THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATION

AUGUST 1988

VETERINARY MEDICINE

1.	Veterinary Anatomy and Physiology	- VMB 210
2.	Veterinary Anatomy Physiology Def/Supp. Exams	- VMB 210
3.	Veterinary Anatomy Def/Supp. Exams	- VMB 310
4.	Veterinary Physiology Def/supp. Exams	- VMB 320
5.	Veterinary Biochemistry	- VMB 325
6.	Veterinary Pharmacology	- VMB 425
7.	Veterinary Surgery I	- VMC 520
8.	Radiology	- VMC 521
9.	Veterinary Reproduction and Obstetrics	- VMC 532
10.	Veterinary Reproduction and Obstetrics Def/Supp	- VMC 532
11.	Veterinary Surgery II	- VMC 620
12.	Veterinary Reproduction and Obstetrics	- VMC 631
13.	Veterinary Reporduction and Obstetrics Supp/Def	- VMC 631
14.	Veterinary Epidemiology and Economics	- VMD 511
15.	Clinical Pathology	- VMD 615
16.	Veterinary Public Health	- VMD 630/611
17.	Veterinary Microbiology. Veterinary Vinology and Immunology Paper I	- VMP 430
18.	Virologh and Immunology Paper I	- VMP 430

19. Bacteriology and Mycology Supp/Def Exams - VMP 430 II

20. Veterinary Bacteriology and Mycology Paper II - VMP 430

21. Veterinary Bacteriology and Mycology - VMP 440

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMB 210

VETERINARY ANATOMY AND PHYSIOLOGY

TIME: THREE HOURS

ANSWER: ALL QUESTIONS

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1. (a) Name the bones of the hind limb and discuss their main characteristics.

   (b) Describe the species differences of the tarsus in horse, bovine, pig and dog.

2. Describe the anatomical locations of 8 of the following:-
   (a) Bulla tympanica
   (b) Fossa temporalis
   (c) Os hyoideum
   (d) Atlas
   (e) Acromion
   (f) Processus anconeous
   (g) Acetabulum
   (h) Ossa sesamoidea proximalia
   (i) Ligamentum cruciata genus
   (j) Ligamentum sacrotuberale latum

3. Define the term hemostasis and discuss the blood clotting mechanisms up to the formation of a fibrin mesh.

4. Write brief notes on the following principles in muscle physiology:-
   (a) Latent period
   (b) All or nothing law
   (c) Recruitment
   (d) Potentiation
   (e) Treppe phenomenon

/2....

5. Write short notes on 4 of the following:

(a) Classification of covering epithelia

(b) Histological strucuture of granulocytes

(c) Neuroglia

(d) Histological structure of bone

(e) Adipose tissue

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMB 211

VETERINARY EMBRYOLOGY

TIME: THREE HOURS

ANSWER: ALL QUESTIONS
ALL QUESTIONS CARRY EQUAL MARKS
ILLUSTRATE YOUR ANSWERS WITH DIAGRAMS

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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 (a) or (b)
   (a) the development (& origin) of the central nervous system and the early development of the brain
   (b) the development of the urinary system in a female animal

3. Give an account of the classification of placentas and describe the type of placenta found in the cow, bitch and sow respectively.

4. Write short notes on 5 of the following:
   (a) meiosis
   (b) development of the eye
   (c) development of the ruminant stomach
   (d) morphology of the spermatozoon
   (e) foetus membranes in mammals (generally)
   (f) gastrulation
   (g) 4 examples of malformation during development with a description of each.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY DEFERRED/SUPPLEMENTARY EXAMINATIONS OCTOBER, 1988

VMB 310

VETERINARY ANATOMY

TIME: THREE HOURS

INSTRUCTIONS: ANSWER ONLY FIVE (5) QUESTIONS
ALL QUESTIONS CARRY EQUAL MARKS
ILLUSTRATE YOUR ANSWERS WITH
WELL-LABELLED DIAGRAM(S) WHERE NECESSARY

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1. Write short notes on the location, structure and function of FOUR (4) of the following in the fowl:

   (a) crop
   (b) lung
   (c) gizzard
   (d) uterus
   (e) kidney

2. Describe the muscles of the eye, indicating their attachments, actions and nerve supplies.

3. Give an account of the reproductive tract of the cow. What important differences occur in that of the sow and the bitch?

4. Describe the anatomy of the equine digit under the following headings:

   (a) bones
   (b) joints
   (c) ligaments
   (d) tendons

   Add a note on the features of the hoof.

/2.....

5. Describe
   (a) the venous drainage of the udder of the cow
   (b) the lymphatic drainage of the udder of the cow
   (c) the lymphatic drainage of the mammary glands of a bitch
   (d) the structure of the teat of a mare

6. Describe the structure and functions of the spinal cord, and of a typical spinal nerve.

7. Write notes on FOUR (4) of the following:
   (a) frontal sinus
   (b) hilus of the lung
   (c) cauda equina
   (d) greater omentum
   (e) inguinal canal

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY DEFERRED/SUPPLEMENTARY EXAMINATION-OCTOBER, 1988

VMB 320

VETERINARY PHYSIOLOGY

TIME: THREE HOURS

ANSWER: FIVE QUESTIONS

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1. Discuss the processes involved in maintaining water balance in animals.

