

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE SECOND SEMISTER EXAMINATIONS

VMB 212	-	VETERINARY ANATOMY AND PHYSIOLOGY II
VMB 222	-	VETERINARY EMBRYOLOGY: DEFERRED
VMB 222	-	VETERINARY EMBRYOLOGY
VMB 312	-	VETERINARY ANATOMY
VMB 332	-	BOCHEMISTRY II
VMB 342	-	VETERINARY PHYSIOLOGY II
VMC 512	-	CLINICAL VETERINARY MEDICINE II
VMC 522	-	OPERATIVE VETERINARY SURGERY I
VMC 532	-	THERIOGENOLOGY I
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VMD 512	-	CLINICAL PATHOLOGY
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VMP 442	-	VETERINARY PARASITOLOGY

**THE UNIVERSITY OF ZAMBIA
SECOND SEMESTER EXAMINATIONS
FEBRUARY 2007**

VMB 212 VETERINARY ANATOMY AND PHYSIOLOGY II

TIME: THREE (3) HOURS

INSTRUCTIONS: ANSWER TWO (2) QUESTIONS FROM SECTION A AND THREE (3) QUESTIONS FROM SECTION B. ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK AND INDICATE THE SECTION.

SECTION A: VETERINARY PHYSIOLOGY

1. Describe what is meant by the Haldane and Bohr effects and explain how each contributes to the delivery of oxygen to the body tissues. (20 marks)

2. Write short notes on the following:-
 - i) Haematocrit (2 marks)
 - ii) Erythropoietin (2 marks)
 - iii) Breakdown of erythrocytes (4 marks)
 - iv) Secondary polycythemia (6 marks)
 - v) Formation of a platelet plug (6 marks)

3. (a) Describe the structures of the cell membrane. (15 marks)
(b) What are the functions of the cell membrane? (5 marks)

4. (a) Describe, according to the sliding filament theory, how skeletal muscle contracts. (10 marks)
(b) How is energy supplied to the muscle contraction? (6 marks)
(c) Differentiate between isotonic and isometric contraction. (4 marks)

SECTION B: VETERINARY ANATOMY

1. (i) Give an anatomical description of the duodenum and jejunum of the dog (in your description also pay attention to the other abdominal structures that are anatomically related to the two structures).

(ii) Write short notes to describe the following:

- Great mesentery of the small intestine
- Permanent dentition of the dog
- Anal canal of the dog.

(20 marks)

2. Describe the anatomy of the penis of the dog using the following as guidelines:

- Crûra
- Corpus carvenosum
- Corpus spongiosum
- Tunica albuginea
- Urethra
- Bulb of the penis
- Glans of the penis
- Baculum
- Pars longus glandis
- Muscles of the penis

(20 marks)

3. Write short notes about the anatomy of the following components of the nervous system:

- Telecephalon
- Names and distributions of cranial nerves III, V, VII, IX
- Ascending and descending pathways
- Parasympathetic nervous system

(20 marks)

4. Draw a well labeled diagram showing the main components of the inner ear. Select one of those labeled structures involved in equilibrium and briefly describe its anatomy and functions.

(20 marks)

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

**UNIVERSITY SECOND SEMESTER DEFERRED EXAMINATIONS
– APRIL 2007**

VMB 222 – VETERINARY EMBRYOLOGY

TIME: THREE (3) HOURS

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

1. Use short notes to discuss (i) mechanism of ovulation (ii) structures shed from ovary at ovulation (iii) pre-formation theory of embryology (iv) ectopic implantation.
2. In a sentence define (i) Embryology (ii) zona pellucida (iii) Polysperm (iv) freemartinism (v) the three germ layers of the embryoblast cells (vi) cardiogenic plate (vii) Eisenmenger complex
3. Briefly discuss: (i) development of heart valves (ii) conducting system of the heart (iii) the male duct system (iv) muscular and cranial nerves derivatives of specific pharyngeal arches
4. In detail discuss (i) Cardiogenesis (ii) developmental stages of the kidney systems (iii) abnormalities of the gut (iv) three developmental stages of Bronchioles
5. With the aid of diagrams discuss atria and ventricular septation

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

THE UNIVERSITY OF ZAMBIA

UNIVERSITY SECOND SEMESTER EXAMINATIONS –
FEBRUARY 2007

VMB 222 – VETERINARY EMBRYOLOGY

TIME: THREE (3) HOURS

INSTRUCTIONS: ANSWER ALL QUESTIONS. ALL QUESTIONS CARRY
EQUAL MARKS

1. Use short notes to discuss (i) five embryonic divisions of the brain and their future derivatives (ii) the types of ovarian follicles (iii) mechanism of ovulation (iv) sequence of events resulting from sperm penetration
2. In a sentence define/state (i) why the study of Embryology is important (ii) Mesenchyme (iii) Polysperm (iv) two groups of cells of the blastocyst (v) the three germ layers of the embryoblast cells (vi) delamination (vii) Mesamnion
3. Briefly discuss: (i) formation of the Notochord (ii) conducting system of the heart (iii) the foregut (iv) muscular and cranial nerves derivatives of specific pharyngeal arches
4. In detail discuss (i) Cardiogenesis (ii) semilunar valves (iii) abnormalities of the gut (iv) three developmental stages of Bronchioles
5. With the aid of diagrams ONLY compare the embryonic and adult blood flow at heart level

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

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE
DEPARTMENT OF BIOMEDICAL SCIENCES

SECOND SEMESTER EXAMINATIONS - FEB 2007

VMB 312

VETERINARY ANATOMY

TIME: THREE (3) HOURS

INSTRUCTIONS: ATTEMPT ONLY FIVE (5) QUESTIONS

1. Write short notes on the following in ruminants.
 - i) Temporal bone
 - ii) Anatomical considerations in euthanasia by shooting
 - iii) Mandibular salivary gland
 - iv) Extra oculi muscles

2. Describe in detail the nose and the nasal cavity of the horse. Name the compartments through which a stomach tube has to pass into the equine oesophagus. What anatomical obstructions would you encounter and how would you overcome them?

