



# MACHAKOS UNIVERSITY

University Examinations for 2017/2018 Academic Year

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

SECOND YEAR FIRST SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE

IN AGRIBUSINESS MANAGEMENT

KAP 204 ANIMAL NUTRITION AND FEEDING

DATE:15/12/2017

TIME:2.00-4.00 PM

**Instructions:**

**Answer question ONE and any other TWO questions**

## QUESTION ONE (30 MARKS)

- a) Describe the following concepts as applied in animal nutrition
  - i) Mechanical digestion (5 marks)
  - ii) Feed utilization (5 marks)
  - iii) Mineral deficiencies (5 marks)
- b) With relevant examples List 3 approaches towards feed formulation (6 marks)
- c) Explain five antinutritive factors in animal feeds (9 marks)
- d) Define neutral detergent fibre (NDF) in relation to feed analysis (1 mark)
- e) List three ways of feeding protein evaluation (3 marks)

## QUESTION TWO (20 MARKS)

Briefly,

- a) Define nutrients absorption (2 marks)
- b) Describe 4 mechanisms of nutrients absorption (16 marks)

- c) List 3 factors affecting nutrient absorption (2 marks)

**QUESTION THREE (20 MARKS)**

- a) Describe the partitioning of feed energy (10 marks)  
b) Discuss any five feed additives and growth promoters (10 marks)

**QUESTION FOUR (20 MARKS)**

- a) Describe how Pearson square works in feed formulation (10 marks)  
b) Describe how to formulate a diet from cotton seed meal and maize, to contain 18 % crude protein using Pearson square (10 marks)

**QUESTION FIVE (20 MARKS)**

- a) Discuss 4 routes of water loss which constitute the summary of any animal water requirements (8 marks)  
b) Discuss any four nutrient types and their functions (12 marks)