THE UNIVERSITY OF ZAMBIA
UNIVERSITY EXAMINATIONS
SEPTEMBER, 1987

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THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMB 210

VETERINARY ANATOMY AND PHYSIOLOGY

TIME: THREE HOURS

ANSWER: ALL QUESTIONS
EACH QUESTION CARRIES 20 MARKS

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1. Answer (a) OR (b)

   (a) Describe the structure of a typical vertebra. What are the important differences in the vertebrae of the cervical, thoracic, lumbar and sacral regions?

   (b) Which bones form the pelvic limb? Describe their characteristics.

2. Describe the anatomical location of the following:-

   (a) xiphoid cartilage

   (b) hyoid bone

   (c) acetabulum

   (d) patella

   (e) calcaneus

   (f) foramen magnum

   (g) choanae

   (h) frontal sinus

   (i) turbinate bones

   (j) vomer

3. Give an account on the histological structure of the following:

   (a) Mitochondria
   (b) Pseudostratified epithelium
   (c) Hyaline cartilage
   (d) Neutrophil granulocyte
   (e) Cardiac muscle

4. Compare and contrast excitation - contraction coupling in skeletal and smooth muscle fibres.

5. Write short notes on the following:-

(i) equilibrium diffusion potential

(ii) transport mechanisms across cell membranes

(iii) excitatory and inhibitory post-synaptic potentials

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMB 211

VETERINARY EMBRYOLOGY

TIME: THREE HOURS

ANSWER: ALL QUESTIONS. EACH QUESTION CARRIES 25 MARKS. USE DIAGRAMS WHEN APPROPRIATE

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1. As the mammalian foetus is leaving the protected position in the mother, dramatic changes occur to make it able to live on its own. Describe the main routes of the circulatory system in the foetus and the circulatory and respiratory changes following birth.

2. Describe the development of the central nervous system from the formation of the neural plate up to full maturation.

3. The urinary and reproductive systems are formed in close connection to each other. Give an account of EITHER (a) OR (b)

   (a) The development of the reproductive system up to the indifferent stage and the further development in the female

   (b) The development of the urinary system in the male.

4. Write short notes on FIVE of the following:

   (a) Foetal membranes in a mammal

   (b) Derivatives of the pharyngeal pouches

   (c) Descent of the testis

   (d) Derivatives of the mesodermal germ layer

   (e) Types of placenta found in the cow and the dog

   (f) Development of the respiratory system

   (g) Capacitation

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER 1987

VMB 310

VETERINARY ANATOMY

TIME: THREE HOURS

ANSWER: FIVE QUESTIONS (FROM 7)
ALL QUESTIONS HAVE EQUAL VALUE
ILLUSTRATE YOUR ANSWERS WITH DIAGRAMS WHEREVER POSSIBLE

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1. Describe the bones and ligaments of the pelvic girdle in the bovine.

2. Give an account of the anatomy of the muscles of the hock joint and digits in the bovine. Indicate the function and the innervation of the muscles you describe.

3. Give an account of the brachial plexus. What muscles are innervated by the radial nerve.

4. Describe the anatomy of the lungs of the birds. Indicate structural and functional differences between the bird and mammalian lungs.

5. Compare and contrast the large intestines of the bovine and dog, both in topography and appearance.

6. Compare the uterus of the bovine and pig, both in shape and internal organisation. Describe the position, attachment and blood vessels and innervation.

7. Describe the anatomy of the eyeball including its blood supply and innervation.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMB 315

VETERINARY HISTOLOGY

TIME: THREE HOURS

ANSWER: ALL QUESTIONS. All Questions carry equal marks.
DIAGRAMS should be used to clarify your answers wherever possible.

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1. (a) Describe the histological structure of the stratified squamous epithelium.

   (b) How is glandular epithelium classified?

2. (a) Give a concise but detailed comparison of the wall of the trachea, bronchi and bronchioli.

   (b) Write short notes on any two of the following:

   (i) Spinal cord

   (ii) Cells of the cardiac impulse-conducting system.

   (iii) Osteon.

   (iv) Hyaline cartilage.

   (v) Neuroglial cells.

