

THE UNIVERSITY OF ZAMBIA

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF ANIMAL SCIENCE

FINAL EXAMINATION QUESTIONS - 2017/18 ACADEMIC YEAR

COURSE:

AGA 2110 ANATOMY AND PHYSIOLOGY OF FARM ANIMALS

DURATION:

THREE (3) HOURS

INSTRUCTIONS:

CAREFULLY READ INSTRUCTIONS FOR EACH SECTION

ANSWER EACH SECTION IN A SEPARATE ANSWER BOOK

WRITE THE NUMBER OF EACH ATTEMPTED QUESTION

BEGIN EACH QUESTION ON A SEPARATE PAGE

SECTION A

INSTRUCTIONS:

ANSWER QUESTION ONE AND ANY OTHER QUESTION FROM THIS SECTION

QUESTION ONE

A. Briefly describe the following terms as used in anatomy and physiology of farm animals;

i. Tidal volume

ii. Sertoli Cells

iii. Oocyte - it is immature

iv. ECF

v. Preen Gland

possessed by many birds [10]

Uropygial gland or oil gland is a bilobed sebaceous gland

possessed by the majority of birds

B. With regard to farm animals only; ✓ on ovum.

i. List the differences between respiratory systems of poultry and other farm animals.

ii. List two functional cells of the integumentary system.

iii. Name two zymogens secreted by the digestive system.

iv. What is the role of retractor penile muscle?

v. State the types of uteri found in domestic animals.

[2] ✓

[2] ✓

[2] ✓

[2] ✓

[2] ✓

QUESTION TWO

With regard to farm animals,

i. What is the role of Leydig cells? ✓ produce male hormone.

ii. Briefly discuss four major fluids found in the body. ✓

iii. What are the accessory organs associated with the male animals? ✓

iv. Use a clearly labelled diagram to show the parts of a spermatozoon. ✓

v. Name the support structures that hold up the udder in cattle. ✓

[1]

[4] ✓

[4] ✓

[8] ✓

[3]

QUESTION THREE

With regard to the digestive system of farm animals,

i. Use a labelled diagram to discuss the dental formula of a given animal. ✓

ii. Briefly discuss the role of the crop, gizzard, and epiglottis in animals.

iii. What is function of the large intestine in ruminant animals?

iv. Would you consider rabbits and horse similar to monogastric animals?

[9]

[6]

[3]

[2]

Total volume is the lung volume representing the normal volume of air displaced between normal inhalation and exhalation when extra effort is not applied.

- Oocyte is a female gametocyte or germ cell involved in reproduction. It is produced in the ovary during female gametogenesis.

- ECF present as (i) plasma fluid in the vascular system in which blood cells are bathed

- (ii) Interstitial fluid, the fluid that lies in the spaces between the cells in the tissues and outside the vascular system such as lymph.

- ICF present as fluid found within the cells in a part of the body.
- Blood contains both ECF (plasma) and ICF (fluid inside blood cells)

- Tidal Volume (TV): Volume inspired or expired with each normal breath. = 500ml

- Inspiratory Reserve Volume (IRV): maximum vol. that can be inspired over and above the inspiration of tidal (TV). Used during exercise = 1200ml

- Expiratory Reserve Volume (ERV): maximum vol. that can be expired after the expiration of a TV = 1200ml

- Residual Volume (RV) vol. that remains in the lungs after maximal expiration. Cannot be measured by spirometry. = 1200ml

Pneumonia and meningitis

QUESTION FOUR

"ITS FOUR BOY"
FLETCHER

With regard to farm animals,

- Name four anatomical differences between poultry and other animals. [4]
- State the components involved in the maintenance of a stable acid-base balance in animals. [7]
- State the sources of electrolytes and routes by which they exit the body. [3]
- Briefly explain four structures accessory to the integumentary system. [4]
- What constitutes gametogenesis in animals? [2]

SECTION B

CHOOSE ANY TWO QUESTIONS FROM THIS SECTION AND WRITE THE ANSWERS IN A SEPARATE ANSWER BOOK. EACH QUESTION IS WORTH TEN (10) MARKS.

QUESTION ONE ✓

The cell is said to be a basic unit that makes up all tissues, organs and systems hence the properties of the cell are equated to those of life. List down the cell properties and give a brief account of three of the listed cell properties.