2. Describe the primary and secondary cycle movements of the reticulo-rumen and comment on their reflex control.

3. Write brief notes on:
   (a) Photoreceptors
   (b) The reticular activating system
   (c) The extra-pyramidal system

4. Define the term 'Resting Metabolic Rate" and describe the methods that may be used to estimate it in an animal.

5. Discuss the endocrines involved in the mammary gland and lactation. Describe their functions.

6. Discuss the formation of the egg in the avian. Explain where each part of the egg is being synthesized, where it is added to the egg and give the approximate duration for each part.

7. Give a schematic review of the metabolic and physiological consequences of an insulin deficiency, and comment on this.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMB 325

VETERINARY BIOCHEMISTRY

TIME: THREE HOURS

ANSWER: FIVE QUESTIONS ONLY
ALL QUESTION HAVE EQUAL VALUE

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1. Describe the structure and functions of glycogen in an animal. Describe the synthesis of glycogen from glucose and how the synthesis of glycogen is controlled. Why is such control necessary?

2. Describe the synthesis of the fatty acid oleic acid from acety coenzyme A in an animal cell. Explain why ruminants deposit "hard" fat.

3. Write short notes on THREE of the following:
   (i) Enzyme specificity
   (ii) Competitive inhibitors of enzymes
   (iii) Regulatory enzymes
   (iv) The effect of pH on an enzyme

4. Describe the mitochondrial electron transport chain in detail and the role it plays in energy production in the cell.

5. Describe the transamination reactions involving glutamic acid aspartic acid and alanine. Discuss the importance of these reactions in nitrogen metabolism in an animal. How are they linked to nitrogen excretion?

6. Describe the structure and function of the three classes of ribonucleic acid. Explain which of these carries the genetic code and describe how it is used.

7. Describe the structure of the main muscle fibre proteins and their structure is related to their roles in muscle contract

/2....

(a) List the digestive peptidases found in an animal digestive tract (non-ruminant)

(b) Show where they would act on the rollowing peptide: phe-asp-arg-gly-lys

(c) The peptide was subjected to electrophoresis at pH 7.0. Show the charged structure and to which electrode it would migrate.

(d) Biuret determination of the peptide concentration was carried out. $1cm^3$ of standard peptide at a concentration of $5mg/cm^3$ gave Absorbance reading at 540nm of 0.12. $1cm^3$ of the peptide of unknown concentration gave Absorbance reading at 540nm of 0.08. What was the concentration?

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMB 425

VETERINARY PHARMACOLOGY

TIME: THREE HOURS

ANSWER: FIVE QUESTIONS
ALL QUESTIONS HAVE EQUAL VALUE

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1. Discuss the Drug Receptor Theory of drug action. Include examples where relevant.

2. Explain the action and the different types of:-
   (a) emetics
   (b) anti-emetics
   and give examples for each group.

3. Write short notes on the male and female hormones and discuss their derivatives and some applications in the veterinary field.

4. Contrast the action of penicillin, sulphadiazine and ketoconozole on bacterial and fungal cells.
   How may antibiotic resistance be acquired?

5. Discuss the pharmacological basis for the usefulness and limitations of non-steroidal anti-inflammatory drugs (NSAID's).

6. Various groups of drugs are employed as pre-anaesthetic medications. Name these groups of drugs, giving examples, and discuss the pharmacological basis for their usefulness as pre-anaesthetic medications.

7. Give comparative accounts of FOUR of the following groups of drugs:-
   (a) hexamethonium and decamethonium
   (b) guanethidine and reserpine
   (c) propanalol and alenolol
   (d) phenylbutazone and aspirin
   (e) lignocaine and procaine

/2....

8. Describe the principles behind therapeutic management of ketosis.

9. Write short notes on the following:-

   (a) Vitamin therapy
   (b) Flukicidal drugs
   (c) Coccidiostats.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMC 520

VETERINARY SURGERY I

IME: THREE HOURS

NSWER: 5 OF THE 7 QUESTIONS

. (a) Name four main groups of surgical suture material. Give examples of uses of each group.

(b) How and with what would you suture closed a uterus after a caesarian section.

. Describe the different stages of barbiturate anaesthesia. Which stage is the surgical one?

. You are to castrate a horse:

(a) Describe the clinical examination before castration

(b) What anaesthesia would you use?

(c) Describe the actual castration (Surgical technique)

(d) What do you understand by "closed" and "open" castration?

. You are to dehorn a fully grown bull with long horns:

(a) What different methods of anaesthesia could you use? Describe in detail two of them.

(b) Describe your surgical technique.

. List a suitable general anaestretic for minor surgery in the following animal species:-

(a) Cattle

(b) Pig

(c) Horse

(d) Cat

(e) Dog

What problems would you expect with general anaesthesia in ruminants? How would you reduce the risk of such problems?

. List different methods for euthanising the following:-

(a) Cattle

(b) Horse

(c) Dog

Under what conditions would you expect to have to euthanise a horse?