3. EITHER:

   Give an account of the microscopic arrangement of the wall of the fundic region of the stomach.

   OR:

   Describe the arrangement of the liver parenchyma (in the hepatic lobule) in the pig (together with associated vessels and ducts in the portal area).

4. EITHER:

   Describe the histological structure of the wall of the elastic and muscular arteries.

   OR:

   Describe the histological structure of the wall of the uterus of the cow in the anestrus.

5. Write short notes on the structure and function of ONE in each of the following groups:

   Group A: (a) Sarcomere.

   (b) Lymph node.

   (c) Tooth.

   (d) Bursa of Fabricius.

/2......

VMB 315

Group B:

(a) Lactating mammary gland of the cow.

(b) Parotid salivary gland.

(c) Ovary of the MARE.

(d) Pancreas.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMB 320

VETERINARY PHYSIOLOGY

TIME: THREE HOURS

ANSWER: FIVE QUESTIONS

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1. Outline and discuss the organisation of the nervous system for the control of the level of consciousness in animals.

2. Discuss (a) the factors that contribute to the maintenance of a constant pH within the reticulo-rumen, and (b) the ammonia-urea cycle in ruminants.

3. Compare and contrast the mechanisms for the regulation of blood volume with those for osmoregulation.

4. Write brief notes on the measurement of:-

   (i) renal plasma clearance of substances

   (ii) The volume of the plasma compartment

   (iii) metabolic rate by spirometry

5. Compare and contrast the shape of the action potential curves in skeletal, cardiac and smooth muscle, and account for the differences.

6. Discuss the control of blood glucose levels in animals

7. Write brief notes on:-

   (i) the significance of colostrum to the new-born ungulate,

   (ii) maternal recognition of pregnancy,

   (iii) control of somatotropin (STH) secretion.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY SUPPLEMENTARY EXAMINATIONS - NOVEMBER, 1987

VMB 320

VETERINARY PHYSIOLOGY

TIME: THREE HOURS

ANSWER: FIVE QUESTIONS

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1. Discuss the role of the kidney in the control of acid base balance.

2. List the hormones of the pituitary gland and outline the control of their secretion.

3. Discuss the control of stomach motility on simple stomach animals.

4. "The quality of protein fed to ruminants is of limited importance to the ultimate protein nutrition of the animal." Discuss this statement.

5. Write brief notes on:-

   (i) Functions of lymphocytes
   (ii) Regulation of erythrocyte production
   (iii) Carbon dioxide transport in the blood

6. Discuss the roles of the muscle spindles and the Golgi tendon organs in the control of muscle tone.

7. Describe the mechanisms for controlling the plasma concentration of calcium ions. Why are they important?.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMB 325

VETERINARY BIOCHEMISTRY

TIME: THREE HOURS

ANSWER: FIVE QUESTIONS ONLY
ALL QUESTIONS HAVE EQUAL VALUE

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1. Describe the gluconeogenic pathway for the synthesis of glucose from pyruvate. Explain in which tissues in a ruminant the synthesis of glucose is important and why.

2. Describe the β-oxidation cycle for the break-down of fatty acids. Explain how much energy is obtained from a molecule of palmitic acid.

3. Write short notes on THREE of the following:-
   (i) Nitrogen balance
   (ii) Uric acid
   (iii) Glutamine synthetase
   (iv) Pyridoxal phosphate

4. Describe how proteins are synthesised on the ribosome.

5. Describe some special aspects of avian biochemistry.

6. Explain what the smell of acetone in a sample of bovine urine could indicate. Describe a simple confirmatory test which could be carried out on this urine. Describe the synthesis of acetone in the animal from acetyl coenzyme A. Explain in detail the metabolic disorders which could cause excess synthesis of acetone.

7. Write a detailed account of the structure of proteins with comments on the special structural properties of allosteric enzymes.

8. Properties of the enzyme salivary - alpha-amylase were being studied in the laboratory.
   (i) A calibration curve for the estimation of glucose was prepared, $3.0cm^3$ of glucose standard was mixed with $2.0cm^3$ of dinitrosalicylic acid reagent, boiled for five minutes, cooled, and the absorbance read at 540 nm.

