



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF HEALTH SCIENCES**  
**UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE PUBLIC**  
**HEALTH / COMMUNITY HEALTH AND DEVELOPMENT**  
**2<sup>ND</sup> YEAR 1<sup>ST</sup> SEMESTER 2022/2023 ACADEMIC YEAR**  
**KISUMU**

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**COURSE CODE: HBB 9201**

**COURSE TITLE: BASIC MICROBIOLOGY**

**EXAM VENUE: STREAM: (BSc. Comm Hlth & Dev)**

**DATE: EXAM SESSION: DEC 2022**

**TIME: 2.00 HOURS**

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**Instructions:**

- 1. Answer all the questions in Section A and TWO (2) 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.**

## **SECTION A: ANSWER ALL QUESTIONS**

1. Explain the main distinguishing feature of Eukaryotic and Prokaryotic cells and give examples of microorganisms that fall into the two categories (3 marks)
2. Briefly explain the following ecological relationships
  - a.) Commensalism (1 mark)
  - b.) Mutualism (1 mark)
  - c.) Parasitism (1 mark)
3. List SIX (6) types of culture media used in microbiology (3 marks)
4. List THREE (3) factors that influence effectiveness of antimicrobial agents (3 marks)
5. Compare and contrast normal flora and transient flora and state how normal flora benefits the host (3 marks)
6. Explain, with examples, the two essential nutrients stating their role in microbial nutrition (3 marks)
7. Classify microbes into three groups on the basis of preferred temperature range (3 marks)
8. Outline TWO (2) broad effects produced by antimicrobial agents (3 marks)
9. Compare and contrast disinfection and sterilization in control of microbial growth (3 marks)
10. Explain the events that take place during logarithmic phase of bacterial growth curve (3 marks)

## **SECTION B: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER QUESTION**

1. Microorganisms have been both beneficial and detrimental to humans ever since their discovery. Discuss (20 marks)
2.
  - a. Contrast between the gram positive and the gram negative bacteria cell walls (4 marks)
  - b. Explain the principle of gram staining procedure outlining the process and the expected results (16 marks)
3. Discuss FIVE (5) modes of action of antimicrobial drugs (20 marks)
4. Discuss how moist heat and dry heat can be used in physical control of microbial growth (20 marks)