. Describe the difference between primary and secondary wound-healing. What factors affect wound healing?

THE UNIVERSITY OF ZAMBIA

UNIVERSITY MID-YEAR EXAMINATIONS - MAY, 1988

VMC 521

RADIOLOGY

TIME: TWO HOURS

ANSWER: FIVE QUESTIONS

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1. What are the requirements of a good diagnostic radiograph? Describe how contrast, detail, definition and artefacts can influence the quality of radiographs.

2. (a) Comment on the photographic principles of processing a radiographic film.

   (b) What alternative methods of processing are available to the veterinary radiographer? Consider the advantages and disadvantages of the different methods.

3. (a) What are the principal radiological features of malignant bone neoplasia?

   (b) Describe the radiographic appearance of a fracture.

   (c) Which types of fractures can be distinguished by radiography?

4. (a) X-rays are harmful to living tissues. Which routine precautions are necessary in order to protect the personnel working in an X ray unit?

   (b) What do you understand by:
   - Maximum permissible dose
   - Absorbed dose
   - Dose equivalent?

5. Write short notes on the following:
   (a) Compton scatter
   (b) Collimation
   (c) Geometrical distortion
   (d) Grids
   (e) Intensifying screens

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VMC 521

6. (a) Describe the process of and basic requirements for X-ray production in an X-ray tube.

(b) Apart from the X-ray tube what are the main parts of an X-ray apparatus and what are their functions?

(c) Describe the different types of X-ray apparatus used in veterinary radiology

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END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMC 532

VETERINARY REPRODUCTION AND OBSTETRICS

TIME: THREE HOURS

ANSWER: QUESTION ONE AND FOUR OTHER QUESTIONS

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1. Write notes on the following:-
   (a) What is the length of the oestrus cycle in the cow, ewe, mare and bitch?
   (b) If a cow comes on heat in the morning or in the afternoon when is the right time for artificial insemination? Why?
   (c) What is the length of pregnancy in the bitch, cow, mare and ewe?
   (d) How do you determine oestrus in cattle?
   (e) Why is rectal palpation in a herd of cows necessary?

2. Puberty is associated with/initiation of sexual cycles. What are these cycles? Explain how they affect the female genital organs. Describe the hormone changes that occur during the oestrus cycle in the cow.

3. Describe fertilization, implantation and the periods of pregnancy. Which of these periods is the longest? Describe the type of placentation seen in the mare, bitch and cow.

4. What are the imminent signs of approaching parturition in the cow? Describe the stages of parturition in the cow.

5. List the major causes of dystocia in cows. Describe how to alleviate two types of dystocia in cows.

6. Why would you resort to A.I. (Artificial Insemination) in Zambia? What are the advantages and disadvantages of this method of breeding?

7. It is said there are "inherent dangers in breeding animals that are in early puberty". What dangers can you foresee? How do you induce abortion in the cow and the bitch?

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY DEFERRED/SUPPLEMENTARY EXAMINATIONS - OCTOBER, 1988

VMC 532

VETERINARY REPRODUCTION AND OBSTETRICS

TIME: THREE HOURS

ANSWER: SIX (6) OF THE SEVEN (7) QUESTIONS

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1. Describe the endocrinological and structural changes associated with puberty in the bovine male and female.

2. Describe the oestrus cycle of the cow with special reference to the hormonal and physical changes that occur during the cycle.

3. Describe the endocrinological changes which occur during parturition.

4. Discuss the problem caused by lateral flexion of the head and neck of the foetus during calving. Describe how to alleviate this type of dystocia.

5. Describe the male genital organs and list the functions of these organs.

6. What are the usual causes of dystocia in the sow? How would you attend to a sow that is having problems in farrowing after giving birth to 2 piglets.

7. What types of placentation are seen in domestic animals. What features of bovine placentation are useful in pregnancy diagnosis?

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMC 620

VETERINARY SURGERY II

TIME: THREE HOURS

ANSWER ONLY SIX QUESTIONS

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1. A five-year old dairy cow is reported to have suddenly reduced its milk yield, to be completely off-feed and running a temperature. On examination, there is reduced rumenal motility, scanty feces in the rectum and the animal is reluctant to move down an inclined plane. If forced to, it grunts as it moves. On pinching the withers and striking the Xiphoid region there is increased sensitivity with grunting. Laboratory results indicate leucocytosis with a marked depression in the rumenal microflora.

   (a) What would your diagnosis be?
   (b) What other examinations would you carry out?
   (c) What methods would you adopt for conservative treatment?
   (d) Describe in detail, one method of radical surgical treatment.

2. A dog is presented with a suspected upper intestinal obstruction. You perform a thorough examination to confirm this:-

   (a) What would be the striking clinical findings?
   (b) Describe in details the methods you would use to confirm the diagnosis.
   (c) How would you surgically treat this case?
   (d) What intensive post operative treatment would you give to the animal?

3. (a) What are the cardinal signs of a fracture?
   (b) How would you handle a metatarsal fracture in a one-year old heifer?
   (c) In detail describe the procedure for treatment of a simple oblique fracture of the femur in a cat. Mention the different options available for its fixation. What would be the post-operative care?

