JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

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

2018/2019 ACADEMIC YEAR

REGULAR

COURSE CODE: AAS 3321

COURSE TITLE: BIOTECHNOLOGY IN ANIMAL 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

1. Outline the three principles of cell theory (3 marks)

2. Explain three selection criteria that should be used in selecting breeds for conservation (3 Marks)

3. Discuss three ways through which biotechnological techniques can be used to improve animal nutrition (3 marks)

4. Define the term cryopreservation and describe the two cryopreservation freezing methods (3 Marks)

5. Discuss three advantages of genetic modifications of rumen micro-organisms in reducing methane emissions in rumen (3 Marks)

6. Explain the differences among the terms Probiotics, Prebiotics and Symbiotics (3 marks)

7. Discuss three factors through which biotechnology has been applied to enhance animal genetic progress (3 marks)

8. Outline three ways through which somatotrophin metabolic modifier has been used in improving efficiency of domestic animal production (3 Marks)

9. Describe three risks associated with the use of probiotics in animal feed (3 Marks)

10. Identify three ways through which semen can be collected from a bull for artificial insemination (3 Marks)

SECTION B   [40 MARKS]

Answer ANY TWO questions from this Section.

1. Discuss SEVEN biotechnological techniques that have been developed to increase the reproductive potential of livestock (20 Marks)

2. i) Giving examples, discuss FIVE classifications of organic mineral chelates given to animals in order to increase nutrient absorption (15 marks)

   ii) Outline FIVE uses of chelates in animal Nutrition (5 Marks)

3. Describe FIVE applications of Biotechnology towards Diagnosis and Treatment in Veterinary Medicine (20 Marks)

4. Discuss the diversity and roles of rumen microflora (20 Marks)