3. Outline the blood supply to the ruminant head.

4. Write short notes on the following in the horse
 - i) Structure of the incisor tooth
 - ii) Check apparatus of the hind limb
 - iii) vagina and vestibule
 - iv) Glans penis

5. Give a detailed description of the porcine liver including its structure, topography and relations as well as the relevant clinical anatomy.

6. Outline the course and the final destination of tendons of muscles that run into the foot from the carpus in the horse.

7. Give a detailed description of the important structures of the avian respiratory system with special emphasis on the air sacs.

END OF EXAM-GOOD LUCK

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
2006 ACADEMIC YEAR SECOND SEMESTER
FINAL EXAMINATIONS – FEBRUARY 2007

VMB 332 BIOCHEMISTRY II

TIME THREE HOURS

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

SECTION A: Answer all the three questions

- Q1. Define the term “transcription” and write an essay on the initiation and termination of this mechanism in both eukaryotic and prokaryotic cells.
- Q2. The mammalian liver performs functions that can be reduced to ten broad categories such as (a) rendering harmless many drugs and toxicants by changing them chemically, and (b) production of bile pigments. DISCUSS this statement by writing notes on both (a) and (b) with the help of appropriate equations, where necessary.
- Q3. Amino acids are not only important as building blocks of proteins but also as biosynthetic precursors of other important biomolecules like glutathione.
- a) Show a detailed biosynthetic pathway of glutathione, showing all structural formulas, their names and the enzymes involved.
 - b) Give two functions of glutathione to show its importance as a biomolecule.
 - c) The steady state in Cells maintains a 100:1 ratio of the reduced to oxidised glutathione because of its importance. Show how this is achieved other than by its synthesis, by way of a balanced equation. *Showing all relevant details*

- d) Red blood cells are just one class of cells that benefit from the functions performed by glutathione. Outline the importance of the function(s) of glutathione in relation to haemoglobin and other proteins of the red blood cells. What is the consequence of a deficiency of glucose-6-phosphate dehydrogenase in an animal in relation to glutathione?

SECTION B: Answer any TWO questions in this section.

- Q4. Triacylglycerols (TAGs) are one of the molecules involved in metabolism. Give a detailed description of the digestion, absorption and fate of these molecules. This should include an outline of the metabolism of the lipoproteins of dietary TAG.
- Q5. Give a detailed description of the mechanism of protein synthesis in prokaryotic cells?
- Q6. Starting with 5 – phosphoribosyl – 1 – pyrophosphate (PRPP), outline all the steps, structures and enzymes in the *de novo* biosynthetic pathway in the formation of guanosine phosphate (GMP).
- Q7. Write short notes on **any four** of the following:-
- Acute Intermittent Porphyria
 - Melanin
 - Xerophthalmia
 - The Nitrogen cycle
 - Calcium as an inorganic ion in metabolism

END OF EXAMINATION

**THE UNIVERSITY OF ZAMBIA
SECOND SEMESTER EXAMINATIONS
FEBRUARY 2007**

VMB 342 VETERINARY PHYSIOLOGY II

TIME: THREE HOURS

INSTRUCTIONS: Answer any five questions; four from Section A and one from Section B. Use separate answer books for Section A and Section B.

SECTION A

1. Discuss the compensatory measures that occur in response to a fall in core temperature as a result of cold exposure and in response to a rise in core temperature as a result of heat exposure.
2. (a) What is basal metabolic rate (BMR)?
(b) How is BMR measured?
(c) What is respiratory quotient (RQ)?
(d) Enumerate factors affecting BMR.
3. (a) Compare the relationship between the hypothalamus and the neurohypophysis with the relationship between the hypothalamus and the adenohypophysis.
(b) Describe the role of the hypophyseal portal system.
4. Discuss the contributions of parathyroid hormone, calcitonin and vitamin D to calcium ion metabolism. Describe the source and control of each of these hormones.
5. (a) Describe the osmolarity of the interstitial fluid immediately surrounding the proximal convoluted tubule, the tip of the Loop of Henle, and the end of the Loop of Henle.
Explain the counter-current exchange mechanism of the Vasa Recta.
(b) What is the meaning of the term 'diuresis'. Explain the effect of antidiuretic hormone (vasopressin) on the kidney function.

SECTION B

1. Write short notes on the following:-
 - (a) Maternal recognition of pregnancy
 - (b) Luteal protective agents
 - (c) The prostate gland
 - (d) The role of Sertoli cells in spermatogenesis
 - (e) Spermatocytogenesis

2. Show a detailed schematic representation of the control of lactation in the mare.
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END OF EXAMINATION

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

**2006/7 ACADEMIC YEAR SECOND SEMESTER
FINAL EXAMINATIONS**

VMC 512: CLINICAL VETERINARY MEDICINE 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 answer book
4. **ALL** questions carry equal marks

SECTION A

1. You examine a 26-year-old standardbred mare before a routine vaccination. On thoracic auscultation you hear a grade III, holodiastolic musical murmur on the left side of the chest that radiates towards the apex of the heart.
 - a) What is your tentative diagnosis?
 - b) Describe the pathogenesis of this condition.
 - c) State three differential diagnoses and explain how you can distinguish them from your tentative diagnosis.
 - d) How would you confirm your diagnosis in (a) above?
 - e) Explain how you would treat this condition.

