

MIC 212



OFFICE OF THE DEPUTY PRINCIPAL
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

UNIVERSITY EXAMINATIONS

2018 /2019 ACADEMIC YEAR

SECOND YEAR SECOND SEMESTER REGULAR EXAMINATION

**FOR THE DEGREE OF BACHELOR OF SCIENCE
IN MICROBIOLOGY**

COURSE CODE: MIC 212

COURSE TITLE: ENVIRONMENTAL MICROBIOLOGY

DATE: 16TH APRIL, 2019

TIME: 2.00 PM – 5.00 PM

INSTRUCTIONS TO CANDIDATES

- SEE INSIDE

THIS PAPER CONSISTS OF 3 PRINTED PAGES

PLEASE TURN OVER

MIC 212: ENVIRONMENTAL MICROBIOLOGY

STREAM: BSc in Microbiology

DURATION: 3 HOURS

INSTRUCTION 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.
-

SECTION A (24 MARKS)

Question One

- a). Define the term eutrophication. (2 Marks)
- b). Explain the plate technique procedure for isolating bacteria from air. (4 Marks)
- c). Describe four roles of yeast in food production. (4 Marks)
- d). Outline the differences between food chain and food web. (2 Marks)

Question Two

- a) Describe mutualism
 - i. Between a fungi and an algae (3 Marks)
 - ii. Between a plant and a bacteria (3 Marks)
- b) Write explanatory notes on the following
 - i. Primary succession. (2 Marks)
 - ii. Food spoilage (2 Marks)
- c) Highlight four distinct characteristics of atmosphere that make it a suitable habitat for microbes. (2 Marks)

SECTION B (36 Marks)

Question Three

- a). Explain energy flow in the ecosystem. (8 Marks)
- b). Describe two environmental stresses that affect the survival of microbes in the atmosphere. (4 Marks)

Question Four

- a). Highlight distinguishing features of zones found in a water body. (6 Marks)
- b). Describe the relationship between photosynthesis and respiration in carbon cycle.(6 Marks)

Question Five

- a). Discuss three forms of interdependence among micro-organism in the ecosystems.(9 Marks)
- b). Distinguish between production and biomass in an ecosystem. (3 Marks)

Question Six

- a). Using relevant examples, describe three pathogenic bacteria that contaminate dairy products. (9 Marks)
- b). Outline three forms of carbon on earth. (3 Marks)

Question Seven

- a). Describe the activities involved in the following stages of a nitrogen cycle:-
 - i. Denitrification (2 Marks)
 - ii. Ammonification (2 Marks)
 - iii. Nitrification (2 Marks)
 - iv. Lightening (2 Marks)
- b). Explain two roles of micro-organisms in relation to food. (4 Marks)