4. Aural hematomas are common in dogs. In detail explain their pathogenesis. How would you treat an aural hematoma in a 3 year old dog to ensure that there is no recurrence?

5. Write short notes on the following bovine foot conditions:-

   (a) Specific traumatic solar ulcer (Rusterholz ulcer)
   (b) Laminitis
   (c) Interdigital hyperplasia (Limax, Corns)
   (d) Navicular bursitis
   (e) Deep flexor tendon necrosis

6. A male/dog is presented with a history of marked depression, reluctance to feed, increased water intake and vomiting that had just started. On examination an obviously over filled urinary bladder is palpable and the animal makes frequent but unsuccessful attempts to urinate.

   (a) What would be your tentative diagnosis?
   (b) How would you confirm the diagnosis?
   (c) What surgical treatment would you use to correct the condition?
   (d) How would you manage the case post-operatively to improve the prognosis?

7. (a) What are the main differences between a scrotal and inquinal hernia?
   (b) How would you treat a case of inquinal hernia in a piglet?
   (c) Describe the process of Umbilical hernia repair in a male calf.
   (d) Describe the pathogenesis of a strangulated hernia containing intestinal loops.

8. (a) In detail discuss Infectious/Bovine Keratoconjunctivitis (IBK), mentioning in particular etiology, clinical signs, diagnosis, treatment and control.
   (b) What conditions of the bovine eyelids are most prevalent in Zambia? What in your opinion are the predisposing factors?

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMC 631

VETERINARY REPRODUCTION AND OBSTETRICS

TIME: THREE HOURS

ANSWER: ANY FIVE QUESTIONS

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1. Infertility of cattle is a problem in Zambia. List causes of infertility in the male and female bovine and indicate how to treat and control three of these conditions.

2. (a) How would you assess the fertility of a bull's semen and what are some of the common defects that render sperm infertile?

   (b) Why are Zambian Commercial Farmers resorting to Artificial Insemination in their herds of cattle? What are some of the advantages and disadvantages in this practice?

3. (a) List 5 common infectious diseases that can cause abortion in cattle in Zambia.

   (b) For any one of the five diseases you have listed give brief details of its Epidemiology, Clinical signs, Diagnosis, Treatment and Control on a herd basis.

4. Write short notes on the origin, functions and clinical uses of the following hormones in the female bovine:-

   (a) Oestrogen
   (b) Prostaglandin
   (c) Oxytocin
   (d) Relaxin
   (e) Corticosteroids

5. In many countries cases of Dystocia have been recorded in connection with cattle upgrading schemes utilizing A.I.

   (a) What could be the predisposing factors for this?

   (b) What clinical signs and features would warrant your decision to carry out a Caesarean on a difficult calving case.

   (c) Describe the technique of Caesarian section in the bovine?

VMC 631

6. Embryotomy is one method of relieving dystocia in the bovine:-

(a) Briefly outline the indications for this technique

(b) What instruments would you require to carry out the procedure?

(c) Describe the procedure for total embryotomy

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY DEFERRED/SUPPLEMENTARY EXAMINATIONS - OCTOBER, 1988

VMC 631

VETERINARY REPRODUCTION AND OBSTETRICS

TIME: THREE HOURS

ANSWER: SIX (6) OF THE SEVEN (7) QUESTIONS

1. Describe how you would examine a bull for sexual ability and fertility.

2. On examination of a cow per rectum you find that the right ovary is larger than normal with a large structure 5 cm in diameter inside it.
   What would your diagnosis be?
   What differential diagnosis should be considered?
   What treatment would you recommend?

3. Differentiate between autolysis, maceration and mummification of the foetus. How would you diagnose and treat these conditions?

4. A pig farmer asks you to attend to a sow that has stopped farrowing after giving birth to 5 pigs. How would you approach this case and treat the sow? How do you know that a sow has finally finished farrowing?

5. Write notes on the following, freemartin, pseudopregnancy, hydroallantois, superfecundity.

6. One of your clients a beef farmer has a problem with low calving rates in his herd of 400 cows. He has 20 bulls. How would you investigate this problem and what are the likely causes of this problem?

7. A ewe is brought to your clinic. She is lambing. On examination you find that her cervix is only slightly opened. What is this condition called? Describe different ways of treating this condition?

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMD 510

VETERINARY MEDICINE 1

TIME: THREE HOURS

ANSWER: FOUR QUESTIONS FROM SECTION A AND
FOUR QUESTIONS FROM SECTION B

SECTION A
SPECIAL AND PREVENTIVE MEDICINE

ANSWER 1, 2 AND ANY TWO OUT OF 3, 4,5 and 6

1. Describe the following aspects of foot-and mouth disease.
   A. Types of the virus and their geographical distribution on different continents
   B. Differential diagnosis of foot-and-mouth disease from other vesicular diseases.

2. Describe:
   A. The two distinct epidemiological patterns of African swine fever
   B. How to diagnose this disease

3. Discuss the procedures to be carried out when the veterinarian suspects bovine anthrax.

4. Describe the following characteristics of swine erysipelas
   A. Clinical manifestation
   B. Relationship of serotype of the organism with clinical signs

5. Discuss the eradication of bovine brucellosis

6. How is Newcastle disease diagnosed and how can poultry be immunised against it?

/2....

