

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF SCIENCE

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

STREAMS: BSC

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 15/04/2020

11.30 A.M. – 1.30 P.M.

INSTRUCTIONS: Answer ALL questions in section A and TWO questions in section B

SECTION A

1. Define the following terms
 - (a) Inoculum [1 mark]
 - (b) Pure culture [1 mark]
 - (c) Chromophore [1 mark]
 - (d) Autoradiography [1 mark]
 - (e) Resolution [1 mark]
2. Outline general steps in preparation of culture media [5 marks]
3. Explain the major phases of bacterial growth in a Batch culture [5 marks]
4.
 - (a) Give two parameters that define types of centrifuge [2 marks]
 - (b) Name types of centrifuges [3 marks]
5. List major components of a spectrophotometer [3 marks]
6. Describe the applications of autoradiography [2 marks]
7. Explain how sterility is achieved through autoclaving [5 marks]

SECTION B (40 MARKS)

8. Discuss method used in the measurement of microbial growth [20 marks]
9.
 - (a) Discuss the application of tissue culture in micropropagation of plants [10 marks]
 - (b) Discuss the general method for extraction and analysis of DNA [20 marks]
10. Discuss different types of microscopes [20 marks]