



**MASENO UNIVERSITY**  
**UNIVERSITY EXAMINATIONS 2013/2014**

FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE  
DEGREE OF BACHELOR OF SCIENCE (ANIMAL SCIENCE,  
EDUCATION SCIENCE & EDUCATION ARTS) WITH INFORMATION  
TECHNOLOGY

(MAIN CAMPUS)

**AAN 104: BASIC ANIMAL PHYSIOLOGY**

*Date: 21<sup>st</sup> July 2014*

*Time: 2.30 – 4.30 pm*

**INSTRUCTIONS:**

- Answer ALL questions in section A and ANY TWO in section B.



- i. Draw a fully labeled diagram of a general eukaryotic cell. (10 Marks)
2. What do you understand by the following terms:
- a. Homeostasis (1 Mark)
  - b. Osmoregulation (1 Mark)
  - c. Hormones (1 Mark)
  - d. Hibernation (1 Mark)
  - e. Adaptation (1 Mark)
3. Explain the difference between:
- a. Rickets and osteoporosis (2 Marks)
  - b. Metabolic and pernicious anaemia (2 Marks)
  - c. Open and closed circulatory system (2 Marks)
  - d.  $\alpha$ -cells and  $\beta$ -cells of Islets of Langerhans (2 Marks)
  - e. Glycogenesis and glycogenolysis (2 Marks)
4. Explain what you understand by the term "global warming" and briefly describe in what ways it affects animal production. (5 Marks)

## SECTION B (40 MARKS)

Attempt any TWO questions in this section.

5. Hormonal integration is a very important process in animal physiology.
- What do you understand by the term "hormonal integration"? (2 Marks)
  - Describe in detail how various hormones participate in the regulation of:
    - blood glucose. (6 Marks)
    - calcium in blood (6 Marks)
  - State one condition associated with hyperglycaemia and another with hypocalcaemia and list at least two clinical signs you would see in animals with each of these conditions (6 Marks)
6. You are a new manager of a piggery (commercial pig-rearing enterprise) in a generally very hot place near Lodwar town. You are told that the enterprise is running at a loss because pigs are dying of hyperthermia. You want to rectify the situation and ensure that the deaths are minimized so that the piggery becomes a profitable enterprise.
- What do you understand by the term "critical temperature" and clearly distinguish the difference between upper critical temperature and lower critical temperature (3 Marks)
  - In order to ascertain that the pigs are indeed dying of hyperthermia, what clinical signs will you expect to see in the animals? (2 Marks)
  - List at least 5 factors to consider when addressing critical temperatures and suggest ways in which you will address each of them in this piggery (15 Marks)
7. The basic instinct in all living things is to reproduce and propagate their kind to the next generation. Discuss this statement in detail, clearly indicating how they go about fulfilling this instinct, the obstacles they face and the attempts they put in place to surmount these obstacles and succeed in their endeavour. (20 Marks)

END