

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF SCIENCE

SUPPLEMENTARY EXAM

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

STREAMS: BSC (BOTA)

TIME: 2 HOURS

DAY/DATE: MONDAY 16/11/2020

11.30 A.M. – 1.30 P.M.

Instructions: Answer all questions in section A and any two in section B

SECTION A (30 marks)

1. Describe how specimens are prepared for observation under electron microscope (5 marks)
2. (a) Name the critical factors that determine the success of a plant tissue culture process (4marks)
(b) Describe the methods used for measurement of microbial growth (5 marks)
3. Describe how a spectrophotometer works (5 marks)
4. Describe the role of the following reagents during DNA extraction (5 marks)
 - i. Sodium dodecyl sulphate /detergent (2 marks)
 - ii. Sodium chloride/salt (2 marks)
 - iii. Ethanol/isopropanol (2 marks)
5. Describe the applications of the polymerase chain reaction (PCR) (5 marks)

BOTA 103

SECTION B (40 MARKS)

6. Discuss the process isolation of and culture of microorganisms (20 marks)
 7. Discuss the growth curve of microbes under batch culture (20 marks)
 8. (a) Discuss the types of centrifuges (10marks)
(b) Discuss the types of microscopes (10 marks)
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