXAMINATIONS**

VMC 522: OPERATIVE SURGERY I

TIME: THREE HOURS

INSTRUCTIONS

Please read the instructions and each question carefully.

1. Answer **ALL** questions in Section A and **THREE** questions in Section B.
 2. Write the answers to each question in a separate answer book.
 3. **ALL** questions carry equal marks.
 4. The use of diagrams to illustrate answers is encouraged.
-

SECTION A

1. Endoscopy is a valuable tool used in the evaluation of the equine respiratory tract.
 - a) Describe the principle behind endoscopy **(4 Marks)**.
 - b) Describe in detail how you would insert an endoscope into a 12 year old 500kg gelding to evaluate its respiratory system **(10 Marks)**.
 - c) List **three (3)** conditions that can be diagnosed by endoscopy **(3 Marks)**.
 - d) Briefly describe what you would see in each of the conditions listed in (c) above **(3 Marks)**.
2. Outline the radiological features of the following conditions: **(5 marks each)**
 - a) Dental Caries
 - b) Chondrodysplasia
 - c) Pregnancy
 - d) Mid-abdominal mass
3. Describe the indications and procedure of the following techniques in the ox. **(5 marks each)**.
 - a) Rumenostomy
 - b) Rumenotomy
 - c) Abomasotomy
 - d) Abomasopexy

SECTION B

4. What are the advantages and disadvantages of the following surgical approaches to the abdomen in bovidae **(20 marks)**.
 - a) Ventral midline approach
 - b) Paramedian approach
 - c) Flank approach

5. It is common in veterinary practice to encounter hernias due to various causes.
 - a) Briefly discuss the classification of hernias. **(6 marks)**
 - b) What are the clinical signs associated with diaphragmatic hernia/tear? **(5 marks)**
 - c) Outline the surgical correction of a diaphragmatic hernia. **(9 marks)**

6. Write **brief but concise** notes on any four of the following surgical procedures in terms of indications, execution and possible complications **(5 marks each)**:
 - a) Gastropexy
 - b) Gastroduodenostomy (Bilroth I)
 - c) Anal sacculotomy
 - d) Gastrostomy
 - e) Thoracic esophagotomy
 - f) Intestinal resection and anastomosis

7. You have been invited by the Radiological Society of Zambia to give a talk at its annual conference on the topic '**Safety in Radiology**'. Write a paper on the given topic (in point form), which would be applicable in the practice of veterinary radiology. **(20 marks)**

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

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

2008/9 ACADEMIC YEAR FIRST SEMESTER EXAMINATIONS

VMC 621: 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

SECTION A

- 1) A farmer calls you to see one of his Holstein-Friesian cows that is lame on the left hind leg.
 - a) List five (5) possible causes of this lameness. **(5 marks)**
 - b) On close examination, you decide that the best treatment option is to amputate one of the digits. List the indications for amputation of a bovine digit? **(5 marks)**
 - c) Describe in detail, the procedure for amputation of a bovine digit (Include pre-operative preparation, anesthetics, technique and post-operative care). **(10 marks)**
- 2) You are presented with a one-year-old Siberian Husky with a history of constant dribbling of urine. The owner tells you that this has been going on since the dog was born. You inspect the dog and find that the perivulvular hair is wet and is discoloured.
 - a) Outline what you would do to come up with a definitive diagnosis **(5 marks)**
 - b) What is your tentative diagnosis? **(2 marks)**
 - c) List other clinical signs you would find. **(2 marks)**
 - d) Outline treatment options in the case in (b) above? **(8 marks)**
 - e) What are the possible post-operative complications of the condition mentioned in (b) above? **(3 marks)**
- 3) Chaminuka lodge presents you a three-year-old colt for castration at their stables.

