THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE EXAM PAPERS 1ST AND 2nd SEMESTER 2009/2010

VMB 211.....Veterinary Anatomy and Physiology I

VMB 212.....Veterinary Anatomy and Physiology II

VMB 312.....Veterinary Anatomy II (Applied Gross Anatomy)

VMB 321.....Veterinary Histology

VMB 331.....Veterinary Biochemistry I

VMB 332.....Veterinary Biochemistry II

VMB 341.....Veterinary Physiology I

VMB 342..... Veterinary Physiology II

VMB 451..... Veterinary Pharmacology

VMC 512..... Veterinary Medicine III

VMC 512 .....Veterinary Clinical Medicine I

VMC 512 .....Veterinary Clinical Medicine II

VMC 521.....Principles of General Veterinary Surgery and Anaesthesiology

VMC 522.....Operative Surgery I

VMC 522..... Veterinary Operative Surgery I

VMC 532.....Theriogenology I Veterinary

VMC 611..... Veterinary Clinical Medicine III

VMC 612..... Veterinary Clinical Medicine IV

VMC 631..... Theriogenology II

VMD 511..... Veterinary Clinical Pathology

VMD 532..... Veterinary Economics

VMD 641..... Veterinary Preventive Medicine

VMD 642.....Veterinary Jurisprudence and Extension

VMD 652.....Veterinary Public Health

VMP 431.....Veterinary Bacteriology and Immunology

VMP 432.....Veterinary Virology and Mycology

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE

SECOND YEAR: END OF SECOND SEMESTER EXAMINATIONS

VMB 211: VETERINARY ANATOMY AND PHYSIOLOGYI

DATE:	**November 2009**
TIME:	**09:00-12:00 HOURS**
PLACE:	**OTHER ROOMS**

INSTRUCTIONS:

1. Write your computer number on all the answer sheets that you will hand in.
2. There are two sections in this paper.

SECTION A

- Short answer questions.
- Answer **ALL** questions.
- Each question carries 10 marks. **(total = 60 marks)**

SECTION B

- Long answer questions (Essays)
- Answer two questions, one from anatomy and one from cytology
- Each question carries 20 marks **(total = 40 marks)**

SECTION A

- **Short answer questions**
- **Answer all questions**
- **Each question carries 10 marks**

1. Give concise definitions of the following:
   (a) Topographic anatomy **(2 marks)**
   (b) Applied anatomy **(3 marks)**
   (c) Gomphoses, syndesmoses **(3 marks)**
   (d) Pelvic symphysis **(2 marks)**
2. Identify the precise locations (i.e. the organ and exact location in that organ) of the following structures in the dog:
   (a) Sino-atrial (SA) node **(2 marks)**
   (b) Circumflex artery **(2 marks)**
   (c) Visceral pericardium **(2 marks)**
   (d) Coronary sinus **(2 marks)**
   (e) Pecten and promontory **(2 marks)**
3. Define and state the function of each of the following:
   (a) Meniscal discs **(2 marks)**
   (b) Purkinje fibers **(2 marks)**
   (c) Fibrous ring **(2 marks)**

(d) Synovial bursa **(2 marks)**
(e) Sesamoids **(2 marks)**

4.
(a) Name 5 irregular bones found in the dog **(5 marks)**
(b) Briefly explain the precise positions relative to the external landmarks of the chest in the dog of: the aortic valve, pulmonary valve, right atrio-ventricular septum, left atrio-ventricular septum **(4 marks)**
(c) Define fibrillation **(1 mark)**

5. List down;
a) Supportive cells of the nervous system **(4 marks).**
b) Modes of secreting glandular products **(4 marks).**
c) Layers of keratinized stratified squamous epithelium **(5 marks).**
d) Types of cellular junctions **(5 marks).**
e) Free cell surface specializations **(2 marks).**

6.
a) Define appositional and interstitial growth of cartilage **(2 marks).**
b) Describe the main distinguishing features of white blood cells **(6 marks).**
c) What are the main morphological features and biological properties of cells **(6 marks).**
d) Write short notes on the cytoskeleton **(6 marks).**

SECTION B

- **Long answer questions (essays)**
- **Answer two (2) questions, one from anatomy and the other from cytology and general histology**
- **Each question carries 20 marks**

Anatomy

1. Write an essay to explain what happens to the joints and muscles of the right hind limb of a dog when it lifts that leg to scratch an itchy flea bite just behind the costal arch. **(20 marks)**

2. Compare and contrast the following paired joints found in the dog:
(i) Hip/shoulder joints
(ii) Stifle/elbow joints. **(20 marks)**

Cytology and General Histology

3. Describe histological features of the different types of muscle fibres **(20 marks).**

4. Discuss in detail the microscopic structure of bone **(20 marks)**.

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

THE UNIVERSITY OF ZAMBIA

UNIVERSITY SECOND SEMESTER EXAMINATIONS - APRIL 2009

VMB 212

VETERINARY ANATOMY AND PHYSIOLOGY II

INSTRUCTIONS:

1. Write your computer number on all the answer sheets that you will hand in.
2. Answer **each question in separate answer sheets**
3. There are two sections in this paper

SECTION A

- Short answer questions
- Contains questions in physiology and questions in anatomy
- Answer all questions
- Each question carries 10 marks **(total = 60 marks)**

SECTION B

- Long answer questions (Essays)
- Answer two questions
- Each question carries 20 marks **(total = 40 marks)**

SECTION A

- **Short answer questions**
- **Answer all questions**
- **Each question carries 10 marks**

1. Write short notes on the following:
   (a) Action potential **(2 marks)**
   (b) Chemical and electrical synapse **(3 marks)**
   (c) Serum and plasma **(3 marks)**
   (d) Haemoglobin **(2 marks)**
2. Briefly explain the following:
   (a) Indicator dilution technique **(2 marks)**
   (b) Contractile elements of striated muscle **(2 marks)**
   (c) Factors causing an increased heamatocrit **(2 marks)**
   (d) Icterus **(2 marks)**
   (e) Neuro-muscular junction **(2 marks)**

3. State the function(s) of each of the following:
   (a) Endoplasmic reticulum **(2 marks)**
   (b) Erythrocytes **(2 marks)**
   (c) Cell membrane proteins **(2 marks)**
   (d) Mitochondria **(2 marks)**
   (e) Granulocytes **(2 marks)**
4. Briefly explain the following:
   (a) Diencephalon **(2 marks)**
   (b) Metencephalon **(2 marks)**
   (c) Myelecenphalon **(2 marks)**
   (d) Mesencephalic aqueduct **(2 marks)**
   (e) Leptomeninges **(2 marks)**

5. Where in the dog's body are the following structures located? Sate their functions.
   (a) Ear ossicles **(4 marks)**
   (b) Utricle of inner ear **(3 marks)**
   (c) Uveal tract of the eye **(3 marks)**

6. Use brief notes to express your understanding of the following:
   (a) Cerebral spinal fluid drainage in the ventricular system **(5 marks)**
   (b) How nervous information is relayed in descending pathways from higher centres of the CNS. **(5 marks)**

END OF SECTION A

SECTION B

- **Long answer questions (essays)**
- **Answer two (2) questions**
- **Each question carries 20 marks**

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1. In detail discuss the topographical or anatomical positions and relations of the following:
   (a) Urinary bladder
   (b) The stomach **(20 marks)**

2. Give a detailed description of the internal ear of the dog. **(20 marks)**

3. Explain in detail the differences between the central nervous system (CNS), peripheral nervous system (PNS) and autonomic nervous system (ANS). **(20 marks)**

4. Compare and contrast the properties of cardiac muscle and striated muscle **(20 marks)**

5. Define blood coagulation and describe the mechanism involved in coagulation **(20 marks)**

6. (a) Describe a neuron **(5 marks)**

   (b) Expalin, with the aid of a sketch, how an action potential is propagated along a nerve fibre, pointing out the advantage of saltatory conduction **(15 marks)**

END OF SECTION B

THE UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

BACHELOR OF VETERINARY MEDICINE (BVM)

THIRD YEAR: END OF SECOND SEMESTER EXAMINATIONS

VMB 312: VETERINARY ANATOMY II (APPLIED GROSS ANATOMY)

DATE:	**14TH APRIL 2009**
TIME:	**09:00-12:00 HOURS**
PLACE:	**OTHER ROOMS**

INSTRUCTIONS:

1. Write your computer number on all the answer sheets that you will hand in.
2. Answer **each section in separate answer sheets**
3. There are two sections in this paper:

SECTION A

- Short answer questions
- Answer all questions
- Each question carries 15 marks **(total = 60 marks)**

SECTION B

- Long answer questions (Essays)
- Answer two questions
- Each question carries 20 marks **(total = 40 marks)**

SECTION A

- **Short answer questions**
- **Answer all questions**
- **Each question carries 15 marks**

Write **brief notes** to express your understanding of the following in the species indicated:

1. **BOVINE**

   (i) The frontal and maxillary sinuses of the bovine and their clinical importance, **(5 marks)**
   (ii) The masticatory apparatus of the bovine, **(5 marks)**
   (iii) The important aspects to consider when estimating the age of the bovine. **(5 marks)**

2. **PORCINE**

   (i) The anatomy of the mammary glands of a lactating sow. **(5 marks)**
   (ii) The anatomy of the inguinal canal of a piglet and its clinical significance. **(5 marks)**
   (iii) The anatomy of the broad ligament of the sow. **(5 marks)**

3. **EQUINE**

   (i) Clinical anatomy of the horse's neck **(5 marks)**
   (ii) Clinical anatomy of the horse's thorax **(5 marks)**
   (iii) Anatomical position of the cecum relative to the abdominal wall including trocharization point(s) of the cecum. **(5 marks)**

4. **ALL SPECIES (bovine, porcine, equine and avian)**

   Briefly describe the following:
   (i) Lingual tonsil of the bovine **(1 mark)**
   (ii) Temporal line of the bovine's skull **(1 mark)**
   (iii) Supraorbital groove of the bovine's skull **(2 marks)**
   (iv) Bulbourethral gland of the boar **(2 marks)**
   (v) Open castration in a piglet **(4 marks)**
   (vi) Colic in a horse **(2 marks)**
   (vii) The pectoral girdle of the chicken **(3 marks)**

END OF SECTION A

SECTION B

- **Long answer questions (essays)**
- **Answer two (2) questions**
- **Each question carries 20 marks**

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1. Give a **detailed comparative anatomy** of the large intestine of the bovine, porcine and equine.
   (20 marks)

2. Give a **detailed** account of the anatomical distribution of the arterial, venous and nervous supply to the lower limb of the horse. **(20 marks)**

3. Describe in **detail** the anatomy of the axial skeleton of the chicken. **(20 marks)**

4. Explain how you would estimate the ages using teeth in the following livestock species: **cattle, goats, sheep**.

END OF SECTION B

THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER SUPPLEMENTARY EXAMINATIONS –DECEMBER 2009
VMB 321 – VETERINARY HISTOLOGY

TIME: 3 HOURS
INSTRUCTIONS: ANSWER ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS

1. Write brief notes on the histological features of the following organs when viewed under a light microscope:
   i) The chief or zymogenic cells
   ii) Aorta of a Horse
   iii) The uterus of a dog
   iv) Histology of the heart
   v) Spleen of a pig

2. The Lymphoreticular System is made up of several organs with almost similar histological features, therefore describe the:
   i) histological structure of the spleen
   ii) three theories of splenic circulation

3. With the aid of a diagram
   i) Draw a well labeled diagram of the uriniferous tubule
   ii) compare and contrast the different types of secretory units of salivary glands
   iii) describe the histological relationship of dentine, periodontal membrane, cementum and enamel of a canine tooth.

