



FACULTY	AGRICULTURE, ENGINEERING AND NATURAL RESOURCES		
DEPARTMENT	FISHERIES AND OCEAN SCIENCES		
SUBJECT	AQUATIC MICROBIOLOGY		
SUBJECT CODE	F35110A		
DATE	JUNE 2026		
DURATION	3 HOURS	MARKS	100

FIRST OPPORTUNITY EXAMINATION

Examiner: Mr. Gadaffi Liswaniso

Moderator: Prof. Ndakalimwe Naftal Gabriel

This question paper consists of **three (3)** pages including this front page.

Instructions:

- **Answer all questions**
- Write all answers legibly and neatly.
- Label and number all answers correctly according to the question paper.

UNIVERSITY OF NAMIBIA EXAMINATIONS

Section A: Short Answer ALL Questions (40 Marks)

1. Define the following terms:
 - a) Microbiology [2]
 - b) Spontaneous generation [2]
 - c) Endospore [2]
 - d) Pasteurization [2]
2. Name the scientist who:
 - a) First observed “wee animalcules” (bacteria). [2]
 - b) Disproved spontaneous generation using swan-necked flasks. [2]
 - c) Developed Koch’s Postulates. [2]
 - d) Discovered endospores and laid groundwork for bacterial classification. [2]
3. List and briefly explain three contributions of Louis Pasteur to microbiology. [6]
4. State Koch’s Postulates clearly. Why is it challenging to apply Koch’s Postulates to coral diseases? [6]
5. Differentiate between sterilization, disinfection, and antisepsis. Give one example of a method or agent for each. [6]
6. What is the decimal reduction time (DRT)? Why is it important in commercial sterilization of canned foods? [6]

Section B: Answer ALL questions: Structured Questions (30 Marks)

7. Describe Robert Hooke’s and Antoni van Leeuwenhoek’s contributions to the birth of microbiology. How did their work differ? [8]
8. With the aid of a labelled diagram, describe Pasteur’s swan-neck flask experiment and explain how it disproved spontaneous generation. [10]
9. Explain the physical methods of microbial control using heat (moist vs dry). Compare autoclaving and hot-air oven sterilization, including conditions and uses. [12]

Section C: Answer ALL questions: Essay-type / Explanatory Questions (30 Marks)

10. Write an essay on the historical roots of microbiology, highlighting the roles of Ferdinand Cohn, Louis Pasteur, and Robert Koch in establishing the science of bacteriology and the germ theory of disease. [15]
11. Discuss the principles of microbial control. Explain how physical and chemical agents control microorganisms, with emphasis on factors affecting their effectiveness (e.g., time, temperature, organic matter, type of microbe). [15]

END OF EXAMINATION