

CHUKA

UNIVERSITY



UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF
SCIENCE

**BOTA 103: METHODS AND INSTRUMENTATION IN MICROBIOLOGY AND
BIOTECHNOLOGY**

STREAMS: B.Sc

TIME: 2 HOURS

DAY/DATE: TUESDAY 09/04/2024

8.30 A.M. – 10.30 A.M.

SECTION A: Answer all questions (30 marks)

1. Define the following terms
 - a) Differential media (1 mark)
 - b) Binary fission (1 mark)
 - c) Obligate anaerobes (1 mark)
 - d) Coulter counter (1 mark)
 - e) Organogenesis (1 mark)
2. Outline the applications of autoradiography. (5 marks)
3. Describe the concept of centrifugation. (5 marks)
4. Explain the methods used in anaerobic culture. (5 marks)
5. Describe the procedure of wet weight measurement of microbial growth. (5 marks)
6. Outline the advantages of tissue culture. (5 marks)

SECTION B: Answer any two questions (30 marks)

7. Illustrate the growth curve of microbes in a batch culture system. (20 marks)

8. a) Discuss the steps followed during extraction DNA from culture sample. (12 marks)
b) Describe the isoelectric focusing. (8 marks)

9. Describe how different microscopes are adapted for viewing specimens. (20 marks)
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