



MACHAKOS UNIVERSITY

University Examinations for 2016/2017 Academic Year

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

SECOND YEAR SECOND SEMESTER EXAMINATION FOR DIPLOMA IN

AGRICULTURAL EDUCATION AND EXTENSION

SPECIAL EXAMINATION

KRM 0204: PRINCIPLES OF ANIMAL BREEDING

DATE: 30/8/2017

TIME: 2:00 – 4:00 PM

INSTRUCTIONS:

Answer question one and any other two questions

QUESTION ONE (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) Cite **FOUR** new livestock breeding technologies gaining acceptance among farmers in Kenya today. (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

- 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

- 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

- 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

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