JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

SECOND YEAR SEMESTER TWO UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE IN ANIMAL SCIENCE

2022/2023 ACADEMIC YEAR

REGULAR

COURSE CODE: AAB1206

COURSE TITLE: PRINCIPLES OF ANIMAL NUTRITION

EXAM VENUE: **STREAM: (BSc. Animal Science)**

DATE: **EXAM SESSION:**

TIME:

Instructions
1. Answer ALL questions in Section A (compulsory) and ANY TWO questions in Section B
2. Candidates are advised not to write on the question paper
3. Candidates must hand in their answer booklets to the invigilator while in the examination room

SECTION A [30 MARKS]

Answer ALL questions in this section

1. Differentiate between a concentrate and a supplement. (3 marks)
2. Explain how ruminants use acetic and butyric acids as energy sources. (3 marks)
3. State any three important roles of lipids in the body. (3 marks)
4. Name three major types of carbohydrates commonly consumed by domestic animals.
   (3 marks)
5. Describe the role of zinc in udder health. (3 marks)
6. State three good sources of protein for dairy cows. (3 marks)
7. In a digestibility trial a group of sheep ate on average 1.68 kg (per head) of hay dry matter. The average quantity of fecal dry matter (per head) was 0.78 kg. Calculate the digestibility coefficient of hay. (3 marks)
8. Outline some consequences of mineral deficiency in domestic ruminants. (3 marks)
9. Describe "maintenance requirements" in animals. (3 marks)
10. Distinguish between 'basal metabolism' and 'metabolic body weight'. (3 marks)

SECTION B [40 MARKS]

Answer ANY TWO questions from this section

11. Describe the following protein quality evaluations:
    a) Biological value (10 marks)
    b) Protein Efficiency Ratio (10 marks)
12. a) Sampling is the most important pre-condition prior to analyzing feedstuffs. Outline some principles that must be kept in mind when doing sampling. (10 marks)
    b) Highlight some methods used in physical evaluation of feeds. (10 marks)
13. Discuss classification of carbohydrates. (20 marks)
14. Evaluate the various measures of feed quality under the following:
    a) Two-stage *in vitro* digestibility determination (10 marks)
    b) *In sacco* dry matter degradability (10 marks)