JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

FOURTH YEAR UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL EXTENSION EDUCATION

2019/2020 ACADEMIC YEAR

RESIT

COURSE CODE: AAS 3421

COURSE TITLE: Principles Of Animal Breeding

EXAM VENUE: **STREAM: BSc (Agricultural Extension Education)**

DATE: **EXAM SESSION:**

TIME: 2.00 HOURS

Instructions:

1. **Answer ALL question in Section A (compulsory) and ANY other TWO questions in Section B.**
2. **Candidates are advised not to write on the question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

SECTION A 30 MARKS

Answer ALL Questions from this Section.

Question 1

Explain the following terms and give examples:

a) Pleiotropy. (2 marks)
b) Hardy-Weinberg equilibrium. (2 marks)
c) Random mating**.** (2 marks)
d) Natural selection. (2 marks)
e) Heterosis (2 marks)

Question 2

a) What are selection aids in animal breeding? (2 marks)
b) State and explain the main selection aids available to animal breeders. (8 marks)

Question 3

a) Differentiate between culling and selection. (2 marks)
b) Explain the circumstances in which the use of Most Probable Producing Ability (MPPA) and Breeding Value (BV) appropriate in animal breeding. (3 marks)
c) What is multiple trait selection in the context of animal breeding? (2 marks)
f) Explain the importance of correlated response in animal breeding. (3 marks)

SECTION B 40 MARKS

Answer ANY TWO Questions from this Section.

Question 4

a) Briefly discuss the importance of heterosis in animal breeding. (10 marks)
b) Demonstrate how heterosis is measured. (5 marks)
c) Explain why heterosis is highest in the First Filial (F_1) cross. (5 marks)

Question 5

a) Illustrate schematically and discuss the pyramidal structure of breeding scheme. (10 marks)
b) Show the structure of a group breeding scheme and discuss how it operates. (10 marks)

Question 6

Write short note on the following:

a) Rotational crossbreeding. (4 marks)
b) Correlated response. (4 marks)
c) Most probable productivity ability (4 marks)
d) Pathways of gene transfer. (4 marks)
e) Culling. (4 marks)

Question 7

Discuss the importance of crossbreeding as a strategy in animal breeding. (20 marks)