The following results were obtained:-

VMB 325

Tube No.	1	2	3	4	5	6
Conc. Glucose (μ mole)	0	1	2	3	4	6
A_{540}	0.00	.045	.085	.140	.185	.285

(ii) A solution of salivary amylase was prepared and added to starch in buffer at a known pH. The reaction was stopped after 15 minutes and the glucose concentration estimated with DNS reagent.

Tube No	1	2	3	4	5	6	7	8
pH	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0
A_{540}	.02	.04	.08	.18	.250	.240	.12	.07

(iii) Draw the calibration curve for glucose.

Draw the graph of μ mole glucose produced in 15 minutes against pH.

Explain in detail the reasons for these results.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMB 425

VETERINARY PHARMACOLOGY

TIME: THREE HOURS

ANSWER: FIVE QUESTIONS
ALL QUESTIONS HAVE EQUAL VALUE

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1. Describe the neurotransmitter sub-types within the autonomic nervous system, giving examples of the agonists and antagonists which act upon them.

2. Describe the clinical signs of (a) aspirin and (b) paracetamol toxicity and discuss the mechanism of toxicity and the relevant treatment for each.

3. Discuss the drugs you could use for treating arthritis in animals. Explain their usage, mode of action and their relative advantages and disadvantages.

4. Write short notes on:-

   (a) Premedication for anaesthesia
   (b) Neuroleptanalgesia
   (c) Barbiturates

5. Compare and contrast halothane and ether and describe their actions and uses in veterinary medicine.

6. Compare and contrast general anaesthesia and dissociative anaesthesia.

7. Discuss the pharmacological and ethical considerations in the use of chloramphenicol in domesticated animals.

8. You wish to induce diuresis in a dog. Describe the drugs which may be available and discuss their site and mode of action. For your principal choice discuss one possible drawback or potentially toxic effect and how you would overcome this.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY SUPPL/DEFERRED EXAMINATIONS - NOVEMBER, 1987

VMB 425

VETERINARY PHARMACOLOGY

TIME: THREE HOURS

ANSWER: FIVE QUESTIONS
ALL QUESTIONS HAVE EQUAL VALUE

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1. Discuss the uses of corticosteroids in veterinary medicine.

2. Describe the development of the penicillins with reference to the drawbacks of sodium benzylpenicillin.

3. Discuss the use of halothane as an anaesthetic.

4. Give an account of the actions of morphine in horses, dogs and cats.

5. Write short notes on three of the following:

   (a) Tranquilisation and sedation in veterinary surgery
   (b) Ketamine anaesthesia
   (c) Antifungal chemotherapeutic substances
   (d) Neuromuscular blocking agents

6. List the side-effects and possible toxic actions of antibacterial chemotherapeutic agents and describe how you could avoid or overcome the toxic effects of sulphonamides.

7. Discuss the ethical and pharmacological considerations in using non-steroidal anti-inflammatory drugs.

8. Discuss the uses of autonomic nervous system drugs in clinical veterinary medicine.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMC 511

THERAPEUTICS

TIME: THREE HOURS

ANSWER: QUESTIONS 5 and 6 AND ANY THREE

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1. Discuss the problems which may result, and the appropriate treatment following:-

   (a) Vomiting

   (b) Diarrhoea

2. Write short notes on THREE of the following:-
   (a) Benzimidazole drugs
   (b) Purgatives
   (c) Therapy of congestive heart failure in dogs
   (d) Uses of and problems associated with, diuretic drugs

3. Discuss the toxicity of asprin and paracetamol and describe treatments used for paracetamol toxicity.

4. Write short notes on:-
   (a) Premedication for anaesthesia
   (b) Analgesic drugs
   (c) Factors governing choice of anaesthetics

5. (a) Which are the common causes of poisoning in domestic animals?

   (b) Write short notes on :-
   Diagnosis of poisoning in connection with clinical evidence, circumstancial evidence and pathological evidence.

6. Dip poisoning is a common feature in tropical animal production. In the case of organo chlorinated hydrocarbon poisoning, which clinical symptoms would be observed.

   What steps would you take to support your symptomatic treatment.

