



MACHAKOS UNIVERSITY

University Examinations for 2016/2017 Academic Year

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

**SECOND YEAR APRIL SESSION SUPPLEMENTARY EXAMINATION FOR
DIPLOMA IN AGRICULTURAL EDUCATION AND EXTENSION**

KRM 0204: PRINCIPLES OF ANIMAL BREEDING

DATE: SCHOOL BASED

TIME:

INSTRUCTIONS

QUESTION ONE and any two questions in section B

QUESTION ONE (COMPULSORY) (30 Marks)

- a) Explain the following terminologies
 - i) Homozygote (1 mark)
 - ii) Phenotype (1 mark)
 - iii) Lethal genes (1 mark)
 - iv) Selection intensity (1 mark)
- b) Distinguish between additive genetic effects and epistasis (4 marks)
- c) Explain Mendel's principle of dominance in the inheritance of character traits (3 marks)
- d) Distinguish between qualitative and quantitative traits (4 marks)
- e) Explain the following
 - i. Environmental improvements are temporary while genetic improvement is permanent. (2 marks)
 - ii. Selection (2 marks)

- f) Explain two advantages of artificial insemination (4 marks)
- g) Explain **TWO** effects of inbreeding. (4 marks)
- h) Distinguish between meiotic cell division in male cells and female cells. (3 marks)

SECTION B. ANSWER ANY TWO QUESTIONS (40 MARKS)

QUESTION TWO (20 marks)

- a) Explain FOUR mating systems used in animal breeding. (8 marks)
- b) Explain **FOUR** factors that change gene frequency in an animal population. (12 marks)

QUESTION THREE (20 MARKS)

- a) Explain how the environment influences animal phenotype (8 marks)
- b) Explain **FOUR** biotechnologies applied in animal breeding today in Kenya (12 marks)

QUESTION FOUR (20 MARKS)

- a) Explain **THREE** reasons why indigenous stock such as Zebu cattle and the small East African goat have largely been ignored by commercial livestock keepers. (6 marks)
- b) Goats kept in Kenyan rangelands are largely unimproved. Outline a breeding programme to improve and characterize the Goats. (14 marks)

QUESTION FIVE (20 MARKS)

- a) Explain **TWO** circumstances under which selection will occur. (4 marks)
- b) Explain **FOUR** methods of selection (16 marks)