



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)

University Examinations 2015/2016 Academic Year

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF AGRICULTURE EDUCATION AND EXTENSION

**FIRST SEMESTER EXAMINATION FOR DIPLOMA IN AGRICULTURE
EDUCATION AND EXTENSION**

KRM 0204: PRINCIPLES OF ANIMAL BREEDING

Date: 9/8/2016

Time:2.00-4.00 PM

INSTRUCTIONS:

Answer question one and two other questions

SECTION A: (COMPULSORY)(30 MARKS)

QUESTION ONE:

- a)
- i) Explain Mendel's Laws of inheritance. (3 marks)
 - ii) With the aid of illustrations demonstrate crosses between polled and horned animals and state which of Mendel's Law's is demonstrated (3 marks)
- b) Explain the following terminologies
- i) Dominance (1 mark)
 - ii) Sex linked genes (2 marks)
 - iii) Phenotype (1 mark)
 - iv) Homozygote (1 mark)
- c)
- i) Explain the meaning of variation (1 mark)
 - ii) Name the sources of variation in animals. (2 marks)
 - iii) Explain the components of the phenotypic and genotypic variation. (4 marks)
- d) Explain the following
- i) Inbreeding (2 marks)

- ii) Heterosis (2 marks)
- iii) Inbreeding depression (2 marks)
- e) Explain **THREE** disadvantages of Inbreeding. (6 marks)

SECTION B: ANSWER ANY OTHER TWO QUESTIONS (40 MARKS)

QUESTION TWO:

- a) Distinguish between natural and artificial selection. (4 marks)
- b) Describe the **FOUR** methods used for selection of animals with desirable traits (16 marks)

QUESTION THREE:

- a) Explain **THREE** causes of change in gene frequency in populations. (4 marks)
- b) Explain the characteristics of the following domestic fowl breeds
 - i) Layer breeds (5 marks)
 - ii) Dual purpose (6 marks)

QUESTION FOUR:

- a) Explain the major constraints for the improvement of livestock production in Kenya under Breeding programmes and genetic gain. (10 marks)
- b) Explain the biotechnological gains in animal genetic improvement through
 - i) Artificial insemination (6 marks)
 - ii) Multiple ovulation and embryo transfer. (4 marks)

QUESTION FIVE:

- a) Explain the meaning of Maternal environment. (5 marks)
- b) Explain the reasons for cross breeding (15 marks)