

BOTA 335

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF BACHELOR OF SCIENCE
& EDUCATION SCIENCE

BOTA 335: ADVANCED MICROBIOLOGY

STREAMS: BOTA

TIME: 2 HOURS

DAY/DATE: THURSDAY 9/04/2020

2.30 P.M – 4.30 P.M.

INSTRUCTIONS

- Answer All questions in Section A and any Two in Section B
- Do not write anything on the question paper
- Use illustrations where appropriate to enhance your answer.

SECTION A [30 MARKS]

1. Define the following terms as applied in advanced microbiology;
[3 Marks]
 - a. Bioremediation
 - b. Fermentation
 - c. Dimorphism

2. A traveler exhibit symptom of a suspected bacterial pathogen. Outline the steps to be followed to establish if the traveler is suffering from the suspected pathogen based on Koch postulates. [4 Marks]

3. Giving examples, outline antimicrobial substances in food that helps to ensure food safety. [5 Marks]

4. Discuss five benefits of soil microbes in agriculture. [5 Marks]
5. Bacteria can gain resistance gene from other bacteria cells. Discuss various mechanisms used to transfer the genetic material from bacteria cell to another. [4 Marks]
6. Outline the economic importance of algae in the ecosystem. [5 Marks]
7. Outline four types of microbial interactions in the environment. [4 Marks]

SECTION B [40 MARKS]

8. a) Describe the steps followed during cloning in recombinant DNA technology. [10 Marks]
b) Discuss intervention methods that can be used to control and prevent fungal infections. [10 Marks]
 9. Classify various types of vaccines and outline various disease controlled by each of the vaccine. [20 Marks]
 10. Discuss the roles of microorganisms in various biogeochemical cycles. [20 Marks]
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