



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY
SCHOOL OF BIOLOGICAL, PHYSICAL, MATHEMATICS AND ACTUARIAL
SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
IN BIOLOGICAL SCIENCES

2nd YEAR 1st SEMESTER 2022/2023 ACADEMIC YEAR

MAIN CAMPUS - REGULAR

COURSE CODE: SBB 1202
COURSE TITLE: MICROBIAL ECOLOGY
EXAM VENUE: STREAM: (BSC)
DATE: EXAM SESSION:
TIME: 2 HOURS

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. Describe the purpose and outcomes of the below listed techniques in microbiology (3 marks)
 - a. Inoculation
 - b. Incubation
 - c. Isolation
2. Illustrate the hanging drop slide technique for preparing microscopy specimens (3 marks)
3. Describe the negative and positive staining techniques (3 marks)
4. Citing examples, describe the three main categories of media used in microbiology (3 marks)
5. Describe the nutritional categories of microbes based on their carbon and energy sources (3 marks)
6. Describe bacterial adaptations to osmotic variations in the environment (3 marks)
7. Outline any three similarities in biogeochemical cycles (3 marks)
8. List and three process through which carbon is recycled through ecosystems (3 marks)
9. Describe the role of siderophores in iron uptake by microbes (3 marks)
10. List three examples of mutualistic interactions between microbes and animals (3 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Discuss the effect of environmental factors on microbial growth (20 marks)
12. Discuss the diversity of microbial habitats (20 marks)
13. Discuss the different types of microbe-microbe interactions (20 marks)
14. Give a synthesis of the role of microbes in the nitrogen cycle (20 marks)