



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**THIRD YEAR SEMESTER ONE EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE IN ANIMAL SCIENCE**

2023/2024 ACADEMIC YEAR

COURSE CODE: AAB 1303

COURSE TITLE: ANALYTICAL METHODS IN ANIMAL NUTRITION

EXAM VENUE:

STREAM: (BSc. Animal Science)

DATE:

EXAM SESSION:

TIME: 2 HOURS

Instructions

- 1. Answer ALL questions in Section A 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. Nutritional value of feeds can affect livestock performance. Explain the reasons as to why. (3 marks)
2. Describe procedures for glassware-cleaning in the laboratory. (3 marks)
3. Explain the main disadvantage of Goldfish procedure in ether extraction from feeds. (4 marks)
4. Describe the effect of lignin on digestibility of forages. (4 marks)
5. Give the principle behind ether extract and crude fat determination of animal feeds. (3 marks)
6. Give three advantages and one disadvantage of dry ashing procedure. (4 marks)
7. Distinguish between net energy and metabolizable energy. (3 marks)
8. State the function of each of the following parts of a bomb calorimeter:
 - a) Bomb. (1 mark)
 - b) Bucket. (1 mark)
 - c) Insulating jacket. (1 mark)
 - d) Thermometer (1 mark)
9. Name two accidents that can occur in a laboratory. (2 marks)

SECTION B [40 MARKS]

Answer ANY TWO questions from this section

10. Discuss the wet ashing procedure for mineral determination. (20 marks)
11. Describe in details the various steps used in the Kjeldahl determination of nitrogen content of animal feeds. (20 marks)
12. Describe the principles behind fatty acid analysis using gas liquid chromatography (GLC) method. (20 marks)
13. Discuss the safe handling of acids, alkalis and special chemicals in a laboratory. (20 marks)