4. The respiratory system is very essential to animal survival following birth. However, it is susceptible to all forms of infection due to its direct connection to the environment. Briefly describe this system's protection against infection.

5. Discuss the (i) structural and functional changes that occur on (in) the ovary following ovulation

END OF EXAM

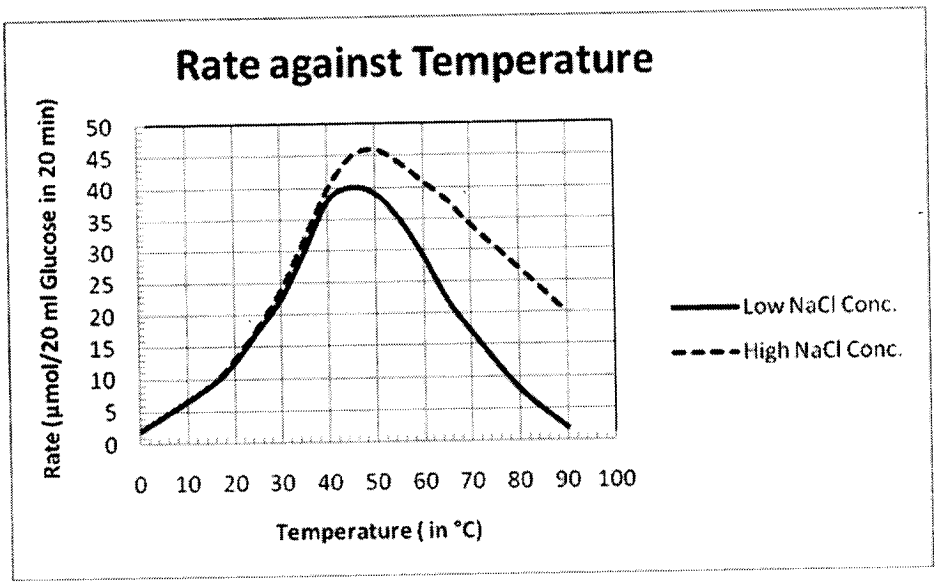
THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
2009 ACADEMIC YEAR FIRST SEMESTER
FINAL EXAMINATIONS – NOVEMBER 2009

VMB 331 - VETERINARY BIOCHEMISTRY I

DURATION: THREE (3) HOURS

INSTRUCTIONS: There are **eight (8)** questions in this paper. Answer any **five (5)** questions. All questions carry equal marks.

Q1 Salivary α-amylase is made up of 496 amino acids and is easily obtainable from saliva. It plays a role in the initial digestion of the carbohydrate, starch. Therefore, a third-year Veterinary medicine student studied the effect of temperature and sodium chloride (NaCl) on the function of salivary α-amylase by carrying out the experiment at two different concentrations of NaCl and obtained the following results.



a) Name the three main classes of carbohydrates and identify the class to which starch belongs.

b) Precisely, state the type of bond cleaved by salivary α-amylase and hence give the name(s) and structure(s) of the products of starch digestion by Salivary α-amylase. Name the covalent bond joining the 496 amino acids in the enzyme.

c) Is it possible for salivary α-amylase to digest glycogen, explain your answer?

d) Define the optimum temperature of an enzyme, hence deduce from the graph the optimum temperature of the salivary α-amylase at low NaCl concentration and state the effect of increased ,NaCl concentration on salivary α-amylase's optimum temperature?

e) Briefly but with the necessary detail, explain at molecular level the decrease in the activity (rate) of the enzyme from the temperature of about 46 °C to about 90 °C, also explain the effect of increasing NaCl concentration on the change(s) explained above

f) From the graph, state the overall effect of NaCl on the function of salivary α-amylase.

Q2 The deficiency of glucose-6-phosphate dehydrogenase (G6PDH) is one mutation that may affect the eukaryotic cell.

a) Discuss the effect of this deficiency on erythrocytes.

b) Explain, in detail, the importance of G6PDH in drug metabolism, phagocytosis and antioxidant reactions.

Q3 A molecule of phosphoenolpyruvate is to be converted to a molecule of malate via acetyl CoA. Propose a suitable sequence of biochemical reactions and then write the stoichiometric equation for this conversion. Structures of all molecules are required.

Q4 Write short notes on **ANY FOUR** of the following:-

a) Disulphide bonds

b) Effect of 2, 3 Bisphosphoglycerate (BPG) on oxygen (O_2) affinity of haemoglobin.

c) Gel filtration chromatography as a protein separation technique.

d) Regulation of phosphatidylcholine synthesis.

e) Cellulose.

Q5 Kalulu is brought to your clinic with a problem of an enlarged liver, and symptoms consistent with hypoglycemia. Following a liver biopsy by an expert, it is disclosed that Kalulu has very high levels of glycogen (normal in structure). The liver is also unable to synthesize glucose from either glycogen or pyruvate.

a) Using your knowledge of carbohydrate metabolism, what could be the problem with Kalulu's liver? Explain your answer.

b) Can a similar problem occur in muscle tissue? Explain.

c) If administered with several molecules of glycerol to bypass pyruvate in the biosynthesis of glucose, would the problem be eased up?

d) For either answer given i.e. YES or NO in (c) above, write the equations leading to the formation of the final product from glycerol.

Q6 Biological oxidation and the electron transport system are studied in VMB 331 in bovine heart muscle cell extract.

a) State the two major roles and/or purposes achieved by the electron transport system in bovine heart muscle cells.

b) Sketch and describe, in detail, the major components/subunits of the electron transport system. Give details of the chemical equation catalyzed by each component you have named.

c) Where, in the bovine heart muscle cells, is the electron transport system located?

d) Name the two reduced hydrogen carriers found in the electron transport system and clearly show how these reduced hydrogen carriers are re-stored for reuse in catabolism.

e) Name two inhibitors of the electron transport system and indicate (on your sketch in (b)) the part of the electron transport system at which they act.

Q7 Oleic acid is found in both animal and plant fats. Describe and outline the complete oxidation of oleic acid (18: 1 *cis* Δ^9), therefore calculate and account for the gross and net energy yields of its complete oxidation.

Q8

a) Clearly, state **four** differences between fatty acid synthesis and fatty acid degradation.

b) Define Ketone bodies, state circumstances under which they are produced and importance, hence outline their biosynthetic pathway (*showing all the structures and their names, and the enzymes involved*).

End of Examination

THE UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
2009 ACADEMIC YEAR SECOND SEMESTER
FINAL EXAMINATIONS – MAY 2010

VMB 332: **VETERINARY BIOCHEMISTRY II**

DURATION: **THREE (3) HOURS**

INSTRUCTIONS: There are **seven (7)** questions in this paper. Answer any **five (5)** questions. All questions carry equal marks.

Q 1 A great deal of energy is consumed during de-novo pyrimidine nucleotide synthesis than through the salvage synthesis. To prove this statement, Uridine triphosphate (UTP) was synthesized **indirectly** through the salvage pathway on paper. Define de novo synthesis and savage synthesis as applied in pyrimidine and purine nucleotide synthesis. Confirm the above statements by outlining the synthesis of UTP by way of the salvage pathway and calculate, *show all your working*, the difference in the equivalent amount of ATP between that used in synthesis of UTP through the salvage pathway and that which could be used in the synthesis of UTP through the de novo pathway.

Q 2 Degradation of porphyrins or biosynthesis of bile pigments is best exemplified by the degradation of iron-free porphyrin portion of heme.

a) Outline the degradation of iron-free porphyrin portion of heme and state how each of the final products of heme degradation are eliminated from a mammalian body.

b) An intermediate of heme degradation responsible for yellow colouration of tissues in jaundice, is known to be slightly soluble in aqueous conditions in the liver, identify this intermediate and using a three (3) reaction step show the conversion of this intermediate to a more soluble intermediate.

c) Other than jaundice, this intermediate in (b) may accumulate in the blood to a level exceeding 17 μmol/L. What is the name given to the condition where this intermediate accumulates to the mentioned level above in blood and hence clearly, suggest three reasons that could lead to the named condition.

Q 3

a) Amino acids are derived from metabolites from common pathways

i) Name the three metabolites from which alanine, aspartic acid and glutamic acid are synthesized directly by transamination and name the common pathway(s) that provide these metabolites.

ii) Show the transaminase reaction catalysed by alanine transaminase in the synthesis of alanine.

b) The start of the urea cycle may be regarded as the reaction between the amino the amino acid ornithine and carbamoyl phosphate.

i) Show the series of reactions known as the urea cycle.

ii) Deduce the net stoichiometric word equation for the urea cycle.

iii) The urea cycle is regulated by N-acetyl glutamate. Draw the structure of this molecule.

Q 4 The catabolism of phenylalanine and tyrosine has special interest because of the associated hereditary diseases.

Step A and enzyme A convert phenylalanine to tyrosine. Step B and enzyme B convert tyrosine to homogentisate. Step C and enzyme C convert homogentisate to maleylacetoacetate. Step D and enzyme D converts tyrosine to the melanins.

a) Give individual chemical equations for this information.

b) Name the enzymes A to D.

c) Name and briefly state one symptom for the disease that results if each of the enzymes A to D is missing.

Q 5

a) You are given a glycogen residue arising from partial digestion by salivary α-amylase and requested to digest it to glucose.

i) Name all the enzymes you would require to digest this product in the stomach, and the small intestine.

ii) Indicate the products of digestion of each enzyme in (i) above.

b) Outline the functions of bile salts and co-lipase in lipid digestion.

c) Using a table, outline the specific functions of the enzymes trypsin, chymotrypsin and carboxypeptidase A and B. Also indicate whether the particular enzyme is an endo or exopeptidase.

