



# MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)

University Examinations 2015/2016

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF AGRICURAL EDUCATION AND EXTENSION

FIRST SEMESTER EXAMINATION FOR DEGREE IN BACHELOR OF SCIENCE IN  
AGRICULTURAL EDUCATION AND EXTENSION

**KAP 204: ANIMAL NUTRITION AND FEED**

Date: 25/4/2016

Time: 2:00 – 4:00 PM

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## INSTRUCTIONS

*This paper consists of FIVE questions*

*Answer question one and other two questions in this paper*

## QUESTION ONE

- a) Define the following terms:
- i. Metabolizable energy (ME) (2 marks)
  - ii. Digestible energy (DE) (2 marks)
  - iii. Heat increment (HI) (2 marks)
  - iv. Basal metabolism (2 marks)
  - v. Chelates (2 marks)
- b) Explain the four processing methods used during extraction of oil in oilseeds. (4 marks)
- c) State the four classes of feed (4 marks)
- d) State the anti nutritive factor found in the following (4 marks)
- i. Cotton seed cake
  - ii. Irish potato
  - iii. Wheat
  - iv. Peanuts

- a) List any four advantages of using fats in the animal diet (4 marks)
- b) Discuss two conditions caused by Vitamin E deficiency (4marks)

### **QUESTION TWO**

- a) Discuss FIVE types of feed additives (10 marks)
- b) Explain FIVE factors to consider before formulating a ration (10 marks)

### **QUESTION THREE**

- a) Discuss the metabolic functions of Vitamin A (10 marks)
- b) Discuss the synthesis of the active metabolite of Vitamin D in the body (10 marks)

### **QUESTION FOUR**

Describe the digestion process in ruminants (20 marks)

### **QUESTION FIVE**

With an aid of a diagram, describe the wet milling process of maize and the resulting by-products (20 marks)