(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2019/2020 ACADEMIC YEAR

FOURTH YEAR FIRST SEMESTER SPECIAL/SUPPLEMETARY EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGY

COURSE CODE: **SBT 412**

COURSE TITLE: **MICROBIAL ECOLOGY**

DATE: 02/02/2021 **TIME:** 8:00-10:00 A.M.

INSTRUCTIONS TO CANDIDATES

Answer Question one (1) and any other two (2) Questions. Question one is compulsory and carries 30 marks, the other Questions carry 20 marks each.

TIME: 2 Hours

This paper consists of 3 printed pages. Please Turn Over

KIBU observes ZERO tolerance to examination cheating

QUESTION ONE

a) Describe three forms of host-pathogen relationships in ecosystem. (3 Marks)

b) Enumerate five roles that microorganisms play in the soil. (5 Marks)

c) Explain four abiotic factors influencing the distribution of organisms. (4 Marks)

d) Explain two factors within species which affect population size. (4 Marks)

e) List two structures that aid microorganisms in their movement. (2Marks)

f) Describe the composition of the soil as a habitat of microbes. (4 Marks)

g) Explain how to estimate microbial population using transect method. (4 Marks)

h) Define the following terms:-

i) Nitrification (2 Marks)

ii) Denitrification. (2 Marks)

QUESTION TWO

a) Account for commensalism as a form of microbial interaction. (5 Marks)

b) Explain in detail the events that take place in a carbon cycle. (15 Marks)

QUESTION THREE

a) Discuss methods employed to control microorganisms in the ecosystem. (15 Marks)

b) Outline five unique characteristics of an ecosystem. (5 Marks)

QUESTIONS FOUR

a) Discuss five methods for collecting micro-organisms in the environment. (15 Marks)

b) Explain how oxygen variations is likely to affect microbial distribution (5 Marks)

QUESTION FIVE

a) Explain the approaches that may be utilised in studying a microbial ecosystem. (15 Marks)

b) Explain how to estimate microbial population capture-recapture method. (5 Marks)