   What prophylactic measures would you advice so that such a case does not occur again.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY SUPPLEMENTARY EXAMINATIONS - NOVEMBER, 1987

VMC 511

VETERINARY THERAPEUTICS AND TOXICOLOGY

TIME: THREE HOURS

ANSWER: QUESTIONS 5 AND 6 AND ANY THREE

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1. When are the following drugs contraindicated, and write short notes on the use of:-
   (a) Barbiturates
   (b) Chlorahydrates
   (c) Aether pronarcosi

2. Briefly write on the action of Penicillin and Streptomycin. What precautions would you make when using such drugs?

3. Give an example of Chemotherapeutic drug commonly used in treating a number of bacterial and rickettsial infections in livestock. Briefly characterise its mode of action, effect, mode of treatment for the mentioned indications.

4. Write short notes on the use of:-
   (a) Atropine Sulphate 1%
   (b) Long, medium and short acting Sulfonamides

5. Delnav is a commonly used acaricide in Zambia in diptanks, spray races and to some extent in hard pump sprays.

   On some occasions poisoning occurs in ruminants due to dipwash over strength or through drinking dipwash as may be the case when animals are dipped without having been watered on a very hot day. Write short notes on the following:-
   (a) Clinical Symptomatology
   (b) Diagnosis
   (c) Treatment
   (d) Post-mortem findings
   (e) Prophylaxis

6.

VMC 511

6. Write briefly on the importance of Lantana species in Zambia basing your explanation on how you could recognise poisoning with this plant in cattle, also briefly write on diagnosis, post-mortem findings and treatment of any animal suspected of having eaten Lantana camara.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMC 520

SURGERY

TIME: THREE HOURS

ANSWER: FIVE QUESTIONS

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1. In anaesthesia different agents are used for different purposes. Briefly write on the following agents as they are used in Veterinary anaesthesiology:-

   (i) Anticholinergic agents

   (ii) Ultra-Short acting barbiturates

   (iii) Ketamine Hydrochloride

   (iv) Inhalation anaesthetics

   (v) Local anaesthetics

2. (a) What is the difference between sterilization and disinfection?

   (b) How would you render surgical instruments sterile?

   (c) Outline the groups of agents commonly used in Surgical disinfection.

   (d) What precautions are routinely taken to avoid surgical wound sepsis?

3. (a) What do you understand by "An Open Wound"

   (b) An incision wound is said to heal well by first (Primary) intention.

      (i) What factors favour this type of healing in an incision wound.

      (ii) How would you handle a four-hour old laceration wound so that it can heal by Primary intention.

   (c) What are the common complications of wound healing.

4. (a) Briefly define the following:-

      (i) Blepharospasm

      (ii) Enterepion

      (iii) Ulcerative Keratitis

      (iv) Glaucoma

      (v) Ptosis

   (b) Describe the process of removing a badly injured eye in a two-year old cow.

5. (a) Describe the process of dehorning in a one-year old heifer paying particular attention to anaesthesia, methods of dehorning and post operative care.

(b) Describe the process of castration of a six-month old bull calf, paying particular attention to anaesthesia, methods of castration and post operative care.

What are the common complications of:-

(i) Closed (bloodless) castration

(ii) Open (bloody) castration

6. A three-month old heifer calf is presented with a swelling at the Umbilicus. On examination the swelling appears soft and not painful.

(i) What would be your tentative diagnosis?

(ii) What other findings would you establish on further examination

(iii) What other conditions would you consider for differential diagnosis

(iv) Briefly describe the principles of treating the condition

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END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMC 521

RADIOLOGY

TIME: TWO HOURS

ANSWER: FIVE QUESTIONS

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1. Describe in detail the process of producing a beam of X-Ray photons, outlining the salient parts of the X-Ray machine necessary for this.

2. X-Ray radiation is harmful.

   (i) What precautions are taken routinely to protect the personnel working in an X-Ray Unit from X-Ray irradiation.

   (ii) Certain organs and tissues are more sensitive to X-Rays than others, which organs and tissues are more susceptible and why?

3. (a) Explain the various stages required to obtain a good quality X-Ray image on a film.

   (b) What do you understand by
      (i) Contrast
      (ii) Definition

4. (a) Describe the various types of grids available for the limitation of scatter radiation.