- a) Outline the anaesthetic protocol you would use to carry out this castration. (3 marks)
- b) List other anaesthetic protocols you could have used. (3 marks)
- c) Describe in detail how you would go about castrating this colt (excluding anaesthesia). (8 marks)
- d) List other options for castrating this colt. (3 marks)
- e) List possible complications that may arise from the castration of the colt. (3 marks)

SECTION B

- 4) Briefly describe the following procedures:
 - a) Medial sternotomy (5 marks)
 - b) Chest tube placement (5 marks)
 - c) Resection of elongated soft palate (5 marks)
 - d) Partial pulmonary lobectomy (5 marks)
- 5) A number of surgical conditions of the pharynx and larynx are known to cause exercise intolerance in athletic horses.
 - a) List the clinical signs associated with pharyngeal obstruction. (4 marks)
 - b) List the available surgical approaches to the equine pharynx. (4 marks)
 - c) Describe in detail, the approach and technique you would use to surgically manage a dorsally displaced soft palate (DDSP) using the staphylectomy technique (Include anaesthesia and post operative care). (12 marks)
- 6) A four-year-old male cat is presented to you with obvious signs of abdominal distension. The owner tells you that the condition has been recurring and he had taken it to his veterinarian before and the cat seemed to have recovered. This time, however, the cat has been referred to your private practice because the attending veterinarian does not have appropriate facilities to manage the case. The veterinarian suspects that the cat could be suffering from Feline Lower Urinary Tract Disease (FLUTD) formerly known as Feline Urologic Syndrome (FUS).
 - a) What is the pathogenesis of FLUTD? (4 marks)
 - b) What would you do to confirm this diagnosis? State your expected findings. (4 marks)

- c) Discuss how you would surgically manage this case (include pre-operative preparations, anesthetics, technique and post-operative care)? **(12 marks)**
- 7) A farmer calls you to see one of his cows that is not coming on heat 10 months after calving. You carry out an examination of the reproductive tract by palpation per rectum and find that the cow is empty, has an enlarged left ovary (10 cm x 6 cm x 6 cm) and a very small inactive right ovary. Ultrasonographic examination does not yield any definitive diagnosis.
- a) What are your differential diagnoses? **(4 marks)**
- b) To reach a definitive diagnosis, you decide to carry out ovariectomy. Describe in detail **two (2)** procedures for ovariectomy in the bovine. **(16 marks)**

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

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

**2008/9 ACADEMIC YEAR SECOND SEMESTER
FINAL EXAMINATIONS**

VMC 622: VETERINARY OPERATIVE SURGERY III

TIME: THREE HOURS

INSTRUCTIONS:

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

SECTION A

- 1) Describe the indications and technique of the following in the cow. **(4 marks each)**
 - a) Third eyelid flap
 - b) Eye enucleation
 - c) Superficial keratectomy
 - d) Tarsorrhaphy
 - e) Procedure for correction of entropion
- 2) You are presented with a five-year-old cross-breed dog that has been run over by a car and has sustained an open, transverse fracture of the body of the left mandible. The fracture occurred two days prior to presentation. The dog is not able to close its jaw properly but the owner reports to you that it is still able to eat soft foods and has been doing so since the accident. Clinical examination also reveals that the first premolar tooth on the affected side is also very loose in the socket and the fracture line seems to run through its roots.
 - a) Discuss comprehensively, the goals of the ideal management of this fracture. **(5.5 marks)**
 - b) Discuss the surgical approach to the fracture site indicating the important anatomical structures in this area to be taken into consideration **(6 marks)**
 - c) List five (5) methods that are available to repair fractures of the mandibular body **(2.5 marks)**
 - d) Discuss how you would repair the fracture described above. **(6 marks)**
- 3) You are presented with an eight-year-old gelding with a history of weight loss, frequent quidding and a slight head tilt to the left. You examine the animal and find that all parameters are within normal ranges except for a slightly elevated respiratory and heart rate and a swelling on the ventral border of the left mandible. Oral cavity examination reveals gingivitis with a purulent discharge at the gingival margin of the third premolar which is also loose. Other findings include pointed enamels on the buccal aspect of the upper cheek teeth and the lingual aspect of the lower arcades.
 - a) What is your diagnosis? **(4 marks)**
 - b) Describe in detail how you would manage this case. **(16 marks)**

