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 EDUCATON 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   (2.5marks)

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)