SECTION B

GENERAL MEDICINE

ANSWER 4 OF 6 QUESTIONS

1. Write short notes on the following:
   Brain oedema
   Encephalomalacia
   Hydrocephalus
   Cerebral Anoxia

2. Describe the procedure followed in carrying out routine clinical examination of cattle.

3. List the possible causes of diarrhoea in cattle. Outline the pathogenesis of diarrhoea in calves.

4. Write notes on the following:
   (a) the value of rectal palpation in the clinical examination of cattle,
   (b) the importance of visible mucous membranes in clinical examination,
   (c) allergic reaction as a diagnostic method.

5. Differentiate between acute and chronic heart failure by describing in detail the pathogenesis, clinical findings and treatment of the two conditions.

6. One ewe in a group of 50 has been found deed in the morning. It was apparently quite normal the previous evening.
   (a) How would you proceed to establish the cause of death?
   (b) List possible causes of sudden death in sheep.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY MID-YEAR EXAMINATIONS - MAY 1988

VMD 511

VETERINARY EPIDEMIOLOGY AND ECONOMICS

TIME: THREE HOURS

ANSWER: ALL QUESTIONS.

Formulae needed are to be found in the appendix.

1. (a) What is probability sampling and why is it favored over non-probability sampling in epidemiological surveys?

   (b) You have just been made incharge of a 200 strong dairy herd. You want to examine 20% of the animals in order to determine the prevalence of antibodies to disease X (the farm has no sampling frame). Name the sampling procedure you would use and describe how you would proceed.

   (c) If 5 of the sampled animals turn out to be positive calculate.
   (i) the prevalence of positive reactions and interpret in terms of probability.
   (ii) The 95% confidence interval and interpret it.
   (iii) How can you narrow further, the confidence interval?

2. (a) What is a test (diagnostic)?

   (b) (i) Differentiate between the sensitivity of a test and the predictive value of a positive test result.
   (ii) which of the above two parameters is affected by the prevalence of a disease.

   (c) To determine the sensitivity and specificity accurately of a test one needs to have a golden standard. What function does the golden standard serve?

   (d) A regional veterinary laboratory has recently reported the following results with regard to rabies diagnosis:

/2....

VMD 511

		Fluorsent Antibody Test Results		Totals
		+	-	
Sellers Test Results	+	9(a)	0(b)	9
	-	104(c)	40(d)	144
		113	40	153

(i) Assume that FAT is a golden standard.
Calculate the sensitivity of Sellers Test.

(ii) Assuming that Sellers is your golden standard
Calculate the Sensitivity of FAT.

(iii) In case we have no golden standard - a good indicator of what the two tests are measuring is their degree of agreement given by kappa.

Po = observed agreement = x100 = %

Pe = Expected agreement by chance alone = x100 = %

(Hint: calculate expected cell numbers thus: eg

cell b =(9x40)/153.

Kappa % = Maximum agreement beyond chance

$$= \frac{P_o - P_e}{100-P_e} \times 100 =$$

If a kappa of 50% indicates poor agreement
50% good agreement

Interpret the results:

(iv) If you are limited to only one test, which of the two tests would you choose. (NB rabies is a zoonosis with a very high case fatlity rate)? And why?

/3.....

VMD 511

3. A researcher performs a cross - sectional study on the relationship between dry cat food (DCF) and feline urologic syndrome (FUS) and gathers the following information:

	FUS+	FUS-	Total	Rates of FUS
DCF^+	13	2163	2176	5.97 per 1000
DCF^-	5	3349	3354	1.49 per 1000
	18	5512	5530	3.25 per 1000
Proportion				
DCF^+	0.72	.39	0.39	

The following information has been computed from the above table (Assume these are the correct values).

Chi-square statistic = 6.95

Relative risk = 4.01

Odds Ratio = 4.03

Population relative risk= 2.13

Attributable rate = 4.48 per 1000

Attributable fraction = .75

Population attributable rate= 1.76 per 1000

Population attributable fraction = 0.54

Using the appropriate statistics, clearly and quantitatively discuss the following.

1. Can we assert that cats fed dry cat food are more likely to have FUS?
2. If there is any association, how strong is it?
3. How much of the FUS in cats fed DCF is due to being fed DCF?
4. If we stopped feeding DCF to all cats, how much FUS could we prevent in the population?
5. The odds ratio in this case is a good approximation of the relative risk. Why?

/4....

4. (a) Assume that most of the beef consumed in Lusaka Province comes from Southern Province. Zambia has strict control measures for Foot and Mouth Disease - these include imposition of quarantine and Vaccination.

(i) How would the price of beef behave when Southern Province gets hit by an outbreak of Foot and Mouth Disease?

(ii) Explain clearly and concisely why the price will behave as such?

(b) By means of a diagram(s), explain why for most production functions, "maximum productivity" can not be equated to "maximum profit".