SECTION B

- 4) Successful bone healing is a prerequisite for fracture repair
- a) Discuss ways in which bone heals after fracture repair (**5 marks**)
 - b) Describe when a fracture can be classified as either delayed, non-united or malunited (**6 marks**)
 - c) Discuss possible surgeon and owner factors that can lead to delayed union and how they can be controlled (**9 marks**)
- 5) How can you manage any **four** (4) of the following conditions (**5 marks each**)
- a) Non-displaced sacro-iliac fracture separation in a 45-Kg dog
 - b) Patella fractures in dogs
 - c) Grade IV patella luxation in a maltese poodle
 - d) Comminuted and open transverse fracture of tibia and fibula in an adult leopard
 - e) Shear injuries of the hock joint
 - f) Proximal femoral fracture in an 8-year-old domestic cat
- 6) You are presented with a nine-year-old dog with a history of excessive salivation and difficulty in chewing and swallowing. You examine the dog and find that the face appears swollen. On oral examination, there's halitosis, a bloody oral discharge and a growth on the level of the first and second upper premolars; These teeth appear to be loose.
- a) What is your tentative diagnosis? (**2 marks**)
 - b) How would you confirm your diagnosis? (**2 marks**)
 - c) How would you manage the case (include preoperative preparations, procedure and postoperative management) (**13 marks**).
 - d) List the complications associated with the procedure mentioned in c) above (**3 marks**)
- 7) **Answer either A or B.**
- a) Carpal arthrodeses are often performed to manage complicated fractures of the carpus. Discuss in details, the surgical approach and procedure/technique for carrying out both partial and panarthrodesis. Further discuss possible complications that may arise from both procedures. (**20 marks**)

OR

- b) i) Discuss in detail the surgical management of *Radius curvus* or the management of premature fusion of distal radial epiphysis (include surgical approach, technique and possible complications). Use of line and sketch drawings is strongly encouraged. (**14 marks**)
- ii) List the complications that may arise from carrying out onychectomy in an adult domestic shorthaired cat. (**6 marks**)

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

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

**2008/9 ACADEMIC YEAR FIRST SEMESTER
FINAL EXAMINATIONS**

VMC 631: THERIOGENOLOGY II

TIME: THREE HOURS

INSTRUCTIONS:

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

SECTION A

1. A mare with a copious mucopurulent discharge from the vulva is presented to your clinic 10 days after being serviced by a stallion.
 - a). What is your tentative diagnosis? **(5 marks)**
 - b). Substantiate in detail your differential diagnoses. **(5 marks)**
 - c). How would you confirm your diagnosis? **(5 marks)**
 - d). Outline your management of this case. **(5 marks)**
2. The relationship between nutrition and fertility in cattle is complex and sometimes not well defined or conclusive. However, being a renowned expert in veterinary reproductive endocrinology and nutrition in cattle, the Veterinary Association of Zambia invites you to give a lecture during its Annual General Meeting. You are required in the lecture, to outline in detail how nutrition affects reproductive function and fertility in both male and female cattle and to give possible solutions. **(20 marks)**
3. A three-year-old Ridgeback bitch is presented to you two weeks post-partum. The owner complains that the dog has not been eating for two days and appears to be neglecting its puppies as they are crying all the time. On examination, the bitch has a temperature of 39.8°C, has congested mucous membranes, is lethargic and has swollen, painful mammary glands.
 - a). What is your tentative diagnosis? **(1 mark)**
 - b). List **four** differential diagnoses. **(4 marks)**
 - c). How would you confirm your diagnosis in (a)? **(5 marks)**
 - d). Describe your management of this case. **(10 marks)**