   (b) What do you understand by the term "Intensifying Screens"?

   (c) What is the value of collimation in radiography?

5. (a) What is the value of using a contrast medium in radiography.

   (b) What do you understand by
      (i) Positive contrast
      (ii) Negative contrast

   (c) How would you carry out confirmatory diagnosis for dog with upper intestinal obstruction?

6. (a) What would be the radiographic sign of a fractured femur with overriding gragments.

   (b) What will be the value of examining the fracture of a long bone by taking radiographs in two views.

   (c) How would geometrical distortion affect the interpretation of an X-Ray machine.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMC 532

REPRODUCTION AND OBSTETRICS

PART I

TIME: ONE AND HALF HOURS

ANSWER: ALL QUESTIONS

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1. Draw the female genital organ, label clearly the parts and briefly describe the functions of each.

2. (a) What is the difference between puberty and reproductive maturity?

   (b) What cycles are associated with sexual maturity?

3. What are the signs of oestrus in the cow?

4. Why is rectal examination to determine pregnancy in a herd of cattle at Gallaun Farm necessary? What land marks would you look for to enable you determine the age of the foetus?

5. Cessation of oestrus in an animal is very important to the Livestock farmer. What does this mean, and what physical and endocrinological/hormonal changes take place in the body of an animal?

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMC 532

VETERINARY REPRODUCTION AND OBSTERICS

PART II

TIME: ~~TWO~~ ONE AND HALF HOURS

ANSWER: ~~5~~ 3 QUESTIONS ONLY

1. Write notes on the following:-
   - (a) Relaxin
   - (b) Prostaglandin
   - (c) Progesteron
   - (d) Oxytocin
   - (e) Corticosteroids

2. Describe in details the stages of labour in a pregnant cow showing the difficulty or ease in the parturition of an Anterior, Dorsal extended presentation of the foetus.

3. What are the major causes of Disctocia in the cow. Define your answer under:-
   - (a) Maternal causes
   - (b) Foetal causes

4. A bitch has been in labour for 2 days without delivering any puppies, what reasons can you give for the delay and how will you help it deliver?

5. Milk fever or parturient hypocalcaemia is a cause of recumbency in parturient and puerperal cows - what conditions can induce this in the cow, and how will you treat it?

6. How will you deliver a pregnant cow brought to you with a condition of distocia or difficult birth, diagnosed as anterior presentation, dorsal position and lateral deviation

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMD 510

VETERINARY MEDICINE I

TIME: THREE HOURS

ANSWER: SIX QUESTIONS, THREE FROM SECTION A AND THREE FROM SECTION B

SECTION A GENERAL MEDICINE

1. You have been called in to see a dairy herd of fifty cows in Lusaka. The history is that the concentrate supplement was changed four days ago from 70% maize bran + 30% chicken manure to crushed whole maize. Yesterday three cows suddenly went off-feed, developed a profuse diarrhoea and looked depressed. One started staggering shortly thereafter, fell and died. The two others similarly became ataxic this morning, fell and died. In the meantime two others have gone off-feed and look depressed. The rectal temperatures are 38.2 and 38.5°C respectively and one is breathing fast and shallowly.

   The two dead cows have been opened up and both have considerable quantities of grain in the rumen, fluid intestinal contents and severe hemorrhages in the abomasal and large intestinal mucosa.

   (i) List three diseases you would consider in your diagnosis
   (ii) What is your most likely diagnosis?
   (iii) Please explain the pathogenesis of the disease
   (iv) How would you proceed to treat the sick animals
   (v) What measures would you advise to prevent further incidents of this disease?

2. For each of the following conditions briefly indicate the possible causes and give some disease examples.

(i)	Subcutaneous oedema	(vi)	Weight loss
(ii)	Diarrhoea	(vii)	Distended abdomen (dog)
(iii)	Skin nodules	(viii)	Tenesmus
(iv)	Vomiting	(ix)	Hunched back (cow)
(v)	Jaundice	(x)	Restlessness

3. (i) What are the principal signs of respiratory distress?
   (ii) Give some disease examples which typify the individual signs of respiratory distress.
   (iii) Outline the principles of treatment and control of respiratory tract disease.