(c) Explain how producers can benefit, when a disease control programme that enables them to simply produce more (efficiently) is instituted in a district.

Assume that producers are meeting the demand prior to the programme and there will be no extra demand/ outlet for the extra produce.

(d) Use the following format to compare Partial budget and Benefit cost analysis

	Partial Budget	Benefit Cost Analysis
(i)	Lay out	
(ii)	Time period (duration)	
(iii)	How is time accounted for	
(iv)	Example disease	

VMD 511

5. Briefly explain what you understand by:

1. Vaccine and Vaccination
2. Data and information
3. Questionnaire
4. Cold chain and its importance
5. Selective vaccination
6. Dipping interval and its importance
7. Herd immunity
8. Vaccine coverage
9. Vaccination team
10. Disease Control and eradication
11. Opportunity cost
12. Variable cost
13. Sources of data on animal diseases
14. Continious data
15. Monitoring

END OF EXAMINATION

Appendix.

$\bar{x} = (\sum Yi)/n$ Y = 1 if present.

Y = 0 if absent.

$\bar{x} = p$

$se = (s^2/n)^{\frac{1}{2}}$

$s^2 = pq$ $q = 1 - p$

95% confidence interval = $\bar{x} \pm 1.96\ Se$

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS -AUGUST, 1988

VMD 610

VETERINARY MEDICINE II

TIME: THREE HOURS

ANSWER: SECTION A questions 1,2,3 and any one out of question 4,5 and 6
SECTION B any 1 of the 6 questions 7-6

SECTION A

1. Describe briefly the etiology incidence transmission, epidemiology, pathogenesis, clinical and postmortem findings, diagnosis and treatment of fowl typhoid. How will you keep as a veterinarian a hatchery in Lusaka free of disease in the event of an outbreak and in the absence of an outbreak?

2. Developing stages of some parasites in host animals are sometimes more pathogenic than final stage. Using two examples of such diseases in animal hosts, explain and briefly comment on their pathogenesis, symptoms and diagnosis.

3. Trypanosomiasis is one of the major chronic disease affecting both agricultural productivity and livestock expansion in Zambia. Briefly outline the epidemiology and constraints towards the control of this disease. How is the vaccination development potential? Explain the possible control strategy currently in use in Zambia.

4. Describe the necessary procedures which must be taken by a Veterinarian against the outbreak of infectious diseases.

5. An epidermal infection is worldwide in distribution, but it is more prevalent in the tropics. Would you briefly explain etiology, transmission and epidemiology of Dermatophilosis.

6. Describe the outpsy findings, bacteriological and serological diagnosis of bovine contagious pleuropneumonia.

SECTION B

Jaundice is the abnormal accumulation of bile pigments in the blood or tissues, please describe:-

(a) The production and metabolism of bilirubin.
(b) The mechanisms and classification of jaundice.
(c) The laboratory evaluation of dogs with jaundice.

Five of 1000 cattle recently placed in a feedlot were described by the stockman as acting strangely. They appear blind and have an abnormal gait. One was seen to be "star-gazing". Their feed consisted of maize silage, molasses and urea.

(a) In this instance what would your tentative diagnosis be?
(b) How would you confirm your tentative diagnosis.
(c) List conditions likely to cause C.N.S. disturbances in feedlot cattle.

Describe the pathogenesis, clinical signs, treatment and control of Ketosis in dairy cattle.

Write short notes on the following:-

(a) Iron deficiency in piglets
(b) Copper deficiency in sheep
(c) The "downer cow" syndrome

/2.....

VMD 610 II

(a) List ten specific diseases that cause diarrhoea in cattle in Zambia.

(b) Describe the pathogenesis and consequences of acute enteritis in cattle.

OR

(a) List the different aetiologies for acute diarrhoea in the dog and cat.

(b) Describe the non-specific symptomatic treatment of acute diarrhoea in dogs and cats.

Amongst feedlot cattle Urolithiasis may be a serious problem. Discuss the aetiology diagnosis and prevention of this condition.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMD 615

CLINICAL PATHOLOGY

TIME: THREE HOURS

ANSWER: 6 QUESTIONS OUT OF THE FOLLOWING:

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1. The renal threshhold for glucose in cattle is _____

2. Name 2 enzymatic reactions in the intermediary metabolism of of glucose which are affected by insulin.

3. Baby pig hypoglycemia is essentially a _____ hypoglycemia

4. EDTA is added to blood samples as an anticoagulant. What is the mechanism of its action?

5. Hyperproteinemia is generally associated with _____

6. The simple, practical method for fibrinogen assay is based on

7. Explain enterohepatic circulation of bile pigments.

8. Give a brief explanation for each term.

   (i) GOT
   (ii) CPK
   (iii) BUN
   (iv) Protein fractions
   (v) Metabolic acidosis

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMD 630/611

VETERINARY PUBLIC HEALTH

TIME: THREE HOURS

ANSWER: FIVE FROM SEVEN QUESTIONS

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1. Describe the quality required for drinking water and the types of water treatment.