Q 6

a) Given the base sequence of a template strand of DNA below, what amino acid sequence would be encoded by this sequence:
5'CTTCACTTAAAATCCATCC3'

b) Explain the steps followed to deduce the amino acid sequence in (a) above, giving reasons for each.

c) If you were given a molecule of DNA and requested to digest it so as to obtain your gene of interest, what type of enzymes would you use to accomplish this task?

d) Describe a reaction that would help multiply your desired gene.

Q 7 Give a detailed account (showing equations/illustrations where possible) of the role of RNA in amino acid activation, initiation and elongation of prokaryotic protein synthesis on the ribosomes and explain how this role may be initiated.

The Genetic Code

	U		C		A		G	
U	UUU	Phe	UCU	Ser	UAU	Tyr	UGU	Cys
	UUC	Phe	UCC	Ser	UAC	Tyr	UGC	Cys
	UUA	Leu	UCA	Ser	UAA	End	UGA	End
	UUG	Leu	UCG	Ser	UAG	End	UGG	Trp
C	CUU	Leu	CCU	Pro	CAU	His	CGU	Arg
	CUC	Leu	CCC	Pro	CAC	His	CGC	Arg
	CUA	Leu	CCA	Pro	CAA	Gln	CGA	Arg
	CUG	Leu	CCG	Pro	CAG	Gln	CGG	Arg
A	AUU	Ile	ACU	Thr	AAU	Asn	AGU	Ser
	AUC	Ile	ACC	Thr	AAC	Asn	AGC	Ser
	AUA	Ile	ACA	Thr	AAA	Lys	AGA	Arg
	AUG	Met	ACG	Thr	AAG	Lys	AGG	Arg
G	GUU	Val	GCU	Ala	GAU	Asp	GGU	Gly
	GUC	Val	GCC	Ala	GAC	Asp	GGC	Gly
	GUA	Val	GCA	Ala	GAA	Glu	GGA	Gly
	GUG	Val	GCG	Ala	GAG	Glu	GGG	Gly

End of Examination

UNIVERSITY OF ZAMBIA

FIRST SEMESTER EXAMINATIONS

NOVEMBER 2009

VMB 341-VETERINARY PHYSIOLOGY I

TIME: THREE HOURS

INSTRUCTIONS: Answer any five questions, only. Use separate answer book(s) for each question.

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1. Write short notes on the following:

   (a) Muscle spindle

   (b) Fluid filtration across capillaries

   (c) Bohr effect

   (d) Oxygen- hemoglobin dissociation curve

   (20 marks)

2. Give a detailed account of how the motor and secretory activities of small intestine are regulated and coordinated in the dog.

   (20 marks)

3. (a) Describe the action potential of the cardiac ventricular muscle.

   (b) What is the cause of plateau recorded in the cardiac muscle action potential?

   (c) What is an electrocardiogram (ECG)?

   (d)Describe the waves of the normal ECG.

   (e) Give the uses of the ECG.

   (20 marks)

4. Describe in detail the regulation of cardiac function. (20 marks)

5. Write short explanatory notes on the following:

   (a) Absorption of glucose from the small intestine.

   (b) Mechanism of secretion of hydrochloric acid in the abomasum.

   (c) Advantages and disadvantages of pre-gastric fermentation.

   (20 marks)

6. (a) Explain the transport of carbon dioxide in the blood.

   (b) Describe the chemical regulation of respiration.

   (20 marks)

7. (a) What are receptors?

   (b) Classify receptors based on the type of stimulus applied. Give examples.

   (c) Give examples and explain the properties of the receptors.

   (20 marks)

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY SECOND SEMESTER EXAMINATIONS – APRIL 2009

VMB 342

VETERINARY PHYSIOLOGY II

TIME: Three (3) hours

INSTRUSTIONS: Answer three (3) questions from
Section A and two (2) from Section B
All questions carry equal marks

SECTION A

1. (a) What is the importance of Calcium in the body?
   (b) Explain the regulation of blood calcium level

2. (a) In measuring the basal metabolic rate, discuss the basal conditions that are prerequisite.
   (b) List the rectal temperatures of the domestic animals that you have determined in the farm – yard. Explain the causes of the variations due to temperature in these animals.

3. Write short notes on the following:
   (a) List the hormones produced by the kidneys and explain their function.
   (b) Aquaporins
   (c) Tubular load and transport maximum
   (d) Isohydric principle of buffering
   (e) Glucose absorption and transport in the kidney

4. Discuss the detail how the body regulates its acid – base status through renal mechanisms.

SECTION B

5. Outline and state the target tissue and subsequent primary action of the following in the female:
   (a) Female steroid hormones
   (b) Female hormones of the glycoprotein biochemical classification
   (c) $PG2\alpha$ and PGE_2

6. One of the major functions of domestic animals is to be able to reproduce. Describe in detail how domestic animals
   (a) Attain puberty
   (b) Establish puberty

7. With the aid of the diagram, discuss the four estrous cycle phases in the cow showing interactions of the following hormones: LH, FSH. P_4, E_2 and prolactin

THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER EXAMINATIONS - NOVEMBER 2009

VMB 451

VETERINARY PHARMACOLOGY

INSTRUCTIONS:

1. Time three (3) hours
2. Answer five (5) questions only.
3. All questions carry equal marks.
4. Each question should be answered in a separate answer book.
5. Booklets for questions 1 – 4 should be tied together & separate from booklets for questions 5 – 7.

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1. Discuss the therapeutic approach to a case of vomiting in a one-year old Labrador.

2. Discuss important properties, mechanisms of action, side effects and/or contra-indications and uses of the following drugs:
   a) Famotidine
   b) Digoxin
   c) Adrenaline
   d) Suxamethonium

3.
   a) Define Minimum Alveolar Concentration (MAC) and give an example of a drug with a high MAC value and one with a low MAC value.
   b) Discuss the factors that regulate the rate of development of alveolar tension
   c) Halothane is used in the maintenance of anaesthesia following intravenous induction. Discuss its pharmacological properties as well as its side and toxic effects.

4. A dairy farmer, under the supervision of his veterinarian, uses hydrochlorothiazide to dry off a lactation. Discuss the site(s) and mode of action of this drug. List three toxic/side effects associated with the use of this drug. Describe how you may prevent these effects.

5. Briefly discuss:
   a) General properties of growth promoters including their modes of action
   b) The general modes of action of different classes of antimicrobial agents, giving specific examples in each case.

6. Write short notes on:-
   a) Androgenic steroid hormone properties and uses
   b) Anti-tumour chemotherapy
   c) Ectoparasiticides
   d) Antifungal drugs for treating subcutaneous and systemic infections.

7. Discuss in detail properties and uses of the following drugs:-
   a) Potentiated sulphonamides
   b) Oxytetracycline

END OF EXAMINATION

UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

CLINICAL STUDIES DEPARTMENT

Veterinary Medicine III, VMC 512 Second Semester Examination (2009)

TIME: Three hours

Instructions:

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

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SECTION A

1.

a) An experienced veterinarian informs you that a cow had eaten large quantities of green maize stems and leaves and died of nitrate/ nitrite poisoning. Briefly discuss how he arrived at this diagnosis and how he could treat this condition. (10 marks)

b) A sheep farmer is suddenly faced with a toxicosis problem in his flock. In the past ten weeks he has been spraying his pasture with a molluscide to prevent fascioliasis. There have been no indications of ill health in the flock until now. The clinical signs observed included decreased rumen fermentation, fatigue, thirst, anorexia, diarrhoea, dyspnoea, jaundice, haemoglobinuria and haemoglobinaemia. Some sheep died within 24 hours of onset of clinical signs. A neighbouring farmer had a similar problem a year ago with animals presenting with similar clinical signs but in his case the problem was precipitated following ingestion of *Heliotropium europaeum*.

i. What is the probable toxicosis and how would you go about making a

definitive diagnosis? (5 marks)

ii. Suggest suitable treatment and management of the problem. (5 marks)

2. You are called to see a five-year-old jersey cow that calved two months ago and had been treated for 'hardware' disease by the owner shortly after calving. The cow is milking at a level that is 50% lower than would be anticipated and is selectively inappetent, preferring roughage to her concentrate ration. The owner has been treating her with rumenotorics for two weeks, but has seen no response to therapy. Physical examination reveals a distended abdomen with mild gaseous distension of the left paralumbar fossa and succussible fluid in the lower right quadrant. The cow is passing scanty faeces and appears to be thin and mildly dehydrated. The cow exhibits four weak ruminal contractions per minute but is not chewing her cud. Her heart rate is 30 beats per minute.

a) What is your tentative diagnosis? (2 marks)

b) Describe the pathogenesis for this condition. (8 marks)

c) Give **three** (3) differential diagnoses for this condition. (6 marks)

d) How would you treat this cow? (4 marks)

3. A five-year-old male Boxer you have been treating for severe gastric ulceration for a week is presented to you because according to the owner, the dog's condition has deteriorated. The dog is now recumbent, very depressed, febrile and vomiting severely. On further examination, there is abdominal pain, injected mucous membranes and prolonged capillary refill time.

a) What condition do you suspect has developed now? (2 marks)

b) List **three** (3) differential diagnoses. (3 marks)

c) What further tests would you carry out in order to confirm your diagnosis in (a)? (5 marks)

d) Outline the pathophysiology of the condition in (a). (5 marks)

e) Outline your management of this case. (5 marks)

SECTION B

4. A four-month-old female Yorkshire Terrier puppy is presented to you because the owner feels that he seems over-exerted following exercise, the dog breathes heavily and has recently developed a soft nocturnal cough. On examination, the puppy has pink mucous membranes and on cardiac auscultation, a loud continuous murmur is heard on the left heart base under the axilla, which is accompanied by a precordial thrill. Crackles and wheezes are heard on auscultation of the lungs. There is a strong 'bounding' pulse.
   a) What is your tentative diagnosis? (2 marks)
   b) Briefly outline the pathophysiology of the clinical signs seen. (7 marks)
   c) How would you confirm your diagnosis in (a)? (4 marks)
   d) Outline your medical therapy of this condition. (7 marks)

5. After participating in a high level Polocrosse tournament over the weekend, a client reports to you that his 11-year-old gelding did not perform as well as he had expected. He goes on to say that the horse kept slowing down and bleeding intermittently from the nose during a match. When cooling down, it was coughing and blood was trickling from the nostrils. He was hence forced to abandon the horse and use his reserve horse. On physical examination, all parameters are normal and the horse is not showing any signs of disease except for some very scanty blood in its nostrils.
   a) What is your diagnosis? (2 marks)
   b) What causes the condition? (4 marks)
   c) How would you confirm your diagnosis? (4 marks)
   d) What are your differential diagnoses? (4 marks)
   e) How would you manage the problem? (6 marks)

6. A 6-year-old Whippet with a bilateral mucopurulent and sometimes sanguinopurulent nasal discharge is presented to you. On examination, you notice that the nasal plate is ulcerated, and the dog tries to bite when you touch the face despite it being depressed

   a) What is your tentative diagnosis? (2 marks)
   b) Give **three** (3) differential diagnoses. (3 marks)
   c) Outline a diagnostic plan for this case. (7 marks)
   d) How would you treat/manage this case? (8 marks)

7. A 6-week-old calf is exhibiting periodic episodes of convulsions and opisthotonus, interspaced with relatively normal periods characterised by hyperesthesia and a hyper-alert attitude. The calf is not blind and is fed primarily a whole-milk diet.

   a) What is your tentative diagnosis? (3 marks)
   b) Explain the factors responsible for the cause of this condition. (8 marks).
   c) Give **two** (2) differential diagnoses. (6 marks)
   d) How would you treat this calf? (3 marks)

END OF EXAMINATIONS

GOD BLESS YOU!