SECTION B

4. Anestrus is a possible cause of infertility in cows and heifers.
- List **five** causes of bovine anestrus. **(5 marks)**
 - Briefly discuss the aetiology and factors that lead to the development of anestrus with respect to the causes listed in (a) above. **(5 marks)**
 - How would you treat/manage anestrus with respect to the causes listed in (a) above. **(5 marks)**
 - What recommendations would you give to farmers in terms of prevention and control of bovine anestrus? **(5 marks)**
5. Write short notes on the following:
- Toxoplasmosis in ewes **(5 marks)**
 - Hydrometra in does **(5 marks)**
 - Ovulatory defects in the cow **(5 marks)**
 - Functions and uses of non-pituitary gonadotrophins **(5 marks)**
6. Discuss in detail infectious causes of abortion and infertility in the porcine species. **(20 marks)**
7. A nine-year-old intact male Doberman is presented to your practice with the following clinical signs seen over the past week; blood dripping from the urethra, dysuria, tenesmus, and increased frequency of urination which sometimes contains blood. The temperature of this dog is 38°C.
- What is your tentative diagnosis? **(1 mark)**
 - List **four** differential diagnoses. **(4 marks)**
 - Give a detailed account of the pathophysiology of the clinical signs seen. **(5 marks)**
 - Outline your diagnostic work-up of this case. **(5 marks)**
 - Describe your management of this case. **(5 marks)**

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

University of Zambia
UNIVERSITY FIRST SEMESTER EXAMINATIONS
Veterinary Epidemiology-VMD 531
December, 2008

Time: 3 hours

Instructions: Answer all questions in SECTION A and any TWO in SECTION B

=====

SECTION A

QUESTION ONE

For each of the following terms, define and briefly discuss how each may be useful in epidemiological investigations. Provide relevant examples.

- (a) Attack rate **(4 Marks)**
- (b) Population at risk **(4 Marks)**
- (c) Hypothesis **(4 Marks)**
- (d) Denominator **(4 Marks)**
- (e) Critical value **(4 Marks)**

20 Marks

QUESTION TWO

- (a) Define the term 'Determinant' as applied in disease causation. **(2 Marks)**
- (b) List the various classifications of disease determinants. **(5 Marks)**
- (c) With the aid of a diagram, describe an epidemiological triad. **(3 Marks)**
- (d) In terms of infectious diseases, define the term 'carrier', and briefly describe the types of carrier states. **(5 Marks)**
- (e) Outline the various modes of disease transmission. **(5 Marks)**

20 Marks

QUESTION THREE

Bovine paratuberculosis is a disease of cattle characterized by intermittent diarrhea and chronic weight loss. Fecal culture is the gold standard test for confirmation of infection. You are asked to evaluate a newly developed absorbed enzyme linked immunosorbent assay (ELISA) on a sample of 400 adult dairy cows and find the results as follows:

		FECAL CULTURE		
		+	-	
ELISA	+	a	b	60
	-	8	c	340
		48	352	400

- (a) Determine the values of a, b and c in the table above. (6 Marks)
- (b) Calculate the sensitivity, specificity, positive and negative predictive values of the absorbed ELISA. (8 Marks)
- (c) What are the apparent and true prevalence of paratuberculosis in the population from which the sample was drawn? (4 Marks)
- (d) Calculate the accuracy of the absorbed ELISA. (2 Marks).

20 Marks

SECTION B

QUESTION FOUR

- (a) Using appropriate illustrations, give a detailed discussion on the significance and application of the 'iceberg concept' in epidemiology. **(6 Marks)**
- (b) Using appropriate illustrations compare and contrast the importance of temporal and spatial distribution of some livestock diseases in Zambia. **(6 Marks)**
- (c) Assuming you have been contracted to conduct a survey to determine the average weight of calves in commercial farms in Lusaka and the feeding regime of the calving cows. Discuss how you would ensure determination of correct estimates of the study parameters. **(8 Marks)**

20 Marks

QUESTION FIVE

The Mastitis-Metritis-Agalactia (MMA) syndrome occurs in sows between 12 and 48 hours after farrowing and is characterized clinically by anorexia, lethargy, disinterest in piglets, fever, swelling of mammary glands and agalactia. It is hypothesized that the syndrome is associated with poor hygiene standards. Data are collected from two farrowing sheds with a total of 200 sows with equal numbers passing through each shed over a 6-month period. The design of one shed allows for easy disinfection and cleaning (=Good hygiene) whereas the other shed is difficult to clean (=Poor hygiene). The cumulative incidence of MMA for poor and good hygiene sheds is 0.25 and 0.05 respectively.