4. (i) What clinical signs would you expect in a dog with diaphragmatic hernia?

(ii) How would you proceed to establish such a diagnosis?

(iii) What treatment would you administer to the dog?

5. Write short notes on the following:

(a) Reticulo - pericarditis traumatica (RPT)

(b) Diagnostic methods for RPT

(c) Treatment for RPT.

/3......

VMD 510

SPECIAL MEDICINE

SECTION B

1. Briefly outline control methods for

   (a) Coliform gastroenteritis in pigs

   (b) Haemorrhagic septicaemia in cattle

   (c) Rabies in dogs

2. Describe Botulism with respect to etiology, clinical signs and diagnosis

3. An outbreak of bovine brucellosis has been suspected in a large urban dairy in Lusaka. Write in the form of a scientific report your observations on the clinical and laboratory diagnosis. What preventive and/or control measures would you recommend for the Republic of Zambia?

4. Giving specific examples, write a concise account of the processing and examination of lesions from four major skin diseases of farmstock in Zambia.

5. (i) Mention the main pathogenic organisms associated with bovine mastitis and the diagnostic methods

   (ii) Give your opinions on how to eradicate bovine tuberculosis from Zambia.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA
UNIVERSITY EXAMINATIONS - JUNE 1987

VMD 512
VETERINARY PUBLIC HEALTH

TIME: THREE HOURS.
ANSWER: ANY THREE QUESTION FROM SECTION A AND TWO FROM SECTION B.

SECTION A

1. Classify and explain the different types of zoonoses based upon the life cycle of pathogenic organisms.

2. Describe measles or smallpox from the viewpoint of zoonoses.

3. Describe the epidemiology of yellow fever.

4. Describe the epidemiology of plague.

SECTION B

5. Classify and explain the intoxication types of bacterial food poisoning.

6. Describe the main objectives of meat inspection.

7. Write an essay on faecal indicator organisms.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMD 515

VETERINARY CLINICAL PATHOLOGY

TIME: THREE HOURS

NOTE: ANSWER The questions on answer books only.

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1. It should be realized that ------diagnosis seldom can be made from ------ findings alone, but such findings often provide ------ which together with ------, ------ and physical examination. (10 marks)

2. Calculate the blood volume of an adult sheep of average size (10 marks)
   Answer --

3. Put the meaning for each word. (10 marks)

   a = ----------------------- aniso = --------------------
   mega = -------------------- eosin = --------------------
   morpho - ------------------ meta = --------------------
   hyper = ------------------- leuk = --------------------
   blast = ------------------- osis = --------------------

4. Define the following terminology. (10 marks)

   (i) Anaemia (ii) Haemoglobinaemia

5. What kind of abnormal findings can be diagnosed from the Giemsa stained blood smear? (10 marks)

6. What is dehydration? How will you measure dehydration in animals? Enumerate four major diseases/conditions where a patient can be dehydrated. (12 marks)

7. What type of specimen and which preservative will you use while collecting specimen from suspected cases of following diseases for laboratory confirmation. (14 marks)

   (A) (i) Babesiosis (ii) Trypanosomiasis (iii) Heart water (iv) Theiloriosis (v) Coccidiosis.

   (B) (i) Streptothricosis (ii) Tuberculosis (iii) Brucellosis (iv) Bovine Pasteurellosis (v) Avian Salmonellosis

   (C) (i) Foot and Mouth disease (ii) Rabies (iii) Marek's disease (iv) New castle disease.

VMD 515

8. Describe the following terminology.

Give one example of a disease/condition where you can notice them. (12 marks)

(i) Haematuria (ii) Haemoglobinuria (iii) oliguria (iv) Pyuria (v) cylindruria (vi) Hydropericardium.

9. Why does a clinical pathologist need urine analysis? Enumerate different meanse of urine specimen collection. Describe briefly the routine examination of urine you need to do in laboratory. (12 marks)

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMP 410

PATHOLOGY
THEORY

TIME: THREE HOURS

ANSWER: ALL QUESTIONS

SECTION A

GENERAL PATHOLOGY

1. Define neoplasia and describe the general characteristics of neoplasms or tumours.
2. Classify inflammation according to the type of exudate.
3. Define infarction and describe the different types of infarcts.
4. Describe the forms of necrosis.

