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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME : DIPLOMA IN AGRICULTURE YEAR II,  
AGRICULTURAL EDUCATION YEAR II AND  
REMEDIAL YEAR IN AGRICULTURE

COURSE CODE: : APH 201

TITLE OF PAPER : ANATOMY AND PHYSIOLOGY

TIME ALLOWED : TWO (2) HOURS

INSTRUCTIONS : ANSWER ANY FOUR QUESTIONS

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

## QUESTION ONE

Describe the organization of the abdominal cavity and explain how the process of invagination resulted in the body wall and the organs in the cavity being covered by the peritoneal membrane (peritoneum). (25 Marks)

## QUESTION TWO

- a. Name the four (4) main types of bones of the skeleton of farm animals. (5 Marks)
- b. Name the two parts of the skeleton of farm animals and list under each part the components of that part. (5 Marks)
- c. Describe the structural organization of a vertebral bone and explain how 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 intervertebral foramen. (15 Marks)

## QUESTION THREE

- a. List the parts of the ruminant digestive tract in their order from the mouth to the anus. (5 Marks)
- b. Describe the chemical digestion of the carbohydrates and proteins in the mouth, rumen, reticulum, abomasums and small intestine of a ruminant animal. (20 Marks)

## QUESTION FOUR

- a. Define puberty in a heifer. (2 Marks)
- b. Explain the factors that influence age at puberty in a heifer. (15 Marks)
- c. Explain why breeding should be delayed for several months after the a heifer has attained puberty. ( 8 Marks)

## QUESTION FIVE

- a. Describe the follicular and luteal phases of the oestrous cycle in a cow and indicate the effect of the hormones involved in each phase on the behaviour of the cow. (20 Marks)
- b. Explain the importance of the signs of oestrus on a large dairy farm.( 5 Marks)

QUESTION SIX

- a. Describe the developmental changes of the mammary glands during the following stages and explain the roles the hormones oestrogen and progesterone in each stage.
  - i. foetal stage (2.5 Marks)
  - ii. pre-pubertal stage (2.5 Marks)
  - iii. puberty to first pregnancy (2.5 Marks)
  - iv. first pregnancy (2.5 Marks)
  
- b. Give an account of the hormonal changes that initiate the process of lactation and how the milk ejection or milk letdown is achieved in a heifer. ( 5 Marks)
  
- c. Describe how the milk production is continued and maintained during the lactation period. (10 Marks)