- (a) Construct a 2X2 contingency table to show the distribution of MMA for the two types of hygiene status. **(8 Marks)**
- (b) What type of observational study does this represent? **(2 Marks)**
- (c) What epidemiological measure(s) can be used to assess the effect of hygiene standards on the occurrence of MMA? **(4 Marks)**

- (d) Using the epidemiological measure(s) you have stated in (c) above, calculate and interpret the amount of risk that MMA is associated with the level of hygiene standard. **(4 Marks)**
- (e) If poor hygiene were associated with MMA, what proportion of the syndrome would be prevented in the poor hygiene shed if hygiene were improved to the same level as that in good hygiene shed? **(2 Marks)**

20 Marks

QUESTION SIX

- (a) Briefly comment on dichotomous diagnostic decision, its importance and drawbacks. **(6 Marks)**
- (b) You are provided with the following information for a presentation to your class.
- I. The more specific the test is, the better is the positive predictive value.
 - II. If the prevalence increases, the positive predictive value increases and the negative value decrease.
 - III. The more sensitivity a test has, the better is the negative predictive value.
 - IV. If the prevalence decreases, the positive predictive value decreases and the negative predictive value increases.

Provide a concise and scientific explanation to each of these statements. **(14 Marks)**

20 Marks

END OF THE EXAMINATION

UNIVERSITY OF ZAMBIA
UNIVERSITY FIRST SEMESTER EXAMINATIONS
Veterinary Public Health-VMD 651

November, 2008

Instructions: Answer all questions in SECTION A and any TWO in SECTION B.

Time: 3 hours

SECTION A

QUESTION 1

- (a) What is meant by “carcase quality” and how is this assessed in case of beef? **(3 Marks)**
- (b) What are the factors that contribute to the spoilage of food of animal origin? **(2 Marks)**
- (c) Briefly describe the importance of using appropriate disinfecting chemicals (name at least three) in an abattoir and meat processing plant, indicating reasons for the selected chemicals. **(5 Marks)**
- (d) Briefly outline the steps (considerations) you should follow in case you are asked to build an abattoir in your Municipality. **(3 Marks)**
- (e) List three methods available to a health inspector for checking the efficiency of cleaning and disinfection. **(2 Marks).**
- (f) From an environmental perspective, discuss the risk of food of animal origin being a vector of food borne diseases. Include in your answer the possible controls and their effectiveness. **(5 Marks)**

20 Marks

QUESTION 2

(a) Briefly describe the epidemiology of two important milk borne zoonoses.

(6 Marks)

(b) In sausage production, what are possible hazards entry points? Name the source(s) and the possible hazard(s). **(4 Marks)**

(c) In the poultry slaughter process, list what you could consider to be critical control points. **(4 Marks)**

(d) In the pig slaughter process, list what you could consider to be critical control points. **(3 Marks)**

(e) In what ways can antibiotic find access in a meat product? **(3 Marks)**

20 Marks

QUESTION 3

Five dairy cows are brought for slaughter to the abattoir where you work as meat inspector. Upon conducting antemortem examination, you notice that most of the cows are emaciated and have dry dull coats, pale visible mucous membranes with evidence of diarrhea. Following further questioning, the farm workers reveal that there was a sudden drop in milk production, prompting the owner to cull the cows.

(a) Why do you need to examine the animals (including obtaining clinical history) prior to meat inspection? **(4 Marks)**

(b) What condition(s) would you suspect at this stage and why? **(4 Marks)**

(c) Following slaughter and meat inspection, what additional finding would you expect? **(4 Marks)**

(d) How would you confirm your diagnosis? **(4 Marks)**

(e) Based on (b) above, what decision would you make for the carcasses and why? **(4 Marks)**

20 Marks

SECTION B

QUESTION 4

During an abattoir visit, you notice that there are a number of points where contamination is occurring in an abattoir. With appropriate and necessary detail, describe the major sources of contamination in beef animals from the farm up to the abattoir using *Salmonella* as a model agent. With fine detail, indicate where these contaminations can be reduced to manageable levels.

