



MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN POPULATION HEALTH

HPH 204: GENERAL MICROBIOLOGY

DATE:

TIME :

INSTRUCTIONS

1. Answer Question 1 (compulsory) and **any two** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

SECTION A (COMPULSORY)

QUESTION ONE (30 MARKS)

- a) Explain the mode of action of antimicrobial agents on the cell membrane (3 marks)
- b) Outline the contribution of **Louis Pasteur** to the history of microbiology (3 marks)
- c) Describe the route taken by a pathogen up to the time it causes a disease (3 marks)
- d) Distinguish between true pathogens and opportunistic pathogens (3 marks)
- e) Describe the respiratory portal of entry (3 marks)
- f) Explain disease incidence (3 marks)
- g) Explain the working of a specified enriched media (3 marks)
- h) Describe the preparation of solid and broth media (3 marks)
- i) A water sample is suspected to be contaminated with a Gram negative bacteria. Describe a systematic process of confirming this in a general microbiology lab (3 marks)
- j) Describe bacterial virulence factors (3 marks)

SECTION B: ANSWER ANY OTHER TWO QUESTIONS

QUESTION TWO (20 MARKS)

Discuss physical and immunologic methods of pathogen diagnosis and identification.

QUESTION THREE (20 MARKS)

Discuss modes of action of antimicrobial drugs

QUESTION FOUR (20 MARKS)

Discuss *Staphylococcus spp* under the following sub-headings

- i. Morphology and identification
- ii. Pathogenicity
- iii. Epidemiology
- iv. Management

QUESTION FIVE (20 MARKS)

Discuss categories of Personal Protective Equipment (PPEs)