

MIC 310



**ALUPE UNIVERSITY
COLLEGE**

...Bastion of Knowledge...

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**OFFICE OF THE DEPUTY PRINCIPAL
ACADEMICS, STUDENT AFFAIRS AND RESEARCH**

UNIVERSITY EXAMINATIONS

2019 /2020 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER REGULAR EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE IN MICROBIOLOGY

COURSE CODE: MIC 310

COURSE TITLE: SOIL MICROBIOLOGY

DATE: 4TH DECEMBER, 2019

TIME: 9.00 AM – 12.00 P.M

INSTRUCTIONS TO CANDIDATES

- SEE INSIDE

THIS PAPER CONSISTS OF 3 PRINTED PAGES

PLEASE TURN OVER

MIC 310

MIC 310: SOIL MICROBIOLOGY

STREAM: BSc. MICROBIOLOGY

DURATION: 3 Hours

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INSTRUCTIONS TO CANDIDATES

- i. Answer ALL questions from section A and any **THREE** from section B.*
 - ii. Diagrams should be used whenever they serve to illustrate the answer.*
 - iii. Do not write on the question paper.*
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SECTION A (24 MARKS)

Question One

- a) Define the following terms as used in soil microbiology.
 - i. Soil (1 Mark)
 - ii. Edaphon (1 Mark)
 - iii. Humus (1 Mark)
 - iv. Bioremediation (1 Mark)
- b) Outline the role of soil microbes in the process of humification. (4 Marks)
- c) Describe parasitism between soil microorganisms. (4 Marks)

Question Two

- a) Highlight any four biotic factors and they influence the distribution of soil organisms. (4 Marks)
- b) Outline three types of pyramids that determine microbial numbers in the soil. (4 Marks)
- c) Describe the four main constituents of soil. (4 Marks)

SECTION B (36 MARKS)

Question Three

- a) Discuss five functions of soil microorganisms. (10 Marks)
- b) Describe the mechanism by which fungi degrade pesticides in the soil. (2 Marks)

Question Four

- a) Using appropriate illustrations trace the sequence of events in the nitrogen cycle and list the names of microbes that play a key role in this cycle. (8 Marks)
- b) Describe two common types of mycorrhiza. (4 Marks)

Question Five

- a) Explain four factors that affect the rate of biodegradation in soil. (8 Marks)
- b) Give an account of crown gall disease transmission in a named host plants. (4 Marks)

Question Six

- a) Define Phytoextraction. (2 Marks)
- a) Describe the role of microbes in soil formation. (10 Marks)

Question Seven

Give an account of how microbes maintain phosphorous nutrients in the soil. (12 Marks)