20 Marks

QUESTION 5

Define the food safety term 'HACCP' and briefly outline the 7 principles involved. In your answer, relate each principle to the practical situation, say how it can be applied at an abattoir that you have had a privilege to visit.

20 Marks

QUESTION 6

Assuming you are working in the Government food inspection service. And you have received a report that a certain food manufacturing company is adding a chemical to its products that is potentially hazardous to human health. Describe in detail how you would go about determining whether this type of food hazard is potentially harmful to human health.

(20 Marks)

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

FIRST SEMISTER EXAMINATION

NOVEMBER 2008

GENERAL VETERINARY PATHOLOGY I - VMP411

TIME: THREE HOURS

Section A. Answer **all** questions in this section

Q1. (a) Describe caseous necrosis, including its fate(10)

(b) Discuss metastatic calcification(5)

Q2. (a) Write short notes on polycythemia(12)

(b) Write briefly on the classification of shock(3)

Q3. (a) Briefly discuss the role of fibrin in inflammation (5)

(b) Briefly describe serous inflammation(5)

(c) List any five (5) factors influencing healing (5)

Section B. Answer question **one (1)** and any other **two** questions in this section

Q1. Write short ^{notes} on ~~any~~ of the following

(a) The functions of granulocytes in inflammation(5)

(b) The reasons for ineffectiveness of tumour immunotherapy(5)

(c) classification of thrombus(5)

(d) Heart failure cells(5)

(e) Gout(5)

Q2. (a) Describe the pathogenesis of jaundice(7)

(b) List three diseases/conditions in which jaundice can be seen and mentioning the type of jaundice associated with the condition(6)

(c) What are the macroscopic and microscopic findings of a jaundiced liver?(2)

Q3. (a) Classify the various developmental anomalies that occur in animals.

In each case, give an example (5

(b) What is atrophy? (2)

(c) Discuss with examples, the types and causes of atrophy (8)

Q4. (a) What do you understand by neoplasia? (5 marks)

(b) Name two (2) neoplasms caused by viruses and two (2) caused by irradiation. (2 marks)

(c) Discuss in detail the systemic effects associated with malignant neoplasms. (8 marks)

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

SECOND SEMESTER EXAMINATIONS – 2008/2009

VETERINARY PATHOLOGY II (VMP412) PRACTICAL EXAMINATION

- INSTRUCTIONS:** 1. Answer all questions
2. You are allowed 5 minutes per station
-

1. This slide is from a bovine that showed respiratory distress.
 - (a) Name the tissue
 - (b) Describe the histopathological lesions
 - (c) What is your diagnosis?
 - (d) Name the aetiological agent
2. The slide shows a pathological condition of the liver.
 - (a) What is the condition?
 - (b) What causes this condition?
 - (c) Describe the clinical signs that are associated with this and why?
3. Examine the slide.
 - (a) What do you call this condition?
 - (b) Briefly discuss how it arises and the conditions under which it may occur.
4. The photographs show a 3 day old broiler chick.
 - (a) Describe the lesions ~~seen~~ seen
 - (b) What bacterial organism is commonly isolated in this condition?
 - (c) What is your diagnosis?
5. Examine this slide.
 - (a) Name the organ
 - (b) Describe the histopathological changes
 - (c) What is your diagnosis?
 - (d) What causes this condition?
6. These specimen were taken from 13 week old layers that exhibited paralysis that was mainly confined to one limb as well as mortalities.
 - (a) Describe the lesions
 - (b) What other lesions would you see in affected chickens?
 - (c) What is your diagnosis?
 - (d) How can this disease be prevented?
7. The slide shows a sertoli cell tumour in a dog.
 - (a) List the clinical manifestation of this neoplasm
 - (b) Name two other primary testicular neoplasms and the cells they arise from.
8. This organ is from a dog that presented with anaemia and a distended abdomen.