2. Chunky, a four-year-old, male Rottweiler is presented to you with bilateral mucopurulent nasal discharge, a productive cough, inappetence and now fails to keep up with the owner when they are jogging. The signs have been worsening over the past week. On physical examination you find the temperature to be 39.8°C and can hear crackles and wheezes on thoracic auscultation.

- a) What is your tentative diagnosis?
 - b) Give two differential diagnoses.
 - c) How would you confirm your tentative diagnosis?
 - d) How would you treat this patient?
3. The anticoagulant rodenticides are derivatives of 4-hydroxycoumarin or indane 1,3-dione.
- a) Briefly discuss the sources and possible ways that pets, livestock, and wildlife may be exposed to these rodenticides.
 - b) Compare the first generation (developed before 1970) and second generation (developed in the 1970s and 1980s) anticoagulant rodenticides, giving at least one example of a specific drug from each generation.
 - c) What is the mechanism of toxicological damage of the anticoagulant rodenticides?
 - d) Describe the clinical signs and lesions associated with anticoagulant rodenticides.
 - e) Discuss treatment options in case of accidental poisoning with anticoagulant rodenticides.

SECTION B

4. A herd of cattle is moved from sparse, meager pasture to a lush pasture of fresh, fast growing grass that was recently cut for silage preparation. The cows develop severe dyspnea, open mouth breathing, and in some, subcutaneous emphysema.
- a) What is your tentative diagnosis?
 - b) Describe the pathogenesis of this condition.
 - c) Give three differential diagnoses, explaining how they can be distinguished from the disease you have stated in (a) above.
 - d) How would you confirm your tentative diagnosis?
 - e) How would you treat this condition?
5. Mr. Malandula owns a 50-sow-piggery and he has observed a sudden onset of a skin condition in newly weaned pigs. After examination you find that the hair is matted and is becoming gray in color. The condition affects mostly the upper neck and hind legs, areas where pigs sustain injuries from fight.
- a) What is your diagnosis?
 - b) Discuss the cause and transmission factors of your diagnosis.
 - c) What are your differential diagnoses?

- d) How would you manage the condition?
 - e) What advice would you give to the farmer to prevent the re-occurrence of this problem?
6. Mrs Tamba presents her eight year old, mongrel bitch, Babo to your clinic. She reports that Babo has been straining a lot when passing stool and has diarrhoea. On further inquiry, Mrs Tamba tells you that there is a lot of mucous and some fresh looking blood in the faecal material. Otherwise Babo's appetite and activity level are normal. On examination, the only abnormalities are slight guarding on abdominal palpation.
- a) What is your tentative diagnosis?
 - b) Give two differential diagnoses?
 - c) How would you rule out each of your differential diagnoses?
 - d) How would you manage this patient?
7. Mwenge dairy farm manager has reported a drop in milk yield in four cows, two others are not eating and one is recumbent. During your history taking, you suspect that there may be a mastitis outbreak at the farm.
- a) Describe how you would, systematically, carry out examinations of the sick animals at the farm and in the laboratory? (Give details of your findings at every stage of your examination).
 - b) What might have caused this outbreak on this farm?
 - c) How would you manage the condition?
 - d) What is your client education?

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

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

**2006/7 ACADEMIC YEAR SECOND SEMESTER
FINAL EXAMINATIONS**

VMC 522: OPERATIVE VETERINARY 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. A farmer calls you to see a cow that is lethargic and anorexic. On clinical examination the most significant finding is absence of ruminal movements and the ruminal contents seem to be hard and unyielding despite pushing in your fist.
 - a) Give two differential diagnoses.
 - b) Outline the pathogenesis of both conditions you have mentioned.
 - c) Describe the surgical treatment in detail of one of the conditions you have mentioned. (Include pre-operative assessment, anaesthesia, procedure and post-operative management.)
2. Compare and contrast alveolar oronasal fistula and central hard palate fistula repair in terms of aetiology, pre-operative considerations, procedure, postoperative management as well as possible complications.
3. A dog is presented to UNZA-Vet Clinic with a history of having fallen from a height. It is anorexic, icteric and is passing acholic faeces.
 - a) What is your tentative diagnosis?
 - b) What other clinical signs are associated with this condition?
 - c) How would you manage this case?
 - d) If there is suspicion that falling was unlikely, what are the other condition(s) you would consider?
 - e) How would you differentiate the condition(s) in (d) from your tentative diagnosis in (a) above?

SECTION B

4. Hernias are occasionally encountered in veterinary practice.
 - a) Discuss the classification of hernias.
 - b) Discuss the aetiopathogenesis and clinical presentation of perineal hernias in dogs.
 - c) Describe how you would surgically manage a dog with a perineal hernia.

