



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF AGRICULTURAL AND FOOD SCIENCES
UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE IN ANIMAL
SCIENCE
3RD YEAR 1ST SEMESTER 2017/2018 ACADEMIC YEAR
REGULAR

COURSE CODE: AAS 3312

COURSE TITLE: ANALYTICAL METHODS IN ANIMAL NUTRITION

EXAM VENUE:LR 2

STREAM: BSc. Animal Science

DATE:15/12/17

EXAM SESSION: 9.00 – 11.00 am

TIME: 2 HOURS

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**
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SECTION A [30 MARKS]

Answer ALL questions in this section

1. Explain the importance of reading the label and material safety data sheet (MSDS) before using chemicals in the lab. (3 marks)
2. Describe the safe use of chromic acid for cleaning cloudy and dirty glassware. (3 marks)
3. Briefly state the main disadvantage of Goldfish procedure for lipid determination. (2 marks)
4. Explain the principle behind toluene distillation procedure for dry matter (DM) determination. (4 marks)
5. Give the principle behind ether extract and crude fat determination of animal feeds. (3 marks)
6. Briefly outline the evaporation method for dry matter (DM) determination. (4 marks)
7. Distinguish between gross energy, digestible 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. Give four protective equipment that may be used in the laboratory. (4 marks)

SECTION B [40 MARKS]

Answer ANY TWO questions from this section

10. Explore mineral analysis under the following headings:
 - a. Colorimetric Methods (10 marks)
 - b. Atomic Absorption Spectroscopy (AAS) (10 marks)
11. Analyse the various steps used in the Kjeldahl determination of nitrogen content in animal feeds. (20 marks)
12. Describe the principles behind Soxhlet method of lipid analysis. (20 marks)
13. Demonstrate an understanding of the safe handling of chemicals in the laboratory. (20 marks)