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

2009/2010 ACADEMIC YEAR SECOND SEMESTER SUPPLEMENTARY EXAMINATIONS

VMC 512: VETERINARY CLINICAL MEDICINE I

TIME: THREE HOURS

INSTRUCTIONS:

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

SECTION A

1. You are presented with a 20-year-old gelding with lameness and progressive weight loss despite an increased in its appetite. The horse has also been observed to show increased water intake, has a wavy long hair coat and sweats with minimal exercise. You examine the horse and apart from the long wavy hair coat you also find increased fat deposits on the neck, tail head and the supraorbital fossa. Assessment of the lameness shows that it is lame on all four limbs.

    a) What is your tentative diagnosis? **(2 marks)**

    b) Discuss your laboratory investigation to confirm your diagnosis in (a). **(6 marks)**

    c) How would you manage the case? **(8 marks)**

    d) What would be the signs of post treatment improvement? **(4 marks)**

2. A growing pig shows acute nasal discharge and rhinitis followed by shortening of the snout and turbinate atrophy.

    a) What is your tentative diagnosis? **(3 marks)**

    b) Give two (2) differential diagnoses. **(6 marks)**

    c) What is the pathogenesis for this condition? **(6 marks)**

    d) Discuss how you would prevent and/or control this condition. **(5 marks)**

3. Respiratory diseases are a common occurrence in small animal practice. These conditions can range from infectious disease to genetic abnormalities.

    a) You are presented with a cat with bilateral mucopurulent nasal discharge, sneezing, chronic lethargy, anorexia and weight loss. The owner of the cat also reports that the cat has been having seizures and abnormal gait. Upon examination, you notice the cat has swelling and draining fistulas over the facial bones.

        i. What your tentative diagnosis? **(2 marks)**

        ii. Describe the aetiology, the mode of infection and pathophysiology of this condition. **(3.5 marks)**

        iii. How would you confirm your diagnosis? **(3 marks)**

        iv. What is the prognosis of this cat? **(1 mark)**

        v. How would you manage the condition? **(4 marks)**

    b) Brachycephalic airway syndrome occurs to some extent in all brachycephalic breeds. As a result, these dogs have ineffective breathing and are susceptible to hyperthermia and heat stroke.

        i. List the disorders described in brachycephalic airway syndrome. **(2.5 marks)**

        ii. Discuss the pathophysiology of this condition. **(4 marks)**

SECTION B

4. Give a detailed description of the pathophysiology of congestive heart failure. **(20 marks)**

5. An obese 5-year-old female mongrel is presented to your clinic due to vomiting of two days duration. The dog's diet has very recently been changed to mainly high-fat table scraps. Other findings on clinical examination include anorexia, fever, dullness, severe anterior abdominal guarding and the dog frequently assumes the 'praying dog position'.

    a) What is your tentative diagnosis? **(2 marks)**

    b) List three (3) differential diagnoses. **(3 marks)**

    c) Outline the ancillary diagnostic tests you would carry out in order to confirm you diagnosis in (a). **(6 marks)**

    d) Outline your management of this case. **(9 marks)**

6. A dairy farmer has cases of swollen abscessed mandibles in a few of his heifers. The abscesses discharge a thick, yellowish material and they do not resolve with antibiotic treatment.

   a) What is your tentative diagnosis? **(3 marks)**

   b) What is the aetiology of this condition? **(3 marks)**

   c) Give two (2) differential diagnoses. **(2 marks)**

   d) How would you confirm your diagnosis in a) above? **(6 marks)**

   e) How would you treat this condition? **(6 marks)**

7. A 4-year-old, 45kg Labrador retriever is presented to your clinic. The owner tells you that the dog has progressively become less active. You also learn that the dog is fed three times a day, a diet of canned dog food with left-overs. The owner mentions that she usually shares her cake and sweets with the dog. From you clinical investigations, you rule out cardiac, digestive and respiratory abnormalities.

   a) What disorder does this dog have? **(4 marks)**

   b) Apart from what is mentioned in the history, list six factors that can lead to this condition. **(6 marks)**

   c) List six potential adverse effects of this condition. **(6 marks)**

   d) Describe in detail your advice to the client. **(4 marks)**

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

UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
CLINICAL STUDIES DEPARTMENT
2009/10 ACADEMIC YEAR SECOND SEMESTER FINAL EXAMINATION

VMC 512: VETERINARY CLINICAL MEDICINE II

TIME: THREE HOURS

INSTRUCTIONS:

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

SECTION A

1. Discuss in detail oxalate poisoning in cattle and aflatoxicosis in poultry, clearly outlining your diagnostic procedure including treatment and/or control measures. (20 marks)

2. Cherry, a 6-year-old male Miniature Schnauzer is presented to your clinic for breathing difficulties of a week's duration. This is the first time you are seeing this dog. The owner tells you that the dog is now unwilling to go for his usual morning walk and has developed a nocturnal cough. On examination the dog is weak, in respiratory distress and there are crackles heard on thoracic auscultation. A Grade IV murmur is heard at the 5^{th} intercostal space at the area of the left apex. Thoracic radiographs reveal findings consistent with severe pulmonary oedema, massive left atrial enlargement with compression of the main stem bronchi.

    a) What is your tentative diagnosis? (1 mark)
    b) List **two (2)** differential diagnosis. (2 marks)
    c) What other diagnostic tests would you carry out in order to confirm your diagnosis? (3 marks)
    d) Outline your management of this case. (7 marks)
    e) After three days of therapy, cherry collapses and becomes pale, has sinus tachycardia, attenuated cardiac impulse and a palpable decrease in the arterial pulse associated with inspiration. Radiographs reveal a large, globoid heart. Outline the pathophysiology of these clinical signs and how you would now manage Cherry. (7 marks)

3. A farmer who manages a feedlot has had a series of calves exhibiting anorexia, fever and drooling. The examination of affected calves reveals fever, puffy cheeks and a foul odour to the breath.
    a) What is your tentative diagnosis? (2 marks)
    b) Give **two (2)** differential diagnoses. (4 marks)
    c) How would you confirm your diagnosis in (a) above? (4 marks)
    d) Outline the pathogenesis of this condition. (6 marks)
    e) Outline your management of the affected calves. (4 marks)

SECTION B

4. A client reports to you that while participating in a Zambia-Australia polo tournament over the weekend, he noticed that one of his horses did not perform as well as he had expected. The 12-year-old gelding kept slowing down and bleeding intermittently from the nose during a match. When cooling down, it was also noticed to be coughing. He was hence forced to abandon the horse and use his reserve horse.

    a) What is your diagnosis? (2 marks)

    b) What causes the condition in (a)? (4 marks)

    c) How would you confirm your diagnosis? (4 marks)

    d) What are your differential diagnoses? (2 marks)

    e) How would you manage the problem? (8 marks)

5. Remmy, a 6-year-old poodle has had a non-productive cough for the last two months, with no systemic signs of disease. Her owner complained that Remmy is not as active as she used to be and any exercise is usually followed by incessant coughing or overt respiratory distress. On auscultation of the dog, increased bronchovesicular sounds and wheezes are heard.

    a) What is your tentative diagnosis? (2 marks)
    b) Discuss the aetiology and predisposing factors of the condition described above. (3 Marks)
    c) How would you confirm your diagnosis? (5 marks)
    d) Outline the prognosis of Remmy's condition? (1 mark)
    e) How would you manage this case? (9 marks)

6. A 5-year-old Jersey cow is presented to you two days after giving birth to a seemingly healthy calf. The cow is in sternal recumbency with her head tucked into her flank. Her temperature is subnormal, the muzzle dry and there are obvious signs of tympany.

    a) What is your tentative diagnosis? (2 marks)
    b) Explain your differential diagnosis in detail. (4 marks)
    c) Outline the pathogenesis of the condition in (a). (4 marks)
    d) How would you confirm your diagnosis?
    e) How would you treat and manage this case? (8 marks)

7. A 6-year-old female mongrel is presented to you with severe bloody vomiting of two days duration. The dog is kept indoors and only goes outside to relieve herself. The dog is weak, has a weak thready pulse, tachycardia, sunken eyes and cold extremities. The PCV is 50% and TPP is 7g/dl. The dog is fully vaccinated and had been relatively healthy until now.

    a) What is your tentative diagnosis? (2 marks)
    b) List **three (3)** differential diagnoses. (3 marks)
    c) Outline the other diagnostic tests you would carry out in order to reach a definitive diagnosis. (5 marks)
    d) Describe your management of this case. (10 marks).

