



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

**THIRD YEAR FIRST SEMESTER UNIVERSITY EXAMINATION FOR
THE DEGREE OF BACHELOR OF SCIENCE IN ANIMAL SCIENCE**

2016/2017 ACADEMIC YEAR

REGULAR

COURSE CODE: AAS 3411

COURSE TITLE: DAIRY CATTLE PRODUCTION

EXAM VENUE:

STREAM: BSc. (ANIMAL SCIENCE)

DATE:

EXAM SESSION:

TIME: 2 HOURS

Instructions:

- 1. Answer ALL questions in section A and ANY other 2 Questions in section B.**
- 2. Candidates are advised not to write on 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.

1. Define the following terms with examples:
 - a. Subsistence production system (2Marks)
 - b. Commercial production system (2Marks)
2. Differentiate between the following
 - a. Dairy ranching and extensive grazing systems (3 Marks)
 - b. Large scale zero grazing and semi-intensive operations (3 Marks)
3. Briefly describe the following nutrition disorders of dairy cattle
 - a. Ketosis (2 marks)
 - b. Displaced abomasum (2 marks)
 - c. Milk fever (2 marks)
4. Differentiate, giving at least two examples of each, the following major methods of breeding that can be utilized in dairy cattle
 - a. Close breeding (4 marks)
 - b. Outbreeding (4 marks)
5. Differentiate between
 - i. Hybrid vigour and inbreeding depression (2 marks)
 - ii. Back-crossing and criss-crossing (2 marks)
 - iii. Culling and selection (2 marks)

SECTION B [40 MARKS]

Answer ANY TWO questions from this Section.

- 6 (a) List 5 roles the dairy sub-sector plays in Kenya's socio-economic agenda (5 marks)
(b) In dairy cattle production, efficient milk production requires that each cow or group of cows be given a feed ration that is commensurate to its daily milk yield
 - i. List three ways in which cows can be allocated into practical feeding groups? (3 marks)
 - ii. What are the strategies of feeding dairy cattle in the different stages of lactation? (12 marks)
- 7 (a) Using a graph, describe the relationship between milk yield, dry matter intake, fat and protein yield, and body weight in the four phases of the lactation curve (15 marks)
(b) What are the differences in terms of feeding objectives when feeding heifers (in first lactation) and cows (in third and subsequent lactations)? (5 marks)
- 8 As a dairy production consultant you have been asked to assist farmers choose an appropriate dairy cattle breed for milk production in various climatic zones in Kenya. What breed and for what reasons would you recommend to farmers in the following circumstances
 - a) cold and wet climate (4 marks)
 - b) hot and humid climate (4 marks)
 - c) smallholder production systems where feed resource is limiting (4 marks)

d) market pays for milk quality **(4 marks)**

e) milk price is based on volume alone **(4 marks)**

9 a) Describe the stepwise process of milking a cow using a machine **(8 marks)**

b) List and briefly describe 4 common nutritional disorders of dairy cattle and their remedy **(12 marks)**