



KISII UNIVERSITY
UNIVERSITY EXAMINATIONS

**THIRD YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF
BACHELOR OF SCIENCE IN EDUCATION/LABORATORY TECHNOLOGY
FIRST SEMESTER 2022/2023
[SEPTEMBER-DECEMBER, 2022]**

BOTA 335/BSLT 417: ADVANCED MICROBIOLOGY

STREAM: Y3S1

TIME: 2 HOURS

DAY: MONDAY, 12:00 – 2:00 PM

DATE: 19/12/2022

INSTRUCTIONS

- 1. Do not write anything on this question paper.***
- 2. Answer ALL Question in Section A and any TWO Questions in Section B.***

SECTION A (40 MARKS)

- Describe the three major types of microbial cells. (3 marks)
- Outline the major characteristics of fungi. (5 marks)
- Highlight any six significances of culturing microorganisms in the laboratory. (6 marks)
- Define the following terms
 - Generation time (1 mark)
 - Generation progression (1 mark)
 - A serial dilution was conducted in the laboratory using a sample of 12,000 *Escherichia coli* cells then incubated for 12 hours in an unlimited food and clean environment. How many colonies were present after incubation if its generation time was 15 minutes. (4 marks)
- Illustrate the measures used in the laboratory in controlling microbial growth. (5 marks)
- Identify the role of the following nutrients in microbial biosynthesis. (5 marks)

7. Describe the process of conjugation in bacteria by giving illustrations. (5 marks)
8. Describe five general roles of microorganisms in an ecosystem. (5 marks)

SECTION B (30 MARKS) ANSWER ANY TWO QUESTIONS

9. Describe the morphological diversity of microbes. (15 marks)
10. Explain the bacterial growth curve in respect to inoculation through incubation. (15 marks)
11. Describe the following flora types in regards to human relations a. Explain any five beneficial roles of normal flora in human body. (5 marks)
- b. Describe five basic types of infectious diseases affecting human beings. (10 marks)
12. Explain the classification model of culture media as outline below.
- a. Outline the three major classes of culture media. (3 marks)
- b. Explain the culture media classification based on consistency. (12 marks)