UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER
MAIN EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE ECONOMICS AND RESOURCE MANAGEMENT

COURSE CODE: AAP 322

COURSE TITLE: BIOTECHNOLOGY IN RUMINANT PRODUCTION

DATE: 25TH APRIL 2023 **TIME:** 9 – 11 AM

INSTRUCTIONS TO CANDIDATES

Answer Question ONE and any other TWO Questions.

TIME: 2 Hours

This paper consists of 3 printed pages. Please Turn Over

QUESTION ONE

a. Outline the three major constraining factors that influence the productivity in the livestock sector **(3 marks)**

b. Explain the term gene mapping and list types of genetic maps **(3 marks)**

c. Define the following terms

i. Prebiotics **(2 marks)**

ii. Probiotics **(2 marks)**

iii. Biotechnology **(2 marks)**

d. Briefly describe the following Antigen-antibody interaction-based techniques

i. Monoclonal antibodies **(4 marks)**.

ii. Enzyme-Linked Immunosorbent **(4 marks)**

e. Which of the following statement is NOT true for genetic markers? Explain **(4 marks)**

a) A gene or a DNA sequence

b) Associated with a particular trait

c) Anything can be used as a genetic marker

d) The first genetic map was prepared was of fruit fly

f. Outline the advantages of using embryo transfer technology in animal breeding **(2 marks)**

g. Which of the following technique is used for the amplification of DNA fragments? Explain. **(4 marks)**

a) AFLP

b) RFLP

c) RAPD

d) SNP

QUESTION TWO

Discuss different methods of gene mapping **(20 marks)**

QUESTION THREE

Write short notes on

i. Immunotherapy **(4 marks)**
ii. Nanotechnology **(4 marks)**
iii. Vaccination **(4 marks)**

iv. Cytokine Therapy (**4 marks)**
v. Proteomics (**4 marks)**

QUESTION FOUR

i. Discuss different DNA-based diagnostic techniques (**10 marks)**

ii. Discuss the application of biotechnology in animal breeding (**10 marks)**

QUESTION FIVE

i. Discuss the approaches to automate oestrus detection in animal breeding **(10 marks)**
ii. Describe different types of molecular markers and their shortcomings **(10 marks)**