



# MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

BACHALOR OF SCIENCE (AGRICULTURAL EDUCATION AND EXTENSION)

ANS 302: NON-RUMINANT PRODUCTION

DATE: 7/12/2021

TIME: 2.00-4.00 PM

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**INSTRUCTION TO CANDIDATES:** Answer *ALL* questions from Section A and any other *TWO* from Section B

## SECTION A: COMPULSORY: (30 MARKS)

### QUESTION ONE

- a) Define the following terms as used in non-ruminant production (4 marks)
- i) Production system
  - ii) Breed
  - iii) Nutrient
  - iv) Kiddling
- b) Describe three poultry production systems in Kenya (3 marks)
- c) Explain the four areas of any non-ruminant production system that can be targeted to improve performance (4 marks)
- d) Describe four enterprises from any part of the non-ruminant value chain that can be used as leverage points to improve the commercialization of non-ruminants (4 marks)
- e) Explain three factors to consider when siting a poultry house (3 marks)
- f) Explain four reasons for providing suitable housing to poultry, pigs and rabbits. (4 marks)
- g) Explain five precautions taken by poultry, rabbit and pig farmers to prevent the spread of diseases (5 marks)
- h) From a nutritional perspective, explain three disadvantages of non-ruminant production (3 marks)

## **SECTION B: ANSWER ANY TWO QUESTIONS**

### **QUESTION TWO (20 MARKS)**

- a) With the aid of a Figure, describe a crossbreeding system that can be used to improve liveweight as well as egg production in chicken (give an example of the breed and justify your choice) (10 marks)
- b) Describe a cross-breeding system that takes into account individual and maternal heterosis that can be used to improve growth performance of pigs (10 marks)

### **QUESTION THREE (20 marks)**

- a) Explain the three differences between the digestive systems of poultry and rabbits (6 marks)
- b) Explain six role of the nutrient components for a well-balanced intensively housed chicken (6 marks)
- c) Formulate a well-balanced ration for a flock of 100 layers that can last the flock for 1 month using the following feed ingredients: sunflower meal, fish meal, maize bran and premix (8 marks)

### **QUESTION FOUR (20 MARKS)**

- a) Showing key considerations, develop an enterprise plan for a flock of 100 commercial layers (10 marks)
- b) Explain the management of a brooder, before and after arrival of day old chicks. (10 marks)

### **QUESTION FIVE (20 MARKS)**

- a) Explain the procedure of removing a rabbit from and replacing it back into its cage (6 marks)
- b) Describe the normal courtship behavior that male rabbits display when a doe is placed in its cage. (4 marks)
- c) i) Explain pseudo-pregnancy in rabbits (4 marks)  
ii) Explain the causes of (i) above (2 marks)
- d) Describe the breeding schedule of rabbit does (6 marks)