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

2024/2025 ACADEMIC YEAR
SIAYA

COURSE CODE: AAB 1302

COURSE TITLE: Biotechnology in Animal Production

DATE: **TIME:**

INSTRUCTIONS TO CANDIDATES

1. **This paper is divided into two sections, A and B.**
2. **Answer ALL Questions in SECTION A and any Two in SECTION B**
3. **Candidates are advised not to write on question paper.**
4. **Candidates must hand in their answer booklets to the invigilator while in the examination room**.

SECTION A: ANSWER ALL QUESTIONS (30 MARKS)

Q1.

a) Describe the role of buffers in animal diets. (**3 marks**)
b) Explain the role of feed additives in animal feeding and nutrition. (**4 marks**)
c) What are the uses of antibiotics in farm animals? (**3 marks**)
d) State disadvantages of recombinant DNA derived vaccines. (**2 marks**)
e) Differentiate among probiotics, prebiotics and synbiotics. (**3 marks**)
f) Outline the main reasons why metabolic modifiers are used in animal agriculture. (**4 marks**)
g) Name assisted reproductive technologies (ARTs) available in Kenya. (**3 marks**)
h) Illustrate the embryo transfer procedure in dairy cows. (**3 marks**)
i) Define marker assisted selection as used in animal breeding. (**2 marks**)
j) Discuss the concept of limiting amino acids in diet formulation. (**3 marks**)

SECTION 2: ANSWER ANY TWO QUESTIONS (40 MARKS)

Q2. a) Describe the nuclear transfer cloning method in pigs. (**6 marks**)

b) Demonstrate the effects of ionophores on ruminant performance. (**6 marks**)

c) Discuss the advantages derived from feed additives. (**8 marks**)

Q3. a) Describe the functions of mineral chelates in pig production. (**8 marks**)

b) Compare and contrast between the conventional and recombinant DNA produced vaccines. (**8 marks**)

c) Outline the main consequences of amino acids imbalances in poultry diets. (**4 marks**)

Q4) a) Outline the objectives for manipulating the rumen environment. (**8 marks**)

b) Describe the mechanistic actions of antimicrobial growth promoters in poultry. (**4 marks**)

c) Discuss the constraints related to adoption of biotechnological innovations in the developing countries. **8 marks**)

Q5) a) Describe the possible mechanisms of action of prebiotics in broiler chickens. (**10 marks**)

b) Discuss techniques used to protect protein from being degraded in the rumen. (**10 marks**)