



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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University Examinations 2024/2025

FIRST YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE, BACHELOR OF SCIENCE IN HORTICULTURE, BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION

SBA 3350: GENERAL MICROBIOLOGY

DATE: JANUARY 2025

TIME: 2 HOURS

INSTRUCTIONS:

1. Answer Question ONE, and any other TWO

QUESTION ONE (30 MARKS)

- a) Write short notes on the following micro-organisms (10 Marks)
 - i. Virus
 - ii. Bacteria
 - iii. Nematode
 - iv. Viroid
 - v. Fungi
- b) Describe the criteria used by Robert Koch in linking a specific causal organism to a particular disease (5 Marks)
- c) Describe five basic methods used in identification of micro-organisms (5 Marks)
- d) Differentiate between the following structures of a fungus. (6 Marks)
 - i. Conidiophores and Basidiospores
 - ii. Septate and Aseptate fungi
 - iii. Hypha and Mycelium
- e) Describe the role of Rhizobacteria in Nitrogen fixation in plants (4 Marks)



QUESTION TWO (20 MARKS)

- a) Describe the role of modern microbiology in Agriculture advancement (8 Marks)
- b) Describe the genomic organization of viral nucleic acids (4 Marks)
- c) Explain the adverse effects of microbes on plants; cite relevant examples (8 Marks)

QUESTION THREE (20 MARKS)

- a) Draw and label the bacteria sporulation cycle (10 Marks)
- b) Explain the benefits and potential risks in using genetically modified micro-organisms in Agriculture (6 Marks)
- c) Describe two solid medium used in bacteria isolation (4 Marks)

QUESTION FOUR (20 MARKS)

- a) Explain the steps in isolation of bacteria from plant tissues (10 Marks)
- b) Outline five economic importance of fungi (5 Marks)
- c) Describe the conditions and materials required for Gram's staining (5 Marks)