2. Describe the biological treatment of waste water.

3. Describe the different kinds of air pollutants and the effects on the health.

4. Classify and explain the effects of radiation on human health.

5. Describe several examples of the public health importance of rodents and the methods of rodent control.

6. Describe the several examples of mosquito-borne diseases and the methods of mosquito control.

7. Describe the different kinds of water pollutants, their sources and effects.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMP 430

VETERINARY MICROBIOLOGY

PAPER 1

VETERINARY VIROLOGY AND IMMUNOLOGY

TIME: THREE HOURS

ANSWER: ALL QUESTIONS

SECTION A

VETERINARY VIROLOGY

1. EITHER:
   Explain how viruses differ from viroid, virions and prions in their biological properties and mode of multiplication.
   OR
   Name the types of cell cultures used in virus cultivation and outline the procedure of preparation of one of them.

2. Explain the differences between Paramyxoviruses and Orthomyxoviruses and write short notes on the biological characters, identification and control of one named member from each group.

3. (a) Name one of the serological tests used for diagnosis of Newcastle disease and outline the procedure.
   (b) Using a diagram explain the mode of multiplication of retroviruses.

SECTION B

VETERINARY IMMUNOLOGY

4. Why is adaptive immunity so named? Compare it with innate immunity.

5. How does the structure of Ig contribute to its function. Give examples.

6. EITHER:
   Explain how autoimmunity develops supporting your answer with examples.
   OR
   Write on prenatal immunity with special reference to complement and antibodies.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY DEFERRED/SUPPLEMENTRY EXAMINATIONS - OCTOBER, 1988

VMP 430

VIROLOGY AND IMMUNOLOGY

PAPER I

TIME: THREE HOURS

ANSWER: ALL QUESTIONS.

PAPER I

SECTION A

VETERINARY VIROLOGY

1. Discuss the contrasting properties of unicellular microorganism; bacteria and mycoplasmas, and viruses. Use the following criteria:-

   Size, growth and biological characteristics.

2. Describe the properties of Orthomyxoviruses, name one of the serological tests used for diagnosis of this virus infection and outline the procedure.

3. Explain the differences between types of cultured cells and cell cultures and write short notes on each type.

SECTION B:

VETERINARY IMMUNOLOGY

4. (a) Use the Clonal Selection Theory to account (briefly) for
   (i) Immunological tolerance towards self.
   (ii) Memory
   (iii) Development of auto-immunity to sequestered antigens.

   (b) Differentiate, relate, and give one example and use of- the following:-

   Bacterial exotoxins, adjuvants and toxoids.

/2.....

Mark T for True or F for False beside each of the lettered choices.

1. Antigen - antibody reactions

--------A. Occur in fixed proportions
--------B. are highly specific.
--------C. vary according to the physical state of the antigen.
--------D. can be carried out in gel media
--------E. are reversible.

2. The serological methods used for detecting antigen include
--------A. Rocket Immunoelect ophoresis
--------B. Single radial immunodiffusion
--------C. double immunodiffusion
--------D. fluorescent antibody technique
--------E. Electrophoresis.

3. Serological tests
--------A. can be used to detect either antigen or antibodies.
--------B. include viral induced hemagglutination test.
--------C. should always be run with internal controls.
--------D. are not used in parasitology
--------E. may be carried out in fluid phase.

4. An antigen on a cell surface can be detected by
--------A. enzyme immuno-assay
--------B. immunofluorescence
--------C. complement mediated cytotoxicity
--------D. precipitation test
--------E. centrifugation

5. In carrying out complement fixation test.
--------A. The classical pathway forms the basis of the test.
--------B. a control to show that the antigen alone lyses sensitized red blood cells is always included.
--------C. the test serum should be decomplemented.
--------D. hemolysis of the indicator system indicates a positive test system.
--------E. the source of complement e.g. guinea pig serum - is always heated to activate the complement before use.

/3.....

6. Following interaction of an antigen and IgE, degranulation of mast cells occurs and the mediators released include

------A. Histamine
------B. SRS-A leukotriene
------**C.** Complement
------D. antibodies
------E. Eosinophil chemotactic factor of anaphylaxis.

7. Immunoglobulins

------A. may have antibody activity
------B. are immunogenic
------C. can block the attachment of microbes to receptors on cell surface.
------D. may be found as integral proteins on plasma cells.
------E. have FC portions which bind antigenic determinants.

8. Effector Cytotoxic T-lymphocytes

------A. may be generated against cell free antigen.
------B. are directed by class 1 molecules in both their generation and effector phase.
------C. are derived from activated macrophages.
------D. are the mediators of immunity is bovine theileriosis (Theileria parva infection).
------E. Kill trypanosomes.

9. The major histocompatibility complex

------A. of the bovine is designated the B system
------B. controls immune responses to cell surface antigens only.
------C. has the genes coding for T-cell antigen receptor
------D. antigens can be detected on chicken and mice red blood cells.
------E. controls the specificity of antibodies.