END OF EXAMINATION

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

2009/10 ACADEMIC YEAR FIRST SEMESTER
FINAL EXAMINATIONS

VMC 521: PRINCIPLES OF GENERAL VETERINARY SURGERY AND ANAESTHESIOLOGY

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. The Malawian government is building a Veterinary School and they have invited you as an expert in Veterinary Surgery.
    a) Give a detailed description of an ideal surgical theatre design. The use of a sketch is advantageous. **(10 marks)**
    b) Describe the appropriate behaviour of the sterile surgical team in the theatre. **(6 marks)**
    c) Give the generic names of two disinfectants and two antiseptics that may be used in surgery. **(4 marks)**

2. Anaesthesia is performed during veterinary surgery and is generally safe.
    a) Fluffy is a 2-year-old cross breed dog that is brought to your clinic for a spay. During the surgery, you notice that she has dyspnoea, cyanotic mucous membranes and is coughing. The dog was anaesthetised with an injectable anaesthetic and was not entubated for the surgical procedure.
        i. What is your tentative diagnosis? **(2 marks)**
        ii. State two (2) possible causes of the condition. **(2 marks)**
        iii. Describe how the surgical team would manage this situation. **(6 marks)**
    b) List three (3) parameters that are monitored during anaesthetic recovery. **(2 marks)**
    c) What is the significance of monitoring any two (2) of the parameters mentioned in (b) above? **(4 marks)**
    d) List the causes of hypothermia during surgery. **(4 marks)**

3. On a routine visit to a farm that keeps horses, you are presented with a 2-year-old colt for a castration. You discover that you did not carry any intravenous anaesthetics in your kit but have enough xylazine and lignocaine. The farm is several kilometres from your practice and it would not be worthwhile to go back considering your busy schedule. You decide to carry out the castration using local analgesia. Describe in detail the various options of local analgesia you have to carry out the castration of the colt (Include pre-operative care). **(20 marks)**

SECTION B

4. Good surgical practice requires adequate anaesthesia and haemostasis.
    a) List ten (10) local anaesthetic protocols you may carry out in small animal veterinary practice. **(5marks)**
    b) Write short notes on the indications, use and complications that may arise from the use of thiopentone sodium. **(4 marks)**
    c) Bleeding is almost impossible to avoid in most surgical procedures in veterinary practice.
        i. Outline the classification criteria for haemorrhage. **(3 marks)**
        ii. List methods available to the veterinarian for achieving haemostasis. **(4 marks)**
        iii. Discuss two of the methods listed in (ii) above. **(5 marks)**

5. A 4-year-old Cocker Spaniel is presented to your practice due to dystocia. On examination, you find that the dog is depressed, very distressed, has pale mucous membranes and a temperature of 36.7°C. The dog is a purebreed and the owner wants you to do all you can to save the dam and the puppies.

    a) Describe the pathophysiological considerations in this case. **(10 marks)**
    b) Outline your pre-anaesthetic management of this case. **(5 marks)**
    c) Outline how you would go about anaesthetising this patient. **(5 marks)**

6. A wound is a disruption of normal anatomic continuity and metabolic functions of body structures, including organs, tissues and cells.
    a) List the common causes of burn wounds in domestic animals. **(4 marks)**
    b) Discuss in detail how burn wounds are classified in small animals. **(8 marks)**
    c) Indicate when and how burn wounds are to be reconstructed. **(8 marks)**

7. Anaesthesia has been described as a state of unconsciousness produced by a process of controlled, reversible drug-induced intoxication of the central nervous system in which the patient neither perceives nor recalls noxious stimuli.

    a) Briefly outline the essential components of anaesthesia. **(5 marks)**
    b) Discuss what constitutes the anaesthetic period. **(5 marks)**
    c) Indicate the factors to be considered in order to come up with anaesthetic risk. **(5 marks)**
    d) Describe what you understand by the term and components of "clinical evaluation" of a patient undergoing anaesthesia. **(5 marks)**

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

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

2009/10 ACADEMIC YEAR SECOND SEMESTER
FINAL EXAMINATION

VMC 522: OPERATIVE SURGERY I

TIME: THREE HOURS

INSTRUCTIONS
Please read the instructions and each question carefully.

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

SECTION A

1. You are presented with a 13-year-old Labrador Retriever, which accidentally swallowed a tennis ball it was seen chewing and playing with. The dog seemed alright but over the past week has lost its appetite and is vomiting immediately after eating and whenever it tries to eat or drink. The owner is now beside himself with worry. A mass is palpated in the mid-cervical region while abdominal palpation does not yield any significant findings.

    a) What do you suspect has happened? **(2 marks)**
    b) How would you confirm your suspicions in (a) above? **(4 marks)**
    c) Describe your surgical management (include pre-operative and anaesthetic considerations, anaesthesia and post operative care) of the patient. **(10 marks)**
    d) Compare and contrast the considerations of surgery of the stomach and that of the oesophagus. **(4 marks)**

2. Large animal practice occasionally involves carrying out surgery either in the field or within the confines of a surgical suite in a veterinary clinic/hospital.

    a) Discuss non-surgical means of managing umbilical hernia in large animal practice. **(7 marks)**
    b) Briefly outline the advantages and disadvantages of the above non-surgical methods used for hernia correction. **(3 marks)**

c) You are presented with a 7-year-old gelding with an acute onset bout of colic.
   i. Briefly outline the factors that would make you decide that this colicky gelding should be managed surgically rather than medically. **(6 marks)**
   ii. List **four (4)** contraindications that would make you not perform surgery in a case of colic. **(2 marks)**
   iii. List **four (4)** intra-operative prognostic factors that would imply a poorer prognosis for a colicky horse undergoing abdominal surgery. **(2 marks)**

3. Radiography is an important tool in the diagnosis of numerous conditions in small animals

   a) Outline the importance of contrast studies in radiography of the following organ systems. (4 **marks**)
      i. Gastrointestinal tract
      ii. Urinary tract
      iii. Vertebral diseases
   b) List **two** (2) radiographical views needed to assess the following (**2 marks each**)
      i. Nasal septum
      ii. Frontal sinuses
      iii. Third upper premolars
      iv. Shoulder joint

SECTION B

4. A well maintained x-ray machine is just as important as good radiographic technique in producing diagnostic radiographs.

   a) With the aid of a diagram describe the anatomy of the x-ray tube and how x-rays are produced. **(10 marks)**
   b) Write notes on penumbra effect and the factors associated with it. **(10 marks)**

5. The breeding for more productive dairy cows has led to cows with larger and deeper abdominal cavities which allow for more movement of the abomasum. This leads to the abomasum being displaced to either the left or the right.

   a) Describe the conservative therapy in abomasal displacement. **(3 marks)**
   b) List the surgical options available in the management of left-sided displacement of the abomasum. **(2 marks)**
   c) Describe in detail the procedure of **any one** of the options listed in (b), including anaesthesia and advantages and disadvantages of the procedure. **(15 marks)**

6. You are presented with 4-week-old piglet with marked abdominal distension. The piglet has been noticed to have a slower growth rate than the litter mates and has never been seen to defaecate.

    a) Describe how you would go about investigating this case. (**4 marks**)
    b) What is your diagnosis? (**4 marks**)
    c) Describe how you would surgically manage the condition, including patient preparation, anesthesia and post operative care. (**12 marks**)

7. Outline the radiographical findings and state **two (2)** facts of clinical significance about each of the following conditions:
    a) Mediastinal lymphosarcoma in a cat **(5 marks)**
    b) Pleural effusion **(5 marks)**
    c) Closed pyometra in a 6-year-old bitch **(5 marks)**
    d) Nutritional osteopathy **(5 marks)**

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

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

2009/2010 ACADEMIC YEAR SECOND SEMESTER SUPPLEMENTARY EXAMINATIONS

VMC 522: VETERINARY OPERATIVE SURGERY I

TIME: THREE HOURS

INSTRUCTIONS:

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

SECTION A

1. Radiology is an important diagnostic aid in veterinary practice.
   a) List four (4) factors that affect radiographic contrast and explain how they affect it. **(8 marks)**
   b) Explain the following terms in relation to contrast radiography and give an example for each. **(8 marks)**
      i. Positive contrast
      ii. Negative contrast
      iii. Filling defect
      iv. Myelography
   c) List four requirements for a dark room **(4 marks)**

2. Discuss in detail two (2) approaches for correction of left displacement of the abomasum in the cow. Include pre-operative patient preparation, local analgesia, technique and post-operative care. **(20 marks)**

3. Abdominal surgery is commonly performed in animals.
   a) What are the contraindications and possible complications of splenic surgery? **(6 marks)**
   b) Define the term "hernia"? **(2 marks)**
   c) What is the clinical presentation of a patient with a diaphragmatic hernia/tear? **(6 marks)**
   d) Describe the surgical treatment of biliary calculi in dogs (include approach). **(6 marks)**

SECTION B

4. Outline four (4) radiographical findings for each of the following: **(4 marks each)**
   a) Splenic mass
   b) Ascites
   c) Non-union of fracture
   d) Chondrodysplasia
   e) Gastric dilatation and volvulus

5. Write brief notes on **any four** of the following taking into account their definition, cause(s), treatment and complications in cats and dogs: **(5 marks each)**
   a) Gastrectomy
   b) Intestinal resection and anastomosis
   c) Cervical esophageal foreign body
   d) Intussusception
   e) Oral papillomas

6. Colic is a common cause of morbidity and mortality in horses.
   a) Comprehensively discuss how you would collect peritoneal fluid in an adult horse with colic and aspects of how peritoneal fluid analysis is carried out, interpreted, and its use as a prognostic determinant. **(10 marks)**
   b) Outline the salient differences in the clinical examination of a colicky foal and the examination of an adult horse with colic. **(5 marks)**
   c) List the **five (5)** main areas targeted in the medical management of equine colic. **(5 marks)**

7. Write short notes on **any five (5)** of the following: **(4 marks each)**
   a) Rumenostomy
   b) Complications of ruminant abdominal surgery
   c) Prolapsed rectum with intact mucosa in a sow
   d) Respiratory tract endoscopy of a horse
   e) Cystoscopic findings in a mare with:
      i. Cystic calculus and cystitis
      ii. Unilateral pyelonephritis
   f) Arthroscopic examination of the knee joint of a mare

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

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

2009/10 ACADEMIC YEAR SECOND SEMESTER
FINAL EXAMINATION

VMC 532: THERIOGENOLOGY I

TIME: THREE HOURS

INSTRUCTIONS
Please read the instructions and each question carefully.