5. Compare and contrast the following surgical approaches to the equine abdomen with regard to technique and possible complications.
 - a) Ventral midline
 - b) Paramedian
 - c) Flank

6. Write notes on **any four** of the following taking into account their definition, cause(s), treatment and complications in cats and dogs:
 - a) Gastrectomy
 - b) Intestinal resection and anastomosis
 - c) Cervical esophageal foreign body
 - d) Intussusception
 - e) Oral papillomas

7. Describe the radiological features of the following abnormalities in small animals:
 - a) Gastric neoplasia
 - b) Megaesophagus
 - c) Congestive heart failure
 - d) Pyometra

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

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

2006/7 ACADEMIC YEAR SECOND SEMESTER
FINAL EXAMINATIONS

VMC 532: THERIOGENOLOGY I

TIME: THREE HOURS

INSTRUCTIONS:

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

SECTION A

1. On your routine fertility visit, a cow that was inseminated 300 days ago is presented to you. The cow is eating well and shows no sign of any sickness. Upon examination of the reproductive tract you notice that the cervix is closed, the uterus is enlarged and hard on palpation and has a CL on the right ovary.
 - i) What do you suspect?
 - ii) Give reasons for suspecting this condition.
 - iii) What would be your differential diagnoses and why?
 - iv) How would you treat the condition you suspect in (i) above?

2. A mongrel bitch that was seen on heat nine weeks ago is brought to your clinic. The owner complains that for the last two days the bitch is a little aggressive, distressed, not eating and panting, with no birth of puppies. On closer examination you notice that the mammary gland is developed with some milk secretion.
 - i) What is your tentative diagnosis?
 - ii) What would be your differential diagnoses?
 - iii) Describe the aetiopathogenesis of the condition in (i) above.
 - iv) Describe three ways in which you would treat/manage the condition.

3. A farmer calls you to see one of his five-year-old well conditioned ewes that was last seen on heat and mated 143 days ago. On examination of the ewe you notice a large red swelling around the perineal area.
 - i) What is your tentative diagnosis?
 - ii) What would be your differential diagnoses?
 - iii) Discuss aetiopathogenesis of the condition in (i) above.
 - iv) Discuss how you would treat the condition in (i) and your advice to the farmer regarding future fertility.

SECTION B

4. A five-year-old cow is presented to you for examination at a farm in Lusaka West. According to the farmer, the cow has been in labour for almost 24 hours but no calf has been born. On examination you notice three legs lodged in the pelvis and protruding from the vulva. Two of the legs are fore limbs and the other one a hindlimb.
- What is your tentative diagnosis?
 - What are your differential diagnoses?
 - Describe in detail how you would treat this condition in view of your diagnosis in (i) above.
5. A high yielding milk cow was confirmed pregnant by a vet 30 days following an insemination by a well-trained inseminator. However, three weeks following pregnancy confirmation, the cow was reported to be on heat.
- Would you consider this cow to be exhibiting a strange phenomenon or there is a possible explanation? Please elaborate.
 - What would be your clinical findings upon rectal examination?
 - What other tests would you carry out to confirm your findings in (ii) above? (Explain the results).
6. A farmer calls you to artificially inseminate one of his Jersey cows that he said was restless, mounting other cows, and had clear mucus from the vagina two days ago. Upon reaching the farm you notice that the hair on the back is ruffled and there is a bloody discharge from the vulva.
- What could be the stage of the estrous cycle?
 - Would you inseminate this cow? Give reasons.
 - You look in your drug kit and find that you have a GnRH and Prostaglandin F_{2α} analogue, which of the two would you use to have a positive effect on the reproductive status of the cow? Explain your choice.
 - What advice would you give to the farmer regarding the cow?
7. Write notes on any **Four (4)** of the following
- Ovulatory mechanism in the cow
 - Suppression of estrus in the bitch
 - Termination of pregnancy in the bitch
 - Resumption of breeding season in the ewe
 - Compare and contrast the estrous cycle of the doe and ewe

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

**2006/7 ACADEMIC YEAR SECOND SEMESTER
FINAL EXAMINATIONS**

VMC 612: CLINICAL VETERINARY MEDICINE IV

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. You are a part owner in a mixed animal practice and the large animal component of your practice focuses on horses. Much of your income comes from a few wealthy clients who insist on the utmost in quality care for their equine animals. One Friday afternoon, you get a call from a distraught client that as his groom was bringing the animals in from the pasture, their prized mare just went down and could not get up.

You arrive at the farm and as you are getting your thermometer and stethoscope out, the mare takes a few last gasps and dies. The owners are very upset about this mare's death and they are worried about their other animals. You examine the other horses in the barn. Several of the horses are depressed. All the rectal temperatures are normal but one or two have a slight increase in respiratory rate. One horse has supraorbital edema. There is a distinct fluctuant swelling in the supraorbital fossa.

You carry out a postmortem on the dead horse. There is froth exuding from the nares, an indication of terminal pulmonary edema. The lungs were absolutely loaded with fluid. There is also hydrothorax, hydropericardium and very acute myocardial hemorrhage and necrosis.

- a) What is your diagnosis?
- b) What are your differential diagnoses?
- c) What tests would you carry out to confirm your diagnosis?
- d) How would you manage the problem?
- e) What is your client education?

2. A village with donkeys, cattle and sheep in southern province has been affected by tick-borne diseases. After a thorough examination you suspect that three (red water, anaplasmosis and theileriosis) of the most common tick borne diseases are present at the village.

- a) Discuss the clinical signs you would find in cattle and donkeys if they had predominantly red water.
- b) How are the pathogens causing these diseases transmitted?
- c) How would you treat these conditions in cattle, sheep and donkeys?
- e) What is your client education?

