



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY**  
**SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF**  
**SCIENCE WITH IT**  
**4<sup>th</sup> YEAR 1<sup>st</sup> SEMESTER 2023/2024 ACADEMIC YEAR**  
**MAIN CAMPUS - REGULAR**

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<b>COURSE CODE:</b>	<b>SBB 1415</b>
<b>COURSE TITLE:</b>	<b>FOOD MICROBIOLOGY</b>
<b>EXAM VENUE:</b>	<b>STREAM: (BSC)</b>
<b>DATE:</b>	<b>EXAM SESSION:</b>
<b>TIME: 2 HOURS</b>	

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**Instructions:**

- 1. Answer ALL questions in Section A and Any two 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**
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### **SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)**

1. Outline six roles of a microbiologist in the food industry (3 marks)
2. Explain three advantages of microorganisms to the food industry (3 marks)
3. Distinguish between backslopping and controlled fermentation of food products (2 marks)
4. List three properties of lactic acid bacteria (3 marks)
5. Explain the mode of action of the following microbial metabolites in food preservation
  - i) Propionic acid (1½ marks)
  - ii) Hydrogen peroxide (1½ marks)
6. Use examples to explain the roles of spore forming firmicutes in the food industry (3 marks)
7. Explain the nutritional composition and quality of cow's milk. (3 marks)
8. List the desirable characteristics of lactic acid bacteria used in the food industry (3 marks)
9. Human gastrointestinal disorders have been attributed to consumption of foods containing viable microbial pathogens. List four other sources of such disorders other than the viable pathogens (2 marks)
10. Explain the following mechanisms of food preservation
  - i) Canning (2 mark)
  - ii) Pasteurization (2 marks)

### **SECTION B: ESSAY QUESTIONS (40 MARKS)**

11. a) Describe the role of molds in industrial fermentation of food (20 marks)
12. a) Describe the industrial process of beer brewing (12 marks)
  - b) Explain the mechanism of action of four microbial enzymes used in food processing (8 marks)
13. Discuss the roles of microorganisms in nitrogen fixation (20 marks)
14. Discuss the microbiology of yoghurt fermentation (20 marks)