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

SECTION A

1. You are called to a pig farm belonging to a well known farmer in Lusaka West to examine a sow that has been in lateral recumbency for the past 24 hours. On examination, you notice that the sow is straining and has a foul smelling discharge from the vulva.

   a) What would be your tentative diagnosis? **(2 marks)**
   b) How would you proceed to examine this sow in order to reach a definitive diagnosis? **(3 marks)**
   c) Explain in detail your differential diagnoses. **(5 marks)**
   d) Outline the possible causes of this condition. **(5 marks)**
   e) How would you successfully treat this condition? **(5 marks)**

2. Write notes on any **five (5)** of the following in the mare:

   a) Split estrus **(4 marks)**
   b) Prolonged estrus **(4 marks)**
   c) Diestrus ovulations **(4 marks)**
   d) Shortened estrus cycles **(4 marks)**
   e) Foal heat **(4 marks)**
   f) Silent heat **(4 marks)**

3. a) Differentiate pseudopregnancy in bitches and queens in relation to its onset, clinical signs and treatment options. **(8 marks)**

   b) Write short notes on the following:

   i. Use of progestagens in bitches **(4 marks)**
   ii. Normal mating behaviour of cats **(4 marks)**
   iii. Recognition of labour in bitches **(4 marks)**

SECTION B

4. During my routine farm visits to the ADAK farms, I observed that the farm had poor calving rates. A number of cows remained open beyond the breeding season due to either missed or unobserved estrus. Verification of the breeding records revealed that 25 estrus periods were observed in a group of 50 open cycling cows over a period of 24 days.

   a) Based on the above breeding records, calculate the estrus detection efficiency on this farm. **(8 marks)**
   b) Outline measures that you would use to enhance the efficiency of estrus detection on this farm. **(12 marks)**

5. Discuss the various agents that can be used to terminate pregnancy and induce parturition in the cow. This should include indications for termination of pregnancy and parturition and a detailed explanation regarding stage of gestation (i.e. up to day 150 and after day 150 of pregnancy), mode of action of various agents used, precautions, advantages and disadvantages. **(20 marks)**

6. A farmer calls you to see one of his Friesian cows that calved two hours ago. Upon examination you find that a large haemorrhagic mass is hanging from the vulva reaching the point of the hocks.

   a) What is your tentative diagnosis? **(4 marks)**
   b) List **two** differential diagnosis. **(2 marks)**
   c) Discuss the aetiopathogenesis of the condition. **(6 marks)**
   d) What factors would determine the prognosis of this condition. **(2 marks)**
   e) Discuss the treatment and prevention of the condition. **(6 marks)**

7. A cow that was reported pregnant nine months ago and showing signs of restlessness is brought to your attention. On clinical examination, you notice that the vulval lips are drawn inward and vaginal folds twisted anti-clockwise.

   a) What is your diagnosis? **(2 marks)**
   b) Describe the pathogenesis of this disease condition. **(5 marks)**
   c) Describe in detail your differential diagnoses. **(5 marks)**
   d) How would you treat this disease condition? **(8 marks)**

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

UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
CLINICAL STUDIES DEPARTMENT
2009/10 ACADEMIC YEAR FIRST SEMESTER FINAL EXAMINATION

VMC 611: VETERINARY CLINICAL MEDICINE III

TIME: THREE HOURS

INSTRUCTIONS:

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

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SECTION A

1. A 650 kg, well-muscled gelding underwent abdominal surgery at your Specialist hospital facility. The surgery was successful but protracted and the gelding had to be on gaseous anaesthesia for a longer time than expected. It recovered well from the anaesthesia but one hour after standing the horse starts showing signs of weakness in the forelimbs and hindlimbs, restlessness, anxiety and sweating. The triceps, pectoral muscles and hindquarter muscles look swollen and are hot and painful on deep palpation.
    a. What is your diagnosis? **(2 marks)**
    b. List **two (2)** differential diagnoses. **(2 marks)**
    c. Describe how you would confirm your diagnosis in (a) above. **(4 marks)**
    d. Discuss your management of the condition. **(8 marks)**
    e. Outline how you would prevent this condition. **(4 marks)**

2. A farmer asks you to examine her Fresian cow that has cutaneous lesions on unpigmented and sparsely haired areas on the back, eyelids and perineum. On clinical examination you notice that the lesions are patchy with areas of skin necrosis and ulceration and oozing vesicles.
    a. What is your tentative diagnosis? **(3 marks)**
    b. Describe the pathogenesis of this condition. **(5 marks)**
    c. Give **two (2)** differential diagnoses for this condition. **(6 marks)**
    d. Outline how you would confirm your diagnosis. **(3 marks)**
    e. Describe how you would manage this case. **(3 marks)**

3. A 2-year-old Domestic Short-haired cat is presented to your clinic due to lethargy of two days duration. Clinical examination reveals very pale mucous membranes, fever, tachypnoea, and splenomegaly. A murmur is detected on cardiac auscultation which was not there when the cat was presented for rabies vaccination two months ago.
    a. What is your tentative diagnosis? **(2 marks)**
    b. List **two (2)** differential diagnoses **(2 marks)**
    c. With a view of explaining the clinical signs seen in this condition, outline the pathogenesis of the disease in (a). **(5 marks)**
    d. Describe the tests you would carry out in order to confirm your suspicion in (a). **(4 marks)**
    e. Briefly describe your management of this case. **(7 marks)**

SECTION B

4. Ophthalmic disease comprises an important proportion of conditions seen in veterinary practice. It is therefore important that accurate diagnosis is made in order to institute appropriate therapy.
    a. Differentiate the following terms: **(2 marks each)**
        i. Distichiasis and trichiasis
        ii. Chalazion and hordeolum
        iii. Keratoconjunctivitis sicca and superficial keratitis
        iv. Nonopthalmos and micropthalmos
        v. Secretory and excretory portions of the lacrimal apparatus

    b. Describe the clinical signs, diagnosis and treatment of glaucoma in dogs. **(10 marks)**

5. Write short notes on the following: **(5 marks each)**
    a. Management of hepatic encephalopathy
    b. Management of hepatic lipidosis
    c. Pathogenesis of hepato-systemic shunts
    d. Clinical signs associated with hepatic lipidosis in cats

6. A 2-year-old heifer is presented to you for lameness of sudden onset. You carry out a complete clinical examination and find that it has swellings of the muscles of the hindlimb which show pain and *crepitus* on palpation. The heifer is inappetant and has fever.
    a. What is your tentative dignosis? **(3 marks)**
    b. List **three (3)** differential diagnoses. **(3 marks)**
    c. How would you confirm your diagnosis? **(6 marks)**
    d. Outline your treatment of this heifer. **(5 marks)**
    e. How can you prevent further occurrence of similar cases in the herd? **(3 marks)**

7. You are presented with a 3-year-old cow that exhibits signs of abdominal pain. On examination, you find that the cow has pyrexia, dysuria and gross haematuria and pyuria.
    a. What is your tentative diagnosis? **(3 marks)**
    b. List **two (2)** common causes of this condition? **(3 marks)**
    c. List **three (3)** differential diagnoses for this condition. **(9 marks)**
    d. Describe how you would manage this case. **(5 marks)**

END OF EXAMINATION

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UNIVERSITY OF ZAMBIA
SCHOOL OF VETERINARY MEDICINE
CLINICAL STUDIES DEPARTMENT
2009/10 ACADEMIC YEAR SECOND SEMESTER FINAL EXAMINATION

VMC 612: VETERINARY CLINICAL MEDICINE IV

TIME: THREE HOURS

INSTRUCTIONS:

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

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SECTION A

1. A 2-year-old domestic short-haired cat is presented to you with severe respiratory dyspnoea of 5 days duration. The cat has lost weight and is anorexic. On physical examination, you find reduced respiratory sounds in the ventral thorax and there is also evidence of non-compliance of the anterior thorax. The cat is vaccinated against rabies and feline influenza.

    a) What is your tentative diagnosis? (2 marks)
    b) List **three (3)** differential diagnoses. (3 marks)
    c) Outline the diagnostic tests you will carry out in order to reach a definitive diagnosis. (6 marks)
    d) Describe your management of this case. (9 marks)

2. You are called to a stable belonging to one of your clients and presented with a 9-year-old mare that is reluctant to move. He informs you that the signs were observed after the horse had just finished its morning exercise, which normally consists of a walk, trot, gallop and a canter for several minutes. As the horse was being cooled, it suddenly started showing signs of reluctance to move. You examine the horse and find that it's respiratory and heart rates are slightly elevated, is sweating and has a shortened gait when forced to move. The muscles of the hindquarters are hard and painful.

    a) What is your diagnosis? (2 marks)
    b) Describe the pathophysiology of the condition and how you would confirm your diagnosis. (4 marks)
    c) List **two (2)** differential diagnoses? (2 marks)
    d) How would you manage this condition? (10 marks)
    e) What would be your advice to this client on how to prevent this condition? (2 marks)

3. An owner reports the sudden onset of a harsh cough, dyspnoea and bilateral ocular discharge in an 18-month-old steer. Other similarly aged animals in the herd are also affected. Clinical examination reveals a rectal temperature of 40°C, a serous nasal discharge, swollen conjunctiva and small necrotic plaques in the nares.

    a) What is your tentative diagnosis? (2 marks)
    b) Give **three (3)** differential diagnoses. (6 marks)
    c) How would you investigate this condition? (8 marks)
    d) How would you manage this condition. (4 marks)

SECTION B

4. A 2-year-old Great Dane is presented to the veterinary clinic with a history of acute non-productive attempts at vomiting, salivation, anxiety, abdominal distention and abdominal pain.

    a) What is your tentative diagnosis? (2 marks)
    b) List **two (2)** differential diagnosis (2 marks)
    c) Describe how you would investigate this case (5 marks)
    d) Describe the pathophysiology of vomiting (5 marks).
    e) Briefly outline on how you would manage this case. (6 marks)

5. A 10-year-old mongrel is presented with polyuria and polydipsia of a month's duration. Physical examination findings were unremarkable. Urine specific gravity was found to be 1.005. The dog is fully vaccinated and dewormed.

    a) What is your tentative diagnosis? (1 mark)
    b) List **four (4)** differential diagnosis (4 marks)
    c) Describe the diagnostic tests you would carry out in this case in order to reach a definitive diagnosis (10 marks)
    d) Briefly outline on how you would manage this case. (5 marks)

6. You are called to evaluate a herd of Holstein cows that are housed indoors. Eight percent of the milking cows have developed acute, profuse diarrhoea over the last 12-24 hours. Occasionally the faeces are bloody and mucoid. The milk production in the herd has decreased by 50%. The cows are fed on 18% protein dairy ration and alfafa hay. A new source of grain was introduced in the last 3 days. Physical examination reveals that some animals are dehydrated. The vital signs are normal and no abnormalities are detected.

    a) What is your tentative diagnosis? (3 marks)
    b) Give **three (3)** differential diagnoses. (9 marks)
    c) How would you further investigate this condition? (4 marks)
    d) How would you treat the affected cows? (4 marks)

7. Write short and concise notes on any **four (4)** of the following. (5 marks each)
    a) Seizures
    b) Status epilepticus
    c) Fading puppy syndrome
    d) Syncope
    e) Collapse

END OF EXAMINATION

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

2009/10 ACADEMIC YEAR FIRST SEMESTER FINAL EXAMINATIONS

VMC 631: THERIOGENOLOGY II

TIME: THREE HOURS

INSTRUCTIONS:

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

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SECTION A

1. A Dairy farmer with a 100 cow unit asks you to visit his farm and examine two cows that have been repeatedly returning to heat after three services. Worried that this may lead to an extension of the calving interval and drop in economic gain, he requests you to quickly find a solution. Upon carrying out a rectal examination of the reproductive tract, you find everything is normal in both cows and both have functional CLs on their right ovaries.

   a) What would be your most probable tentative diagnosis? **(2 marks)**
   b) List three other possible differential diagnoses. **(3 marks)**
   c) Discuss the aetiology and risk factors of your diagnosis in (a) above. **(7 marks)**
   d) Discuss the treatment and management and/or prevention of the condition. **(8 marks)**

2. In one of your routine fertility visits, a sow is presented to you with the following findings: Abortion in the last trimester of the gestation period, fever (41°C) and cyanosis of the ears, mammary gland and vulva.

   a) What is your tentative diagnosis? **(4 marks)**
   b) List other clinical signs you would expect to find? **(2 marks)**
   c) Outline the pathogenesis of the disease condition in a) above. **(6 marks)**
   d) How would you definitively diagnose this disease condition? **(2 marks)**
   e) Briefly outline the control and preventive measures of this condition. **(6 marks)**

3. Spays are one of the most common routine procedures carried out in dogs.
   a) Following a routine spay, a bitch starts to behave aggressively and mammary development and lactation are noted weeks later.