3. You are called to attend to a problem in Kanyama Township. It is reported that dogs are dying after showing signs of copious yellowish-green nasal discharge, ocular discharge, coughing, being depressed and anorexic. Some of the dogs recover but then they develop twitching of individual muscles and staggering.
- What is your tentative diagnosis?
 - What are the predisposing factors to this disease?
 - How would you definitively diagnose this disease?
 - How would you treat the affected dogs?
 - How can the disease be prevented?

SECTION B

4. A 12-year-old queen is presented to you because it is constantly licking its perineum. The owner has noticed that the perineum it is becoming red. The owners also noticed some white 'rice grains' in the stool even if the cat doesn't eat rice.
- What is your tentative diagnosis?
 - Give one differential diagnosis.
 - How would you confirm your diagnosis?
 - How would you treat this patient?
5. You are a district veterinary officer in Kalomo district. On one September morning a Veterinary assistant (VA) comes with a report that a number of villagers' animals have developed a strange disease. According to his observations and examinations, he found that most of the affected animals are depressed, have high temperature, ruminal stasis and appear to have painful swollen legs making the animals unable to walk normally.
- What is your tentative diagnosis?
 - Discuss the source, transmission and pathogenesis of this infection.
 - Discuss your differential diagnosis at this time of the year.
 - What is your advice to the VA on treatment, control and prevention of this disease?
6. A 6-month-old puppy is presented to the UNZA Vet Clinic with pruritus and alopecia around the eyes, on the dorsum of the muzzle and on the lips.
- What is your tentative diagnosis?
 - What other clinical signs will be observed in this condition?
 - List the differentials.
 - How would you diagnose and treat the condition in (a)?
7. An 18-month-old heifer is presented to you with an acute onset of coughing and a fetid nasal discharge. On clinical examination, you notice that the heifer shows guarded shallow respiratory movements and coughing, anorexia, depression, pain on thoracic palpation and has a rectal temperature of 41°C. You further notice that the heifer stands with abducted elbows, is reluctant to lie down, and shows signs of ventral edema in the brisket area.
- What is your tentative diagnosis?
 - State any three (3) possible causes of this condition.
 - How would you confirm the actual cause of this condition?
 - Clearly outline your therapeutic plan for this heifer.
 - Give the prognosis of this condition, justifying why you think so.

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

**2006/7 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) You are an equine specialist and a veterinary assistant reports to you that as he was doing palpation per rectum on a mare, he noticed a large amount of blood on the rectal sleeve and the rectum suddenly relaxed while the horse was straining. Within two hours the horse started showing signs of peritonitis and endotoxic shock. There were initially mild signs of colic but these gave way to depression.
 - a) Describe how you would go about coming up with a diagnosis.
 - b) What is your diagnosis?
 - c) With the aid of sketch diagrams, describe the technique (s) you would use to surgically manage the condition giving advantage (s) and disadvantage(s) of each.
 - d) Describe the post operative management and the possible complications you would encounter.

- 2) In a large, heavily muscled, two-year-old dog, what is the appropriate treatment for each of the following (briefly include postoperative care and possible complications of your repair):
 - a) Highly comminuted, irreparable acetabular fracture
 - b) Monteggia fracture
 - c) Comminuted fracture of the tibia
 - d) Mandibular symphyseal fracture-separation

- 3) A geriatric Pekingese is brought to your clinic with the primary complaint of a three-day-old mucopurulent nasal discharge that developed a week after you extracted the dog's left maxillary canine.
 - a) What is your diagnosis?
 - b) How would you confirm this diagnosis?
 - c) How would you manage this case surgically? Include anaesthetic regime and postoperative management.

SECTION B

- 4) A 16 year old gelding is presented to your clinic with a primary complaint of depression, anorexia and intermittent rolling. The owner tells you that he noticed the problem a week before presentation after he changed the feed. He also informs you that he has been treating the horse with phenylbutazone for a lame forelimb. You discover that the horse is fed on very poor quality feed and has very bad dentition. The amount of faeces has reduced and when it defaecates, the faeces are dry in nature. After examination all vital parameters and laboratory values are within normal limits except that the cecal progressive borborygmis are reduced. A rectal examination reveals a firm, near hard viscus with a single distinct band.
- What is your diagnosis?
 - Describe how you would attempt to medically manage the condition.
 - Assuming that your medical management did not result in any improvement, describe how you would surgically manage the condition.
- 5) The diagnosis of digestive disorders in the horse is concerned with an accurate estimation of the cause, duration and extent to which the problem has progressed. Discuss in detail the various points that should be checked in order for you to decide whether the condition is amenable to conservative medical treatment or surgical intervention.
- 6) With the aid of sketches or line diagrams, write notes on **any four** of the following taking into account their definition, indication (s), treatment and complications in cats and dogs:
- Amputation
 - Arthrodesis
 - Hip dysplasia
 - Decompressive surgery of spinal cord and vertebrae
 - Delayed unions/non-unions
- 7) Tina, a six-year-old cat is brought to your clinic with a lower palpebral mass measuring 0.5 cm in diameter. After examining the lesion you conclude that it may be neoplastic.
- Describe the presurgical evaluation you would carry out.
 - How would you treat this patient surgically (include anaesthetic regime and postoperative management)?

