



1<sup>ST</sup> SEMESTER 2009/2010

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**UNIVERSITY OF SWAZILAND  
FINAL EXAMINATION PAPER**

**PROGRAMME** : **B. SC. IN AGRICULTURAL EDUCATION  
YEAR II AND B. SC. IN ANIMAL SCIENCE  
YEAR II**

**COURSE CODE** : **AS 201**

**TITTLE OF PAPER** : **ANATOMY AND PHYSIOLOGY**

**TIME ALLOWED** : **TWO HOURS**

**INSTRUCTIONS** : **ANSWER ANY FOUR QUESTIONS**

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN  
GRANTED BY THE CHIEF INVIGILATOR**

**QUESTION ONE**

- a. Name the four (4) main types of bones found in the skeleton of farm animals and then describe the structure and function (s) of each of them. (10 Marks)
- b. Describe the structural organisation of the vertebral bone (vertebrum) and explain how the vertebral bones join one with the other to form the vertebral column of farm animals and how in the process, they form the vertebral canal and the inter-vertebral foramen. (15 Marks)

**QUESTION TWO**

Describe the organisation of the abdominal cavity and explain how the process of invagination resulted in the surface of the body wall and the surfaces of the organs in the cavity be covered by the peritoneal membrane (peritoneum) and indicate the arrangement of the pouches. (25 Marks)

**QUESTION THREE**

- a. Give an account of the structural and functional organisation of the foetal blood circulatory system of farm animals. (15 Marks)
- b. Indicate the modifications of the foetal blood circulatory system from that of the adult pulmonary and systemic blood circulatory systems. (5 Marks)
- c. Explain the reasons for the modification of the foetal blood circulatory system from that of the adult system. (5 Marks)

**QUESTION FOUR**

Describe the chemical digestion of the carbohydrates and proteins in the mouth, rumen, reticulum, abomasum, and small intestine of a ruminant animal. (25 marks)

**QUESTION FIVE**

- a. Describe the relationship (s) between the hypothalamus, the pituitary gland, and the environment of farm animals. (10 Marks)
- b. Give a detailed account of the mode of secretion and function (s) of the hormone oxytocin in the female farm animal. (15 Marks)

**QUESTION SIX**

- a. Describe the location and the structure of the mammary gland of the cow.  
(20 Marks)
- b. Give an account of the role of oestrogen and progesterone in the development of the mammary gland.  
(5 Marks)