SECTION B

SPECIAL PATHOLOGY

1. Classify splenomegaly according to the cause.
2. Explain fibrinous pneumonia.
3. Describe pathological changes of rabies.
4. Write short notes on each of the following:

   (1) Encephalomalacia

   (2) Acute necrotizing mastitis
5. Describe the etiology, gross and microscopic changes of Rift Valley Fever.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY SUPPLEMENTARY EXAMINATIONS - OCTOBER, 1987

VMP 410

VETERINARY PATHOLOGY

THEORY

TIME: THREE HOURS

SECTION A

General Pathology

Answer TWO questions only:

1. Explain various pathological pigmentation.
2. Define oedema and explain in details.
3. Describe the characteristic changes of chronic inflammation.
4. Explain general characteristics of mesenchymal and epithelial neoplasm.

SECTION B

Special Pathology

Answer FOUR questions only:

1. Define leukaemia and describe the characteristics of various forms of leukaemia.
2. Describe the characteristic findings of bovine brucellosis.
3. Define glomerulonephritis and classify the forms.
4. Describe the characteristics changes of bovine ovarian cysts.
5. Explain encephalitis and give an example of typical cases in domestic animals.
6. Describe malposition of the intestines.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMP 430

VETERINARY MICROBIOLOGY AND IMMUNOLOGY

TIME: THREE HOURS

ANSWER: ALL QUESTIONS

SECTION A

VETERINARY BACTERIOLOGY

1. Describe, giving specific examples the various methods for the identification of pathogenic fungi.

2. Write short notes on the following:

   (a) Dimorphic fungi

   (b) Epizootic Lymphangitis.

   (c) Infectious Bovine Keratoconjunctivitis.

   (d) *Haemophilus pleuropneumoniae*.

   (e) Mycotoxins.

SECTION B

Rickettsias, Chlamydias, Mycoplasmas and Virology

3. (a) What are the main differences between lymphoid leukosis and Marek's Disease in chickens.

   (b) What are the general characters of Retroviruses. Using a diagram explain the mode of multiplication of Retroviruses in the host cell.

4. (a) Rickettsias and Chlamydias are suggested to be evolved from bacteria. Discuss and compare with viruses.

   (b) Match A with B:

A	B
LTR	*Ch. psittacii*
Q-fever	Orbivirus
Scrapie	Provirus
Infectious Bursal Disease	Reverse Transcriptase
Rabies virus	Pock lesions
Lumpy Skin Disease	Negri bodies
Adenovirus	Prion
Aphthovirus	Caprine Pleuropneumonia
RNA-dependant DNA polymerase	Infectious Canine Hepatitis
F38 strain	Vesicular disease
	Rickettsia
	Coronavirus

VMP 430

5. (a) Write short notes on 5 of the following

(i) Prophage

(ii) Interferon

(iii) EID_{50}

(iv) Virus neutralization test.

(v) The advantages and disadvantages of inactivated viral vaccine.

(vi) Vertical transmission of viruses. Give examples-

(vii) Inclusion bodies.

(viii) Biochemical changes in the host cell due to viral infection

(ix) Reversion test.

(x) Haemagglutination inhibition test.

(b) Write briefly on the biological characters of the aetiological agent, diagnosis and control of Rinderpest.

SECTION C

VETERINARY IMMUNOLOGY

6. (a) (i) List the two fundamental functions of an antigen recognition unit (ARU).

(ii) Name two types of antigen recognition units and state on which cell each type of an ARU is to be found.

(b) Select one type of an ARU, make its sketch and indicate the parts responsible for carrying out the two fundamental functions.

(c) Complement fixation test was carried out to detect Foot and Mouth Disease Virus (FMDV). The results showed that the indicator system was hemolysed. The laboratory reported to you that the sample you sent contained FMDV. Is the interpretation of the results correct? Support your answer.

(d) The use of allogeneic cells bearing Theileria parva schizont for immunization against East Coast Fever is normally associated with failure to successful immunization. How does the BoLA (Bovine Leukocyte Antigen) contribute to the failure.