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

University of Zambia

University Second Semester Examinations

February 2007

Clinical Pathology (VMD 512)

Time: 3 hours

Total marks: 100

Instructions: Answer all questions

Question 1

- (A) You have received a fresh specimen of urine from a dog in a sterile container. Please write in detail about the different tests/analysis you will conduct on this sample and state the is purpose? (10 marks)
- (B) A dog's blood and urine examination with history of enlarged bladder and fever gave following laboratory results:

Urine:

Color- cloudy/ brownish

SPG- 1.030

pH 7.4

Protein +++++

Blood Occult - +++

Sediment- RBC's WBC, Bacteria

Crystals- triple phosphate

Blood:

PCV-36 %, Hb 12gm/dl, WBC 21000/ul. Seg.Neu-90%, L 8%

Serum:

TP-6.8 gm/dl, BUN-180mg/dl, Glucose 190mg/dl, Na 140 mEq/l,

Interpret the results based on above figure and give your possible clinical diagnosis.(10 marks)

Question 2

- (A) What are the different tests which can be conducted in a laboratory to determine sub-clinical and clinical mastitis from a sample of milk? Please indicate the basic principles involved in each test. (10 marks)
- (B) Describe the different dermatological examinations you would conduct for confirmatory diagnosis of skin affections in domestic animals. (10 marks)

Question 3

Diagnostic clinical enzymology is based on the fact that enzymes specific to certain organs or cells increase in plasma when these organs/cells become diseased or injured.

- a. Briefly explain the mechanisms that lead to increases in plasma enzyme activity. **(5 marks)**
- b. Name the enzymes you would use to diagnose hepatocellular damage in each of the following species: horse, pig, cattle, dog and cat **(5 marks)**
- c. In which conditions do you expect increase in ALP levels in blood? **(5 marks)**
- d. Liver function tests are categorized into three groups. Name these groups and give three (3) examples of actual tests in each group **(5 marks)**

Question 4

Examination of the cerebral spinal fluid (CSF) is used in clinical investigations of the conditions involving the nervous system.

- a. Explain the physical parameters of the CSF that you would investigate and their diagnostic characteristics **(10 marks)**
- b. What are the likely causes of low levels of glucose in CSF **(5 marks)**
- c. What is the significance of increased neutrophilic and lymphocytic count in CSF **(5 marks)**

Question 5

- a. In assessing exocrine pancreatic function by microscopy of the faeces, what parameters do you check for and what are the diagnostic characteristics of these parameters **(5 marks)**
- b. Briefly explain the blood picture seen in the following conditions. **(5 marks)**
 - i. Acute bacterial endocarditis in dog.
 - ii. Traumatic pericarditis in cattle.
- c. Briefly outline how tri-iodo thyroxine (T3) and tetra-iodo thyroxine (T4) is formed by the thyroid gland. What are the clinical signs seen in hypothyroidism. **(5 marks)**
- d. List the thyroid function tests and write brief notes on one of them Which in your opinion is most important. **(5 marks)**

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY SECOND SEMESTER EXAMINATION

FEBRUARY 2007
VETERINARY ECONOMICS (VMD 532)

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

QUESTION 1

Write an article on animal health economics explaining what it is, the objectives, guiding principles, and the role in Veterinary Science. **(15 marks)**

QUESTION 2

After setting up a business you realise that an underground market has mushroomed involving your beef and dairy products. Discuss the subject and possible contributing factors and measures for correcting the situation. **(10 marks)**

QUESTION 3

- i) Define inflation and discuss the important factors that may cause it. **(6 marks)**
- ii) On your return from your holiday you notice that the demand for your products has slumped. With the aid of sketches where appropriate, discuss in detail the possible causes of such a change in your business revenues. **(9 marks)**

QUESTION 4

As a newly appointed Veterinary Officer of Mazabuka District, you are informed that there is an outbreak of Foot and Mouth Disease (FMD) in the area. How would you evaluate the control programme? Outline the beneficiaries of this programme. **(15 marks)**

QUESTION 5

A

- i. What are the two criteria upon which depreciation is calculated? **(1 mark)**
- ii. Briefly outline the difference between the diminishing balances and the straight line depreciation methods. **(2 marks)**
- iii. What do you understand by salvage value? **(1 mark)**
- iv. In what circumstance would depreciation be considered negative? **(1 mark)**

B

- i. You are interested in buying a used x-ray machine for your practice. The salvage value of an x-ray machine is K5,000,000 and it has depreciated by K 3,000,000, annually. It has a useful life of 15 years. Using the straight line depreciation method, calculate the historic cost of the machine. **(5 marks)**
- ii. Calculate the depreciation expense of the asset in year five using the diminishing balances method. **(5 marks)**
- iii. What is the book value of the asset in year 10 using the diminishing balances depreciation method? **(5 marks)**

QUESTION 6

A project to build a new animal quarantine station has a flow of benefits and costs over ten years as set out below.

Year	Benefits (ZMK)	Costs (ZMK)
1	0	1,000,000
2	100,000	800,000
3	300,000	500,000
4	400,000	100,000
5	400,000	50,000
6	400,000	10,000
7	400,000	10,000
8	400,000	10,000
9	400,000	10,000
10	400,000	50,000

- (a) If the discount rate is 10%, calculate the present values of the benefits (PVB) and the costs (PVC). **(2 marks)**
- (b) Determine the following:
- (i) Total present value of the benefits and the costs. **(2 marks)**
 - (ii) Present value of the net benefits from the project. **(1 mark)**

Using the figure that you calculated above:

- (c) What is the net present value (NPV) of the project to build an animal quarantine station? Briefly state your comment. **(5 marks)**
- (d) What is the benefit - cost ratio of the animal quarantine station project? Briefly state your comment. **(5 marks)**
- (e) You are requested to calculate the internal rate of return (IRR). Please discuss. Relate a calculated internal rate of return of 3% to the discount rate of 10%? **(5 marks)**

