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OFFICE OF THE DEPUTY PRINCIPAL
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

UNIVERSITY EXAMINATIONS

2020 /2021 ACADEMIC YEAR

FOURTH YEAR SECOND SEMESTER REGULAR EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE IN MICROBIOLOGY

COURSE CODE: **MIC 417**

COURSE TITLE: **APPLIED MICROBIOLOGY**

DATE: **14TH JULY, 2021** **TIME: 01.00 PM – 04.00 PM**

INSTRUCTIONS TO CANDIDATES

- **SEE INSIDE**

THIS PAPER CONSISTS OF 3 PRINTED PAGES **PLEASE TURN OVER**

REGULAR – MAIN EXAM

MIC 417: APPLIED MICROBIOLOGY

STREAM: BSc Microbiology **DURATION: 3 Hours**

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) Outline four advantages of using microorganisms as a food source. (4 Marks)

b) Highlight four reasons as why companies prefer to use industrial biotechnology compared to traditional methods. (4 Marks)

c) Explain the microbial nitrogen fixation process. (4 Marks)

Question Two

a) State the principle of a microbiological assay (2 Marks)

b) Distinguish between Bio-stimulation and Bio-augmentation as applied in biodegradation. (4 Marks)

c) Enumerate four characteristics of a good silage. (2 Marks)

d) Describe the main activities in a continuous culture. (2 Marks)

SECTION B (36 MARKS)

Question Three

a) Give an account of the process of beer production naming microorganism involved at each step. (10 Marks)

b) Describe the role of baker's yeast in bread making. (2 Marks)

Question Four

a) Write explanatory notes on the following

i. Mycorrhiza (4 Marks)

ii. Amino acids (4 Marks)

b) Highlight four metabolic effects of microorganisms on xenobiotics. (4 Marks)

Question Five

a) Write a detailed description of the microbial growth pattern in batch fermentation. (10 Marks)

b) Outline two factors affecting microbial growth on food. (2 Marks)

Question Six

Account for the following food preservation methods.

i. Low temperature (6 Marks)

ii. Preservation using chemicals (6 Marks)

Question Seven

Using an illustration, describe the cup-plate method for microbiological assay of antibiotics. (12 Marks)

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