



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION

ANS 241: QUANTITATIVE GENETICS AND ANIMAL BREEDING

DATE: 29/4/2019

TIME: 8:30 – 10:30 AM

INSTRUCTION:

Answer Question One and Any Other Two Questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Describe the meaning of quantitative genetics and outline its influence in animal breeding (5 marks)
- b) Describe five characteristics of quantitative inheritance (5 marks)
- c)
 - i) Differentiate between heritability and repeatability (2.5 marks)
 - ii) State the importance of heritability in animal breeding (2.5 marks)
- d) Describe genetic correlation and its importance in animal breeding (5 marks)
- e) Give the meaning of outbreeding and explain its importance in animal production (5 marks)
- f) Describe five signs of heat in cows. (5 marks)

QUESTION TWO (20 MARKS)

- a) Describe five benefits of keeping livestock records (10 marks)
- b) Describe in detail two factors that influence profitability in animal production (10 marks)

QUESTION THREE (20 MARKS)

- a) Describe the following:
- i) Inbreeding (3 marks)
 - ii) Cross breeding (2 marks)
 - iii) Linebreeding (2 marks)
 - iv) Outcrossing (3 marks)
- b) i) Explain the application of Bateman's Principle in predicting mating success in animals (2 marks)
- ii) Explain three reasons why a female may prefer certain males for mating (3 marks)
- iii) Describe the purpose of animal selection. (2 marks)
- iv) Explain three methods of animal selection. (3 marks)

QUESTION FOUR (20 MARKS)

- a) Tabulate the differences between quantitative genetics and qualitative genetics. (10 marks)
- b) Describe five factors considered in selection of breeding stock. (10 marks)

QUESTION FIVE (20 MARKS)

- a) Describe the methods that are available for heat detection by farmers stating the accuracy of each and applicability in farm set ups, in herds suffering from silent heat. (10 marks)
- b) Describe five breeding technology methods that are available for a farmer. (10 marks)