      (i) What is your tentative diagnosis? **(1 mark)**
      (ii) Outline the pathophysiology of this condition in (i). **(5 marks)**
      (iii) Briefly describe your management of this case. **(5 marks)**

b) A 4-year-old bitch you spayed 10 months ago keeps presenting with recurrent vaginitis.

(i) What is your tentative diagnosis? **(1 mark)**
(ii) List **three** differential diagnoses. **(3 marks)**
(iii) Outline the pathogenesis of the condition in (i). **(5 marks)**

SECTION B

4. Write short notes on the following topics

a) Discuss how and why is it important to synchronise the donor and recipient cow for embryo transfer? **(5 marks)**
b) Luteal cysts in dairy cows. **(5 marks)**
c) Structural defects as causes of infertility in the doe. **(5 marks)**
d) How nutrition affects reproductive function early *postpartum* in high producing dairy cows. **(5 marks)**

5. A farmer keeping some mares calls you to examine one of her prized mares that has not been on heat and exhibits a stallion-like behaviour. On rectal examination, the right ovary is approximately 25cm in diameter, thick-walled, firm and smooth. The left ovary appears to have regressed to a small, firm, inactive structure.

a) What is your tentative diagnosis? **(2 marks)**
b) List **three** differential diagnoses? **(3 marks)**
c) Discuss the pathophysiology of this condition. **(5 marks)**
d) Discuss how you would reach a definitive diagnosis? **(3 marks)**
e) The farmer really wants to have a foal from this mare. How would you manage or treat the mare to ensure conception following service by a stallion. **(7 marks)**

6. Discuss in detail the following forms of infertility in male animals:
a) *Impotentia coeundi.* **(10 marks)**
b) *Impotentia generandi.* **(10 marks)**

7. A farmer calls you to examine a cow that was reported to have aborted a 6-month-old foetus five months ago. The cow has been showing prolonged irregular oestrous cycles of between 25 and 60 days duration. On clinical examination, the cow appears healthy with no obvious physical reproductive tract abnormalities.

a) Which disease condition do you suspect? **(4 marks)**
b) List and explain in detail your **two** possible differential diagnoses? **(6 marks)**
c) How do you explain the prolonged oestrous cycles observed in this case? **(2 marks)**
d) How would you definitively diagnose the disease condition in (a) above? **(5 marks)**
e) Briefly outline the control and preventive measures of this condition. **(3 marks)**

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

The University of Zambia

School of Veterinary Medicine

Veterinary Clinical Pathology VMD 511

First Semester Examinations

November, 2009

INSTRUCTIONS

Answer all questions. All questions carry equal marks.

Questions 1-3 must be answered on a separate booklet while 4,5 and 6 on another.

Total Marks: **100**

Time: **3 hours**

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1. Characterize the following canine haemogram using the following: the component of the haemogram being investigated, the analysis of the specific parameters and eventually your overall interpretation of the whole haemogram (20 Marks).

Parameter	Patient	Normal Range
RBC	3.5	5.5 – 9.99
HGB	7.0	12.0 – 18.0
PCV	20.0	37.0 – 55.0
MCV	65.0	60.0 – 77.0
MCH	15.0	19.5 – 24.5
MCHC	22.0	32.0 – 36.0

2. Calculate the indices MCV, MCH and MCHC in the haemogram below and then characterize using the following: the component of the haemogram being investigated, the analysis of the specific parameters and eventually your overall interpretation of the whole haemogram (20 Marks).

Parameter	Patient	Normal Range
RBC	4.22	5.5 – 9.99
HGB	10.6	12.0 – 18.0
PCV	35.7	37.0 – 55.0
MCV	?	60.0 – 77.0
MCH	?	19.5 – 24.5
MCHC	?	32.0 – 36.0

3. Briefly describe the two methods you would use to do a platelet count in your district laboratory which only has a microscope, stains and a haemocytometer among the limited laboratory materials available (30 Marks).

4. Write the microscopic characteristics of exfoliated neoplastic cells in a cytological preparation. What are the merits and demerits of exfoliative cytology in relation to diagnosis? Name (list) the different cytological stains currently used in cytology and the procedure used for staining with one of them (10 Marks).

5. Mention the cytological characteristics of neoplastic lesions that can be used for the differential diagnosis of Lymphoma, Mastocytoma, Plasmocytoma and Transmissible Venereal Tumor (TVT). Illustrate your explanations using diagrams (10 Marks).

6. Which appropriate specimens would you collect and the preservative you would use in the laboratory confirmation of the following diseases/conditions? (10 Marks)

   (i) (a) Rabies (b) Foot and Mouth Disease (c) Newcastle Disease (d) Avian Influenza (e) Rift Valley Fever

   (ii) (a) Haemorrhagic Septicaemia (b) Contagious Bovine Pleuro-pneumonia (c) Anthrax (d) Paratuberculosis (e) Brucellosis

   (iii) (a) Theileriosis (b) Babesiosis (c) Heartwater (d) Cryptosporidiosis (e) Coccidiosis

   (iv) (a) Haemonchosis (b) Mange (c) Leukemia (d) Echinococcosis (e) External bovine vaginal growth

NB. MCV = PCV x 10/RBC (106); MCH = HgB x 10/RBC (106); MCHC = HgB x 100/PCV

..... END OF EXAM .....

UNIVERSITY OF ZAMBIA

University Second Semester Examinations

April 2009

VETERINARY ECONOMICS (VMD 532)

Time : Three (3) Hours
Total Marks : 100
Instructions : Answer **All** Questions in section A and any two (2) in section B

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SECTION A

Question 1

Write brief discussion notes on the following:

a) Depreciation **(2. 5 marks)**
b) Opportunity Cost **(2. 5 marks)**
c) Elasticity **(2. 5 marks)**
d) Market Failure **(2. 5 marks)**
e) Credit Crunch **(2. 5 marks)**
f) Repayment Methods **(2. 5 marks)**
g) Economics of Private Enterprise **(2. 5 marks)**
h) Inflation **(2.5 marks)**

Question 2

Answer the following six (6) related questions

a) Define and explain the concept of a "Production function", and give examples. **(3 marks)**
b) Define and describe the application of the Law of Diminishing Returns in veterinary economics. **(3 marks)**
c) Using a diagram, briefly explain how production functions can illustrate the effects of animal diseases. **(4 marks)**
d) Use your diagram in (c) above, adapted as necessary, to explain why policy decisions for disease control often involve a choice between alternatives. **(4 marks)**
e) For the situation you have described in (d) above, what is the relevant

choice criterion for deciding your best control policy from an economic point of view. **(3 marks)**

f) What other information does a decision-maker need to be sure that the control policy identified is viable? **(3 marks)**

Question 3

An agricultural company is planning to run its own animal health services. The estimated cash flow for a 5 year project is as follows:

Year	1	2	3	4	5
Incremental Net Benefit (K)	-345,630	100,000	100,000	120,000	120,000

Given that the cost of capital is 10%

a) Is the project worth undertaking? **(2 marks)**

b) Calculate the internal rate of return for the project. Equate any Net Present Value < K100 equal to zero **(10 marks)**

c) Give two main reasons why in (a) above a K100,000 in year 1 is not equal to K100,000 in year 5. **(8 marks)**

Section B

Question 4

In market_economy theories, demand and supply theory will allocate resources in the most efficient way possible.

a) Explain how this is possible? **(10 marks)**

b) Explain the concepts producer and consumer surpluses **(8 marks)**

Question 5

A suspected fast moving disease attacks the dairy sector of an area. It is a notifiable disease, aetiologically there are 3 non cross protecting serotypes and vaccine for each serotype are available separately. The disease drastically reduces the level of milk production. Show with the aid of a diagrams the effect of the disease on supply and price of milk (assume no importation).

(20 marks)

Question 6

Explain why animal health economics is important in the veterinary profession? **(20 marks)**

End of Examination

THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER EXAMINATIONS – NOVEMBER 2009

VMD 641

VETERINARY PREVENTIVE MEDICINE

TIME: **THREE HOURS**

ANSWER: **ALL QUESTIONS**

Q.1. a) Define Veterinary Preventive Medicine (VPM). Which other subject shares this definition and why?
b) Name and briefly describe the evolutionary phases of Livestock Production Systems;
c) How do the individual systems relate to livestock disease occurrence?
d) How is the livestock movement control enforced generally and in Zambia particularly? **12 points**

Q.2. a) What are the requirements of an ideal vaccine? Briefly discuss the advantages and disadvantages of mass immunisation.
b) Briefly discuss factors influencing the animals' response to vaccination;
c) Define and classify Environmental Hygiene. What is Environmental Control and how is it executed?
d) What is disinfection? Briefly describe disinfection methods and their merits and de-merits; **10 points**

Q.3. a) Briefly define and describe the Test and Slaughter Method;
b) What is Depopulation and under what circumstances is it put into use
c) Briefly describe Strategic Treatment as a disease management tactic;
d) List the issues involved in planning disease control programmes **12 points**

Q.4. a) State in general terms the primary objectives and goals of a herd health programme.
b) Briefly state the criteria for the selection of participating farmers. Briefly define performance targets and shortfalls.
c) What are the main causes of reproductive inefficiency in the dairy herd and how would you get rid of them?
d) Briefly how would you assess the mastitis status of the dairy herd? **11 points**

Q.5. a) What is the major objective of a beef cattle herd health programme? What is a weaner calf crop?
b) List the type of farm records you would require for an assessment of the annual performance of the beef herd.
c) What is the primary objective of a herd health programme in the feedlot?
d) What are the major causes of production and reproductive inefficiency in the swineherd? **12 points**

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

b) Briefly describe the methods used in the vaccination of fish. What are the factors that may affect the efficacy of fish vaccines?