7. (a) Why is the passive transfer of a colostral antibodies said to be the most important immediate immunological protection available to non-primate neonates especially the ungulates (hoofed animals).

(b) (i) How do colostral antibodies effect protection in the ungulate neonate.

~~(ii)~~

(c) (i) Apart from protection, <u>LIST</u> two possible consequences of immunoglobulin transfer from the mother to the off-spring.

(ii) Briefly describe how one of the listed consequences may arise.

(d) A poultry farmer, claims that he can protect his newly borne pullets against infectious bursal disease (IBD) by vaccinating his breed stock (hens) with IBD virus vaccine. Given that anti-IBDV antibodies of IgG class are protective, explain the immunological principles behind the farmers claim.

(e) (i) What are toxoids?

(ii) Give two examples.

(iii) Toxoids are very important in veterinary medicine - Elaborate.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY SUPPLEMENTARY EXAMINATIONS - NOVEMBER, 1987

VMP 430

VETERINARY MICROBIOLOGY

TIME: THREE HOURS

SECTION A

Virology and Immunology

Answer 3 question only:

1. How could you differentiate experimentally between Foot and Mouth disease and other vesicular diseases.

2. How many types of cell cultures are used in viral cultivation. Name them and outline the procedure of the preparation of one of them.

3. (a) What is cellular immunity?
   (b) Name two tests used in detection of cellular immunity.
   (c) What role does cellular immunity play in protection against infection.

4. (a) Using a schematic diagram describe the sequence of complement activation through the classical and alternative pathways.
   (b) Mention two of the complement cleavage products indicating their biological activities.

SECTION B

Veterinary Bacteriology and Mycology

Answer 3 questions only:

5. Write short notes on 3 of the following:
   (a) Bacterial pleomorphism.
   (b) Broad spectrum antibiotics
   (c) Bacterial virulence.
   (d) Systemic infection
   (e) *Closteridium chauvoei*

6. Describe sterilization by heat and filtration with examples.

7. Write short notes on the following:

   (a) CAMP test.

   (b) Satellitism.

   (c) Quelling reaction

   (d) Biotype and serotype

   (e) Sulfur granules.

8. EITHER:

   Discuss the classification of Eumycophyta

   OR:

   Describe the isolation and identification of Dermatophilus congolensis and Trichophyton mentagrophytes from skin infections.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - SEPTEMBER, 1987

VMP 440

TIME: THREE HOURS

ALL THREE SECTIONS CARRY EQUAL MARKS.

SECTION A

PROTOZOOLOGY

ANSWER: 2 questions.

1. List the major species of coccidia in poultry and describe their pathogenesis.

2. Describe the life cycle of salivarian trypanosomes and discuss the importance of vector control.

3. Write short notes on three of following emphasizing their significance in protozoology.

   (a) Gametogony

   (b) Reservoir host

   (c) Monomorphism and polymorphism

   (d) Transovarian transmission

4. Using diagrams describe the developmental cycles of *Theileria parva* and *Babesia bigemina* in their vector ticks.

SECTION B

HELMINTHOLOGY

ANSWER: 2 questions

1. Describe the epidemiology of *Fasciola* infection and indicate the control measures for this parasites under Zambian conditions.

2. Outline the classification of the Strongylida and comment on their importance in farm animals.

3. Using diagrams describe the various larval stages of the cestodes and discuss their zoonotic importance.

4. Write short notes on:

   (a) *Paramphistomum* infection in cattle

   (b) *Toxocara* infection in dog.

   (c) *Strongylus* infection in horse

SECTION C

ENTOMOLOGY

ANSWER: 2 questions.

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1. Tsetse flies are important because of their ability to spread disease among domestic animals.

   (a) Describe the morphological characteristics which differentiate tsetses from other flies.

   (b) Describe the life cycle of tsetse flies emphasizing their peculier reproduction methods.

2. What is myiasis? Describe the different kinds of myiasis from the entomological and clinical points of view.

3. Explain the important differences in the morphology and the life cycle between argasid and ixodid ticks in tabular form.

4. Discuss the economic importance of ixodid ticks, describing possible control methods in Zambia

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END OF EXAMINATION