10. Vaccines

------A. consist of live organisms only.
------B. may be used to challenge susceptible animals.
------C. are available against a number of parasites.
------D. may be given to pregnant animal's in order to protect neonates. (Young ones after birth).
------E. are usually given only once to animals.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS - AUGUST, 1988

VMP 430

VETERINARY BACTERIOLOGY AND MYCOLOGY

PAPER II

TIME: THREE HOURS

ANSWER: FIVE (5) QUESTIONS

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1. Comment briefly on (a) distribution (b) Transmission and (c) Morphology of the organism causing Vibrionic abortion. Outline hoe you would arrive at a conclusive diagnosis of the disease in an infected flock of sheep.

2. Write short notes on the following:

   (i) Listeria monocytogenes

   (ii) Moraxella bovis

   (iii) Erysipelothrix insidiosa

   (iv) Pasteurella multocida

   (v) Brucella abortus

3. Describe in detail the isolation and identification of Salmonella pullorum from a poultry flock.

4. What methods are available for the confirmatory diagnosis of Leptospira interogans Serotype Canicola?

5. Comment briefly on the following:

   (i) Histoplasma farcinimosum

   (ii) Candida albicans

   (iii) Mycotoxins

   (iv) Aspergillus fumigatus

   (v) Cryptococcus neoformans

6. Giving specific examples each of bacterial and fungal infections, discuss the processing of infected bovine skin in the laboratory.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY DEFERRED/SUPPLEMENTARY EXAMINATIONS-OCTOBER, 1988

VMP 430 II

BACTERIOLOGY AND MYCOLOGY

~~VIROLOGY AND IMMUNOLOGY~~

TIME: THREE HOURS

ANSWER: 5 QUESTIONS INCLUDING QUESTION NO. 1

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1. (a) Give two differences between agglutination and Precipitation

   (b) Name two hypersensitive reactions used as aids in the diagnosis of bacterial infection

   (c) How would you prepare and stain direct smears for the diagnosis of

      (i) Anthrax

      (ii) Johne's disease

      (iii) Streptococcal mastitis

   (d) How would you sterilize the following:

      (i) Wire loop

      (ii) Blood serum

      (iii) A Conical flask

   (e) Name two micro-organisms that grow on the Chorio-allantoic membrane of a ten-day old fertile embryonated egg.

   (f) Are mycoplasmas sensitive to penicillin? Give the reason for your answer.

   (g) How would you distinguish Staphylococcus aureus and Streptococcus dysgalactiae in the laboratory

2. List 5 bacterial causes of diarrhoea in farm animals and describe in detail the isolation and identification of one of these.

3. Describe fully the identification of any two mycotic abortifacients.

4. Pasteurellosis is an important disease of cattle in the Republic of Zambia. How would you determine the aetiological agent in an outbreak in Mufulira?

/2....

5. Write short notes on the following:

   (a) "Strings of pearls" test.

   (b) Satellitism

   (c) Camp test.

   (d) Quellung reaction

   (e) Weil-Felix reaction.

6. Compare and contrast the aetiological agents of cutaneons Streptothricosis, Ringworm and Epizootic lymphangitis in the Equidae.

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY EXAMINATIONS AUGUST, 1988

VMP 440

TIME: THREE HOURS

ANSWER: ALL THREE SECTIONS CARRY EQUAL MARKS

SECTION A

PROTOZOOLOGY

Answer 2 questions

1. Describe the two major differences in species specificities between Eimeria and Isospora.

2. Name the modes of transmission Histomonas meleagridis infection and explain each.

3. Briefly outline the life cycle of bovine babesiosis in Africa, South of the Sahara. How could you assess the risk of babesiosis to introduced exotic European cattle in an area.

4. Write short note on three of the following:
   (a) The diagnosis of East Coast Fever in cattle.
   (b) The control of Trichomonas foetus infection in cattle.
   (c) Enzootic stability in relation to tick-born diseases.
   (d) Define any four of the following terms emphasizing their importance in protozoology.
      (i) Trophozoite
      (ii) Hypnozoite
      (iii) Transport host
      (iv) Sporulation
      (v) Gametogony
      (vi) Schizogony
      (vii) Syngamy

/2....

SECTION B

HELMINTHOLOGY

Answer 2 questions

1. Write short note on life cycle and epidemiology of the following:
   (a) Paramphistomum infection in cattle.
   (b) Dicrocoelium infection in sheep.
2. Describe the various larval stages of Cestodes and discuss their significance in man.
3. Write short notes on:
   (a) Spirocerca infection in Dog.
   (b) Ascaris infection in pig.
   (c) Oesophagostomum infection in sheep.
4. Describe the epidemiology of Haemonchus infection and indicate the control methods under Zambian condition.

SECTION C

ENTOMOLOGY

Answer 2 questions

1. Tsetse flies are important because of their ability to spread diseases among domestic animals.
   (a) Describe the morphological characteristics which differentiate tsetse from other flies.
   (b) Describe the processes of larvinosition and emergence of the adult flies from puparium.
2. (a) Describe the role of various ixodid tick species in bovine disease transmission.
   (b) Give a brief account of the life cycle and distinguishing morphological characteristics of one of the species whose role you have described above.
3. What is mange? Defferentiate between Sarcoptic and Chorioptic mange.
4. Explain the mechanical and biological transmission of pathogens by certain vectors, citing examples.

END OF EXAMINATION