- (a) Identify the organ
- (b) Describe the lesions
- (c) What is your diagnosis?

9. This slide is from a bovine that was sacrificed due to not responding to treatment.

- (a) Name the tissue
- (b) Describe the lesions you have observed
- (c) What is your diagnosis?
- (d) What clinical signs would you have observed in this animal?

10. The birds shown on the picture are 3 week old broilers that exhibited signs of weakness with high mortalities.

- (a) Describe the lesions seen
- (b) What is your diagnosis?
- (c) How can this condition be prevented?

11. The slide given shows a neoplasm tying up two tissues.

- (a) Describe the histopathological changes you have observed
- (b) Name the neoplasm
- (c) Where else can this neoplasm occur?

12. This is a uterus of a bitch.

- (a) Describe the lesions
- (b) What is your diagnosis?
- (c) What is a common sequel to this lesion?

13. The slide is from a bovine that exhibited strange behaviour.

- (a) Name the tissue
- (b) Describe the pathological changes observed in the tissue
- (c) What is your diagnosis and why?

14. This is a heart from a healthy Aryshire cow.

- (a) Describe the lesion
- (b) What would you see microscopically?
- (c) What is your diagnosis?
- (d) In what other conditions could you see this lesion?

15. Examine the specimen on this slide.

- (a) Identify the tissue
- (b) Describe the histopathological changes in the slide
- (c) What is your diagnosis?

16. Examine the picture.

- (a) Identify the organ
- (b) Name the lesion
- (c) What is your diagnosis?
- (d) What is the cause of this lesion?

17. This specimen is from a crocodile that showed yellow raised nodules of 2 to 3 mm on the skin.

- (a) Describe in detail the lesions observed
- (b) Give a diagnosis

18. This is a picture of an ovary.

- (a) What is your diagnosis?
- (b) What lesions could you possibly see in such a condition?

19. Examine the specimen on this slide.

- (a) Identify the organ
- (b) Describe the changes that you have observed.
- (c) Give a diagnosis
- (d) What would cause this condition?

20. The specimen on the slide was taken from a dog that had difficulties in swallowing.

- (a) Describe the histopathological changes you have observed
- (b) Name the predominant inflammatory cell type in the lesion
- (c) What is your diagnosis?
- (d) What are the likely consequences of this lesion?

UNIVERSITY OF ZAMBIA
FINAL EXAMINATIONS –DECEMBER 2008
VMP 441 VETERINARY PARASITOLOGY

TIME: THREE (3) HOURS

ANSWER: ALL QUESTIONS

MARKS: ALL QUESTIONS CARRY EQUAL MARKS

SECTION A: PROTOZOOLOGY

Q1. Clearly **outline** basic classification of protozoan parasites of Veterinary importance.

Q2. Write **short notes** on all of the following topics:

- (a) Modes of reproduction in protozoan parasites.
- (b) Modes of organelles of nutrition in protozoan parasites.
- (c) Modes of transmission in protozoan parasites.
- (d) What you understand by biotic potential and its relationship to pathogenicity of parasites.
- (e) The difference between *Eimeria* and *Toxoplasma* sporulated oocysts.

Please Turn Over

SECTION B: HELMINTHOLOGY

- Q3. (a) Clearly **outline** the classical morphology of tapeworms
(b) Describe in **detail** the life cycle of the broad fish tapeworm

Q 4. Write **short notes** on the following topics:

- (a) Characteristics of the phylum platyhelminthes
- (b) The pork tapeworm
- (c) Hatching in trematodes
- (d) The lancet liver fluke
- (e) Types of “hold fast” organs in cestodes

SECTION C: ENTOMOLOGY

Q5. **Discuss** the veterinary significance of arthropods. Explain the various approaches you would use to manage vector-borne diseases and conditions.

Q6. Write **short notes** on all of the following topics:

- (a) Cycloharpha.
- (b) Insect cuticle.
- (c) Two-host tick life cycle.
- (d) Hemiptera.
- (e) Veterinary Parasitology.

END OF EXAMINATION