



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**  
**UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE IN**  
**AGRICULTURAL EXTENSION AND EDUCATION**  
**ANIMAL SCIENCE**  
**HORTICULTURE**  
**1<sup>ST</sup> YEAR 2<sup>ND</sup> SEMESTER 2016/2017 ACADEMIC YEAR**  
**REGULAR**

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**COURSE CODE: AAB 3121**

**COURSE TITLE: AGRICULTURAL MICROBIOLOGY**

**EXAM VENUE:** **STREAM: (BSc. Agricultural Ext. Edu, BSc  
Animal Science, BSc Horticulture.)**

**DATE:** **EXAM SESSION:**

**TIME: 2 HOURS**

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**Instructions**

- 1. Answer ALL questions in Section A (compulsory) and ANY 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**
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## **SECTION A [30 MARKS]**

### **Answer ALL questions in this section**

1. a) What is the contribution of the following Scientists to the History of Microbiology?
  - (i) Louis Pasteur [1 mark]
  - (ii) Anton Van Leewenhoeck [1 mark]
  - (iii) Robert Hooke [1 mark]
- b) State the 'Spontaneous generation theory' [2 marks]
2. State Koch's postulates [4 marks]
3. State the difference between catabolism and anabolism as used in microbial metabolism. [2 marks]
4. Define a 'Bacteriophage' and state what it is made of [3 marks]
4. Briefly describe Biological nitrogen fixation giving examples of microorganisms involved in the process [4 marks]
5. List down four toxins that are produced by microorganisms in food [4 marks]
6. List down 3 ways by which ATP (Adenosine Triphosphate) is generated [3 marks]
7. Define the term 'Biofertilizers' and write down 4 examples [5 marks]

## **SECTION B [40 MARKS]**

### **Answer any two questions in this section**

8. a) List down 4 groups of Microorganisms [2 marks]
  - b) Draw the growth curve of bacteria then name and explain all the phases of growth [8 marks]
  - c) Describe the factors that affect the growth of microorganisms [10 marks]
9. Describe the nitrogen cycle and with examples explain the stages involved. [20 marks]
10. a) What are the three main causes of food spoilage? [3 marks]
  - b) Discuss the four major methods of food preservation. [17 marks]