



**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 302: NON-RUMINANT PRODUCTION**

**DATE:**

**TIME:**

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

**QUESTION ONE (COMPULSORY) (30 MARKS)**

- a). Explain the following terms/concepts as used in non-ruminant science;
- i). Incubation. (1 mark)
  - ii). Brooding. (1 mark)
  - iii). Farrowing . (1 mark)
- b). Differentiate the following terms;
- i). Gilt and Barrow. (2 marks)
  - ii). Pullet and Cockerel. (2 marks)
- c). Explain two methods used in breeding of pigs in a farm. (5 marks)
- d). Explain **SIX** challenges of rearing of improved *Kienyenji* Chicken by small scale farmers in Kenya. (6 marks)
- e). Explain **SIX** basic principles required for health management for rabbit. (6 marks)
- f). Explain **THREE** basic principles of ensuring sound nutrition for poultry. (6 marks)

**QUESTION TWO (20 MARKS)**

- a). Explain FIVE benefits of beekeeping in Kenya. (5 marks)
- b). Explain FIVE challenges facing beekeeping in Kenya. (5 marks)
- c). Describe the digestion of carbohydrates in rabbits reared by farmers. (10 marks)

**QUESTION THREE (20 MARKS)**

- a). Explain FOUR common contaminants in animal products from poultry (8 marks)
- b). Discuss SIX factors influencing the performance of the aquacultural production in Kenya. (12 marks)

**QUESTION FOUR (20 MARKS)**

- a). Describe FIVE techniques of preserving meat product from non-ruminants. (10 marks)
- b). Explain why farm planning is crucial in commercial non-ruminant production for the livestock farmers. (10 marks)

**QUESTION FIVE (20 MARKS)**

- a). Explain the management practices of broilers from one-day old to six weeks. (10 marks)
- b). Discuss FIVE effects of climate change in pig production in Kenya (10 marks)