



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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UNIVERSITY EXAMINATIONS 2023/2024

SECOND YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN MEDICAL MICROBIOLOGY

HMM 3226: MICROBIAL ECOLOGY

DATE: APRIL 2024

TIME: 2 HOURS

INSTRUCTIONS: Answer Question One and any other Two

QUESTION ONE (30 MARKS)

- a) Discuss the importance of quorum sensing to microbial communities. (6 Marks)
- b) Highlight the role played by microorganisms in the following aspects:
 - i. Organic matter decomposition (3 Marks)
 - ii. Bioremediation (3 Marks)
- c) Describe the influence of the root to the abundance and diversity of different microorganisms. (6 Marks)
- d) Describe the roles of major microbial populations in the soil (6 Marks)
- e) Distinguish biofilms from microbial mats (6 Marks)
- f) List six properties of ideal indicator organisms for water pollution. (6 Marks)
- g) Describe the relationship between microorganisms and planktons. (2 Marks)



MUST is ISO 9001:2015 and



ISO/IEC 27001:2013 CERTIFIED

QUESTION TWO (20 MARKS)

Discuss the role microorganisms in nitrogen cycling. (20 Marks)

QUESTION THREE (20 MARKS)

Analyze effects of the environment on microbial growth and population. (20 Marks)

QUESTION FOUR (20 MARKS)

Discuss factors that affect the microbial flora of the rhizosphere. (20 Marks)