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

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

Q.7. You are a manager of an upcoming hatchery in the Western Province of Zambia. Outline the criteria of disease management in a hatchery with emphasis on:

a) Listing the diseases transmitted at every stage of importance such as during laying, after laying and in the hatchery.

b) Prevention of disease transmission

c) Problems of chicks after hatching. **16 points**

Q.8. a) Describe the role that wild animals play in the epidemiology of

(i) Rabies

(ii) Anthrax

b) Discuss the planning and preparation of an immobilization exercise of game

c) Before conducting a game capture exercise, there are cardinal points to consider for it to be successful. Comment on these points giving at least a line on each explaining why they are important.

15 points

END OF EXAMINATION

UNIVERSITY OF ZAMBIA

University Second Semester Examinations

April 2009

VMD 642

Veterinary Jurisprudence and Extension

Time: Three (3) Hours

Total Marks: 50 Marks

Instructions: Answer **All** the Questions

Question 1

a) Define the term "wound"? **(1 marks)**
b) Classify the different types of wounds which could be inflicted on an animal giving their specific details. **(3 marks)**
c) Differentiate between ante-mortem and post-mortem wounds? **(3 marks)**
d) What are the different causes of death due to wound? **(3 marks)**

Question 2

In order to maintain good professional conduct and professional status what are the different principles which you would like to follow and advise your fellow veterinarians? Write the legal duties of the veterinarians. **(10 marks)**

Question 3

a) Write why and when necropsy should be done in a vetero-legal cases. **(2.5 marks)**
b) Describe the procedure of post-mortem examination in equines and bovines. **(2.5 marks)**
c) Define the term "death." What are the different features of death? **(2.5 marks)**
d) Give the basic principles to be followed in the court of law when giving evidence as an expert witness. **(2.5 marks)**

Question 4

a) What are the different extension methods? **(2 marks)**
b) What approach would you take to introduce a compulsory government supported vaccination program in a community of traditional stock keepers who believe that vaccination causes disease and are therefore against vaccinations? **(8 marks)**

Question 5

Write short notes on the following:

a) Contact Farmer and Key Informant **(2 marks)**
b) Professional and Personal Qualities of a Change Agent **(2 marks)**
c) Participatory Extension and Training and Visit Extension **(2 marks**
d) Agriculture Knowledge and Information System (AKIS) and Self Help Scheme **(2 marks)**
e) Chapter 243 and Chapter 252 of the laws of Zambia **(2 marks)**

End of Examination

UNIVERSITY OF ZAMBIA

University Second Semester Examinations

April 2009

VMD 652
Veterinary Public Health

Time : Three (3) Hours
Total Marks : 100 Marks

Instructions: Answer **All** questions in Section A and any **two (2)** in Section B.
All questions carry equal marks. Total questions to be answered: 5 (five).
Each question must be answered in a separate booklet.

SECTION A

QUESTION 1

a) Precisely and concisely define the term "Environment" **(2 Marks)**

b) Precisely and concisely define the term "waste" **(2 Marks)**

c) What do you understand by the term "rendering"? Briefly describe the various types of rendering methods **(4 Marks)**

d) Why is by-product processing very important in waste management? **(4 Marks)**

e) What is the role of a veterinarian in environmental management? **(4 Marks)**

f) What is the relationship between measuring Biological Oxygen Demand (BOD) in waste water and presence of fish in sewage stabilization ponds? **(4 Marks)**

20 Marks

QUESTION 2

Taenia solium is an important zoonotic parasitic cestode of public health importance in both the developing and developed countries. With reference to *T. solium*, please answer the following questions:

a) Define the terms "taeniosis", "cysticercosis" and "neurocysticercosis". **(5 Marks)**

b) Briefly discuss the epidemiological importance of the tapeworm carriers. **(5 Marks)**

c) Briefly discuss the factors that contribute to the prevalence of taeniosis and cysticercosis in a human community. **(5 Marks)**

d) List six reasons why *T. solium* is considered a potentially eradicable parasite. **(5 Marks)**

20 marks

QUESTION 3

(i) Discuss how the following organisms and chemicals affect quality of water meant for both human and animal consumption:

a) *E.Coli* **(3 Marks)**

b) *Salmonella spp* **(3 Marks)**

c) *Nitrates* **(3 Marks)**

d) *Mercury* **(3 Marks)**

(ii) Briefly discuss the bacteriological analysis of water using the membrane filtration technique (MFT). **(8 Marks)**

20 marks

Continue to section B

SECTION B

QUESTION 4

(i) Discuss the various methods available for animal waste disposal and the different kinds of waste applicable to each respective method described **(10 Marks)**

(ii) Discuss the various elements of the life support system and their interaction **(10 Marks)**

20 marks

QUESTION 5

i. Several parasitic diseases have both medical and veterinary implications. Write informative notes on the following:

a) Public health importance of Babesiosis **(2 Marks)**

b) Preventive measures against Toxoplasmosis **(2 Marks)**

c) Causative agent and transmission of Chagas disease **(2 Marks)**

d) Preventive measures against Leishmaniasis **(2 Marks)**

e) Public health importance of Trypanosomiasis **(2 Marks)**

ii Discuss the epidemiology, control and the public health significance of two important viral zoonoses in Zambia **(10 marks)**

20 marks

QUESTION 6

Schistosomiasis is a zoonotic parasitic disease resulting from infection with trematodes and normally leads to chronic ill health.

a) With regard to public health, name two important species of schistosomes causing disease in humans in Africa (one intestinal and one urinary) **(2 Marks)**

b) How are the parasites named in (a) above transmitted from one host to another, and which groups of people are at high risk of getting infected? **(6 Marks)**

c) You are a Veterinary Officer in a rural district of Zambia. You are invited to give a talk to villagers about the disease since it is zoonotic. However, because you cannot

speak the local language for the villagers to understand, the District Administrator asks you to write a report which will later be translated for the villagers. The report should outline the clinical signs people should look out for in both intestinal and urinary schistosomiasis and it should also include preventive measures. (**12 Marks**)

20 marks

QUESTION 7

When attending a workshop, the owner of a lodge mentions to you that he had been observing his clients going down with a "*mysterious disease*" characterized by severe gastroenteritis. He is afraid of losing business if the press got wind of the situation. Being a Public Health Specialist in the Ministry of Livestock and Fisheries, he asks you for help. You immediately gather the following information:

Signalment: Various ages with both male and female being affected equally.

History: Those showing signs had visited the braii stand the previous day (thus 12 to 24 hours earlier), others had roasted chickens for the past two days.

Clinical Signs: Acute and painful abdominal cramps, headaches, vomiting and diarrhea.

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

(i) What are you going to tell this hopeful owner? In your answer, use terms that he will understand and include details concerning what you are dealing with, the causative agent and predisposing factors. **(5 Marks)**

(ii) In your diagnostic approach what would you wish to examine and why? Explain also the difficult which may arise from examining this organism by the preferred method? **(10 Marks)**

(iii) What corrective measures can you advice the owner in order for him to solve this problem? **(5 Marks)**

20 marks

END OF EXAMINATION

THE UNIVERSITY OF ZAMBIA

UNIVERSITY FIRST SEMESTER EXAMINATIONS - NOVEMBER 2009

VETERINARY BACTERIOLOGY AND IMMUNOLOGY (VMP 431)

TIME: **THREE HOURS**

INSTRUCTIONS: **ANSWER ALL QUESTIONS**

(All Questions Carry Equal Marks)

SECTION I: IMMUNOLOGY

Q1. Discuss the role of T lymphocytes in immunity under the following headings:

a) T lymphocyte development and maturation **(5 marks)**

b) Role of T lymphocytes in immunity against intracellular pathogens **(5 marks)**

c) Role of T lymphocytes in immunity against extracellular pathogens **(5 marks)**

d) T lymphocyte specific recognition molecules **(5 marks)**

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

a) Primary immune deficiencies **(4 marks)**

b) Activation of the alternative pathway of the complement system **(4 marks)**

c) White pulp **(4 marks)**

d) Immunoglobulin gamma **(4 marks)**

e) Role of inflammation in immunity **(4 marks)**

f) Natural passive immunity in avian species **(4 marks)**

g) Haematopoietic growth factors **(4 marks)**

SECTION II: BACTERIOLOGY

Q3. Briefly comment on **any five (5)** of the following:

a) Pathogenicity of *Rickettsial* organisms **(4 marks)**

b) Laboratory identification of *Listeria monocytogenes* **(4 marks)**

c) *Actinomyces pyogenes* **(4 marks)**

d) Pathogenicity of members of the genus *Streptococcus* **(4 marks)**

e) Laboratory identification of *Corynebacterium paratuberculosis* **(4 marks)**

f) *Mycobacterium bovis* **(4 marks)**

Q4. Write brief notes on the following topics:

a) The veterinary significance of plasmids **(5 marks)**

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

c) Koch's postulates concerning the aetiology of a microbial disease with special mention to the current debate on the occurrence of disease **(5 marks)**

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

Q5. Discuss the process of infection and disease production by bacteria under the following headings:

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

b) Mechanisms of disease production. **(15 marks)**

Q6. Explain the Gram staining technique under the following headings:

a) Principle of Gram staining reaction. **(5 marks)**

b) Common errors usually encountered in determining the gram reaction of a bacterium. **(5 marks)**

c) Differences observed in Gram positive and Gram negative bacteria cell walls. **(10 marks)**

THE UNIVERSITY OF ZAMBIA

UNIVERSITY SECOND SEMESTER EXAMINATION – APRIL 2009

VETERINARY VIROLOGY AND MYCOLOGY (VMP 432)

Time: **Three (3) hours**

Answer: **All the questions**

All questions carry equal marks

SECTION I: VIROLOGY

Q1. Viruses are said to be different from the true unicellular organisms. Compare and contrast viruses with the true unicellular organisms.

Q2. Write short notes on the following:

(a) Mechanisms of viral-induced immunosupression

(b) Anti-viral immunity of humoral antibodies

(c) Antigenic shift in orthomyxoviruses

(d) Slow virus infections

(e) Principal portals of entry of viruses

Q3. Orthomyxoviruses as well as paramyxoviruses cause diseases that are clinically indistinguishable in chickens. Compare and contrast the two pathogens and the diseases they cause.

Q4. The virion, or virus particle is a structural unit serving one purpose, i.e. to deliver nucleic acid, RNA or DNA, from cell to cell, from host to host. Give a comprehensive description of the structure of a virus.

SECTION II: MYCOLOGY

Q1. Using examples, outline the significance of spores and hyphae in fungal classification.

Q2. a) Write short notes on the rough classification of fungal toxins

b) List three genera of fungi that can cause Mycotic mastitis in Bovine

c) Name at least two genera of fungi responsible for fish diseases and outline how zoospores play a significant role in causing fungal infections

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GOOD LUCK ! ! ! !