END OF EXAMINATION

University of Zambia

University Second Semester Examinations

February 2007

Veterinary Jurisprudence and Extension (VMD 642)

Time: 3 hours

Total marks: 50

Instructions: Answer all questions

Question 1

- a. In order to maintain good professional conduct and morale of practising veterinarians what are the different principles which you would like to follow and advise to your fellow colleagues? **(8 marks)**
- b. Write the different laws of Zambia affecting veterinary surgeons. **(2 marks)**

Question 2

- a. Write why and when the necropsy should be done in a vetero-legal case? Describe the procedure of post-mortem examination in bovines, autopsy findings and cause of death in case of drowning. Mention important points you shall keep in mind while giving evidence in court of law **(8 marks)**
- b. Write the signs of death **(2 marks)**

Question 3

What do you understand by agriculture extension? Discuss why participatory extension nowadays is considered to be the best approach for sustainable agriculture in rural Zambia? Who are the key informants in the livestock sector? **(10 marks)**

Question 4

Name the notifiable diseases in Zambia. How would you introduce a test and slaughter CBPP campaign programme in a traditional farming sector in western Zambia? Describe the approach you would undertake to ensure farmers' cooperation in this disease control strategy. (10 marks)

Question 5

Write detailed notes on the following: (10)

- a. Chapter 252 and Expert witness
- b. Professional and personal qualities of an extension worker
- c. Euthanasia and Death
- d. Communication and Extension Methods
- e. Dental formula of an adult cattle and stallion

END OF EXAMINATION

University of Zambia

University Second Semester Examinations

February 2007

Veterinary Public Health VMD 652

Time: 3 hours

Total marks: 100

Instructions: Answer all questions in section A and any two questions in section B

Section A (60 Marks)

Answer all questions in this section

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Question 1

A. Define any four (4) of the following:

1. Environmental health (2.5 marks)
2. Biological Oxygen Demand (2.5 marks)
3. Substitution (2.5 marks)
4. Thermal Death time (2.5 marks)
5. Pollution (2.5 marks)

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

1. Trihalomethanes and Haloacetic acids (2.5 marks)
2. Plumbo-solvency reduction (2.5 marks)
3. Biodegradable pollutants (2.5 marks)
4. Refractory organics (2.5 marks)
5. Bioaccumulation (2.5 marks)

Question 2

- A. List the hazards found in the human environment and choose one to elaborate on how it affects the quality of human life and how you can control it to ensure that the quality of human life is maintained. (10 marks)
- B. Regarding wastewater management, describe, in sequence, the consequences of eutrophication in the recipient water body. Include the possible hazards of this phenomenon (10 marks)

Question 3

Compare and contrast the following terms:

- i. Anthroozoonoses and Zooanthroozoonoses (5 marks)
- ii. Cycloozoonoses and metazoosoonoses (5 marks)
- iii. Virulence and Pathogenicity (5 marks)
- iv. Saproozoonoses and Amphixenoses (5 marks)
- v. Gnotobiotic and axenic animals (5 marks)

SECTION B (40 Marks)

Answer only two (2) questions from this section

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Question 4

You are the District Veterinary Officer (DVO) for a certain district that borders a country that is experiencing political upheaval. Two weeks after the onset of civil war in a neighbouring country, there has been an influx of refugees and their livestock into your district. The local authorities have been asked by central government to provide whatever aid is needed to the refugees. As a top government official and DVO, you have been placed in charge of disaster management. Describe how you would manage veterinary activities in this situation. (20 marks)

Question 5

You are a young graduate working in a mixed animal practice in Mongu. In addition to your duties as a veterinarian the Director of the practice is keen for you to have a role in the wider community. In Mongu there is an abattoir (Zambeef abattoir) that slaughters predominately cattle, sheep, goats and pigs. The manager of the abattoir has approached your practice for a veterinary specialist to speak to the abattoir workers about potential zoonotic diseases and their risk of transmission to the workers at the abattoir. Your practice Director has highly recommended you for this job.

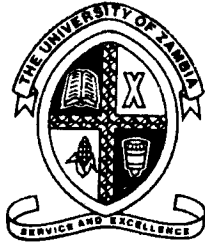
One of the abattoir workers was reported to have had sores on the skin reported by the local health official as a chancre. For this disease, discuss the aetiological agent, source of infection for humans, the mode of transmission to humans, the clinical signs associated with infection in humans and in animals, and the method of prevention that you would recommend to the abattoir workers. (20 marks)

Question 6

Assuming you were a District Veterinary Officer and planned to conduct a "Dog Control Programme."

- A. What would be the objective and the significance of undertaking such a program? **(5 Marks)**.
 - B. What kind of information would you like to know before undertaking such a control program? **(5 Marks)**.
 - C. Describe the method/techniques of collecting the vital information **(5 Marks)**.
 - D. Discuss the possible control strategies for reducing a dog population **(5 Marks)**.
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END OF EXAMINATION



THE UNIVERSITY OF ZAMBIA

UNIVERSITY SECOND SEMESTER EXAMINATIONS 2006/2007

VETERINARY PATHOLOGY II (VMP 412)

TIME: THREE (3) HOURS

SECTION A: Answer **all** questions in this section

- Q1. (a) With examples in each case, outline the mechanisms of endocrine disease.
(b) Give an account of **causes** and **pathology** of fibrous osteodystrophy.
- Q2. (a) (i) What is stomatitis?
(ii) List the four (4) viral diseases that cause vesicular stomatitis.
(iii) Describe the pathological lesions observed in vesicular stomatitis.
(b) Describe the **pathogenesis** and detailed **pathology** of Parvo virus enteritis
- Q3. (a) Describe what a female pseudohermaphrodite is.
(b) What do you understand by the term cryptorchidism and state the two causes of this condition?
(c) Define salpingitis, its causes, pathology and two effects of this condition.
(d) State the three categories of renal failure and give two causes of each.
(e) Nephritis may be classified in three ways, name them.

