



# MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION & EXTENSION

KAP103 ANATOMY AND PHYSIOLOGY OF FARM ANIMALS

DATE: 25/9/2019

TIME: 11.00-1.00 PM

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## INSTRUCTIONS:

Answer question ONE and any other TWO questions

1.
  - a) Explain the meaning of the following terms as used in Anatomy and Physiology:
    - (i) Metabolism (2 marks)
    - (ii) Homeostasis (2 marks)
    - (iii) Digestion (2 marks)
  - b) Distinguish between the two terms: 'Cellular respiration' and 'External respiration' (2 marks)
  - c) With illustration, describe the anatomic structure of a mammalian skin (5 marks)
  - d)
    - (i) What is 'oestrus'? (1 mark)
    - (ii) Describe the signs of oestrus in a cow (4 marks)
    - (iii) Explain why accurate detection of oestrus in farm animals is important? (4 marks)
  - e) Discuss the importance of urea cycle in ruminants (5 marks)
  - f) Explain how the saliva of a ruminant differs from that of monogastric animals? (3 marks)
2.
  - (a) Describe the structure of the a mammalian skin (6 marks)
  - (b) Explain the properties of the skin that determine the quality of leather (4 marks)
  - (c) Describe the behavioral and physiological responses of a mammal to hot weather conditions (10 marks)

3.
  - a) Distinguish the main gross anatomical features of a ruminant and monogastric animal (10 marks)
  - b) Explain how the ruminant animal benefits from the presence of microbes in the rumen (6 marks)
  - c) Give two (2) ways in which the saliva of ruminants differ from that of non-ruminants are different (4 marks)
4.
  - a) Describe the gross anatomical structure of a mammalian respiratory system (12 marks)
  - b) Briefly explain how the respiratory function responds to changes in oxygen requirement in a mammal and how these responses are controlled (8 marks)
5.
  - a) Describe the main features of a mammalian kidney (10 marks)
  - b) Discuss the processes that occur in the mammalian kidney to maintain body fluid balance and to achieve the final composition of urine (10 marks)