



MACHAKOS UNIVERSITY

University Examinations for 2022/2023 Academic Year

SCHOOL OF AGRICULTURE, ENVIRONMENT AND HEALTH SCIENCES

DEPARTMENT OF AGRICULTURAL SCIENCES

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (AGRICULTURAL EDUCATION AND EXTENSION)

ANS 433: ANIMAL NUTRITION AND LIVESTOCK FEEDING

DATE:

TIME:

INSTRUCTIONS: Answer **Question ONE (Compulsory)** and Any other **Two** Questions.

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Explain the following terms / concepts as used in animal nutrition science;
- i) Roughage. (1 mark)
 - ii) Ration formulation. (1 mark)
 - iii) Feed Pelleting. (1 mark)
- b) Differentiate the following terms / concepts in animal nutrition;
- i) Gizzard and Proventriculus. (2 marks)
 - ii) Feed supplements and Feed additives. (2 marks)
- c) On a DM basis, a citrus pulp sample contains 9% CP and dry matter content is 25% on as-fed basis. Calculate the %CP on as-fed basis. (5 marks)
- d) Soyabean contains 45%CP and Corn contains 10%CP and these feedstuff are the only available materials to a dairy farmer for ration formulation for the dairy cattle requiring 14%CP. Calculate the amounts of soyabeans and corn required by farmer to formulate the rations. (6 marks)
- e) Explain SIX factors considered in formulating standard commercial animal feeds. (6 marks)
- f) Explain the role of the government in the animal feeds manufacturing industry.

(6 marks)

SECTION B (40 MARKS) ANSWER ANY TWO QUESTIONS

QUESTION TWO (20 MARKS)

- a) Explain FIVE opportunities in animal nutrition and feeding. (5 marks)
- b) Explain FIVE challenges and opportunities in animal nutrition and feeding. (5 marks)
- c) Discuss the digestion of maize grains in chicken birds reared by farmers. (10 marks)

QUESTION THREE (20 MARKS)

- a) Explain FOUR common contaminants in animal feeds in Kenya. (8 marks)
- b) Discuss SIX influencers of the performance of the livestock feed industry. (12 marks)

QUESTION FOUR (20 MARKS)

- a) Describe FOUR ways used by livestock farmers to conserve forages for ruminant animals (10 marks)
- b) Explain FIVE factors contributing to frequent feed scarcity the livestock farmers are facing in the livestock sector (10 marks)

QUESTION FIVE (20 MARKS)

Discuss the different stages of processing of feedstuff in feed milling plant.