SECTION B: Answer question **one (Q1)** and any other **two (2)** questions in this section.

Q1. Write short notes on:

- (a) Dermatitis
- (b) Myeloid hyperplasia
- (c) Nutmeg liver
- (d) Pyometra
- (e) The difference between phimosis and paraphimosis

Q2. (a) (i) What is congestive heart failure and what are the causes?
(ii) What compensatory mechanisms are initiated in congestive heart failure?

(b) Describe the routes through which infection can gain access to the liver

(c) Name three (3) viral infections of the liver and describe the **aetiology**, **pathogenesis** and **pathology** of one (1) of these.

Q3. (a) Name the four stages of pneumonia and give a brief description of each.

(b) What is pleuritis

(c) There are several types of pneumonia (specific causes of), name any five of these and give one cause of each.

(d) What is bronchiectasis

(e) How many types of pneumocytes are there and what are their roles?

Q4. (a) What is hydrocephalus?

(b) Discuss the forms, types and causes of hydrocephalus

(c) Describe the characteristic histopathological features in **lymphocytic** inflammation of the central nervous system

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA
UNIVERSITY SECOND SEMESTER EXAMINATION – FEBRUARY 2007
VETERINARY VIROLOGY AND MYCOLOGY (VMP 432)

Time : **Three (3) hours**

Answer : **All the questions**

All questions carry equal marks

SECTION I: VIROLOGY

Q1. Describe the various components of the structure of viruses.

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

- (a) Type I interferons
- (b) Asfarviruses
- (c) Passive immunization against viral infections
- (d) Canine adenovirus
- (e) PrP^{Sc}
- (f) Adaptive soluble antiviral mediators
- (g) Paired serum sampling

Q3. Discuss recombination in viruses. Your answer should clearly explain genetic reassortment, antigenic shift and antigenic drift.

Q4. Compare and contrast the following:

- (a) Alphaherpesvirus versus gammaherpesvirus
- (b) Immune evasion and survival mechanisms of transmissible spongiform encephalopathy agents versus viruses.
- (c) Feline versus canine parvovirus infections
- (d) ELISA versus PCR as a diagnostic tests of viruses

SECTION II: MYCOLOGY

Q1. Briefly outline the following:

- a) Fungal toxins classification
- b) Virulence mechanisms of *Candida* species
- c) Distribution and ecology of *Cryptococcus neoformans*
- d) Pathogenic mechanisms of *Aspergillus fumigatus*.

Q2. Compare and contrast the following:

- a) Arthrospores *versus* conidiospores
 - b) Control/prevention *versus* treatment against mycoses
 - c) Ascomycotina *versus* zygomycotina
 - d) Fungal hyphae *versus* fungal spore
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GOOD LUCK!!!!

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

FINAL THEORY EXAMINATION – 26th February, 2007 (am)

VETERINARY PARASITOLOGY

VMP 442

TIME: THREE (3) HOURS

ANSWER: ALL QUESTIONS

SECTION A: PROTOZOOLOGY

- Q 1 Clearly OUT LINE the life cycle of *Theileria parva lawrencei* and, explain the pathogenicity of this protozoan parasite.
- Q 2 Write SHORT NOTES on ALL of the following topics;
- (a) *Histomonas meleagridis*
 - (b) Antigenic variation in any protozoa of your choice and, its significance.
 - (c) Enzootic stability in the control of a specific protozoa of veterinary importance in Zambia.
 - (d) What you understand by the term pyometra.
 - (e) The mode of transmission in protozoa belonging to the order kinetoplastida.

(PLEASE TURN OVER)

SECTION B: HELMINTHOLOGY

- Q 1. Migration of lungworm (Metostromyloidea) third stage larvae (L₃) in the definitive host differ depending on the species involved.
- (a) List at least FOUR (4) of the many diverse methods the L₃ of lungworms may take upon ingestion by the host before their maturation to adults.
 - (b) DISCUSS in detail the life cycle of *Dictyocaulus viviparus*.
- Q 2. Write SHORT NOTES on ALL of the following topics:
- (a) *Thelazia gulosa*
 - (b) Excretion and excretory products in nematode parasites
 - (c) The Baermann technique and the principal of faecal culture
 - (d) Cuticular ornamentations in nematodes and their significance
 - (e) The Caecal nematode of Turkeys

SECTION C: ENTOMOLOGY

- Q 1. DESCRIBE the life cycle of vectors of *Dirofilaria immitis*. Discuss the various methods that could be employed to control these vectors.
- Q 2. Write SHORT NOTES on ALL of the following topics:
- (a) *Boophilus microplus*.
 - (b) Mange.
 - (c) Vectors of *Dipylidium caninum*.
 - (d) *Oestrus ovis*.
 - (e) *Menacanthus* species.

**END OF EXAMINATION
GOOD LUCK**