QUESTION TWO ✓

Muscles are made of muscle fibres which appear striated or smooth. Describe the structure of smooth muscles and state their functions.

QUESTION THREE

Write short notes on the following;

- The thyroid gland
- Adrenal Cortex
- Follicle Stimulating Hormone
- Functions of the bone,



QUESTION FOUR ✓

With regard to the body of domestic animals, state the types of tissues and their respective functions.

- muscle tissue
- epithelial tissue
- connective tissue

END OF EXAMINATION



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AGA 2110 ANATOMY AND PHYSIOLOGY OF FARM ANIMALS

FINAL EXAMINATION- NOVEMBER 2019

INSTRUCTIONS:

- ANSWER ANY FIVE (05) QUESTIONS
- ANSWER EACH SECTION IN A SEPARATE ANSWER BOOKLET
- CLEARLY WRITE THE NUMBER OF EACH ATTEMPTED QUESTION
- START EACH QUESTION ON A NEW PAGE
- ALL QUESTIONS CARRY EQUAL MARKS (20 MARKS).

SECTION A

QUESTION ONE /

- A. Write short notes on the following terms as they are used in farm animals;
- (a) Epididymis
 - (b) Number and position of mammary glands in sheep and cattle
 - (c) Physiological buffers
 - (d) Acrosome
 - (e) Ovum
- B. Briefly explain the following phenomena;
- (a) Alveoli
 - (b) Formed elements of blood
 - (c) Keratinocyte
 - (d) Hormone
 - (e) Blood testis barrier

QUESTION TWO

- (a) State four functions of the circulatory system.
- (b) Briefly explain the gross anatomical sections of lungs as seen in the bovine
- (c) Draw and clearly label the main features of a spermatozoon
- (d) Name two structures associated with the integument? What role do these structures play

QUESTION THREE

With regard to farm animals,

- i. State the role of any ten endocrine glands (10 Marks)
- ii. Describe two mechanisms for thermoregulation in the integument (4 Marks)
- iii. What is the role of melanocytes? (2 Marks)
- iv. In relation to heat loss or gain heat, what do the subscripts
E, R, C, & G in the equation $M - E_E \pm E_R \pm E_C \pm E_G \pm S = 0$ represent? (4 Marks)

SECTION B

QUESTION ONE

- A. State the four (04) types of tissue found in an animal's body and mention one general role for each of the tissues (4 Marks)
- B. For each of the following four joints, state where these are found in a farm animal (4 Marks)
 - Fetlock, Pastern, Coffin, and Suture
- C. Farm animals are categorised into 3 groups based on the anatomy of the digestive system. (3 Marks)
 - i. Mention the 3 groups or categories
 - ii. Explain the anatomical differences in the gastrointestinal track and list one species that belongs to each category (6 Marks)
 - iii. Explain how the anatomy is related to the diet of the animals (3 Marks)

QUESTION TWO

- A. What is a blood brain barrier (BBB)? Outline the basic structure of the BBB and mention two (02) roles performed by the blood brain barrier in the body. (6 Marks)
- B. Briefly outline the three (03) basic functions of the nervous system. (3 Marks)
- C. What two (02) basic cell types make up the nervous tissue and what are their specific roles? (4 Marks)
- D. An animal's body has four (4) types of bones based on gross appearance. Mention the four types and for each category mention one bone that belongs to this category. (4 Marks)
- E. Mention three (3) types of cells found in bone tissue and state the function of each cell type (3 marks)

QUESTION THREE

- A. A sarcomere is a basic contractile unit of a skeletal muscle made of 2 proteins filaments.
 - i. What are the 2 protein filaments? (2 Marks)
 - ii. With the aid of a simple sketch, describe how the protein filaments are arranged in a sarcomere and indicate the different regions or parts. (6 Marks)
 - iii. Explain the changes that occur to the different regions during muscle contraction. (2 Marks)
- B. Briefly describe the connective tissue wrappings of skeletal muscle and give an indication of their relative location (6 Marks)
- C. Differentiate between the following terms
 - i. Tissue and organ (2 marks)
 - ii. Cilia and flagella (2 Marks)