



MACHAKOS UNIVERSITY

University Examinations for 2016/2017 Academic Year

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

SECOND YEAR SECOND SEMESTER EXAMINATION FOR DIPLOMA IN

AGRICULTURAL EDUCATION AND EXTENSION

SPECIAL EXAMINATION

KRM 0203: PRINCIPLES OF ANIMAL NUTRITION

DATE: 30/8/2017

TIME: 2:00 – 4:00 PM

INSTRUCTIONS:

Answer question ONE and TWO other questions

SECTION A: 30 MARKS

QUESTION ONE

- a) Explain **FOUR** functions of water in animal nutrition (4 marks)
- b) Explain **FIVE** classes of nutrients found in animal feeds (5 marks)
- c) Explain **THREE** functions of nutrients to animals (3 marks)
- d) Distinguish between
 - i. Meat meal and bone meal (2 marks)
 - ii. Ruminant and non-ruminant livestock (2 marks)
- e) Explain the following terms
 - i. Dry matter (2 marks)
 - ii. Total digestible nutrients (2 marks)
 - iii. Basal metabolism (2 marks)
- f) Explain **FOUR** potential contaminants in animal feeds (4 marks)

- g) Explain the difference between macro and micro mineral elements (2 marks)
- h) Explain **TWO** sources of in ruminant animals (2 marks)

SECTION B: 40 MARKS

QUESTION TWO

- a) Describe the digestion process in a non-ruminant animal (15 marks)
- b) Explain **FIVE** advantages of ruminants over colon fermenters (5 marks)

QUESTION THREE

- a) Describe the **FIVE** physical indicators of feed quality (10 marks)
- b) You are provided with two feedstuffs i.e. Cotton seed cake with 40% CP and Maize with 10% CP. Use Pearson square to formulate a diet containing 18%CP and check the CP content of the formulated diet. (10 marks)

QUESTION FOUR

- a) Describe **FIVE** types of feed additives used in animal feeds (10 marks)
- b) Explain **FIVE** effects of mycotoxins in animal health (10 marks)

QUESTION FIVE

- a) Outline the silage making process (10 marks)
- b) Explain the losses that occur during hay making and storage (10 marks)