



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES

SCHOOL OF NATURAL AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGY, CHEMISTRY AND PHYSICS

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| QUALIFICATION : BACHELOR OF SCIENCE | |
| QUALIFICATION CODE: 07BOSC | LEVEL: 7 |
| COURSE CODE: MIB701S | COURSE NAME: MICROBIOLOGY |
| SESSION: JULY 2023 | PAPER: THEORY |
| DURATION: 3 HOURS | MARKS: 100 MARKS |

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| SECOND/SUPPLEMENTARY EXAMINATIONS OPPORTUNITY QUESTION PAPER | |
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| MODERATOR: | PROF. JANE MISIHAIRABGWI |

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| INSTRUCTIONS | |
| <ol style="list-style-type: none">1. There are FIVE questions on this paper. Answer ALL the questions.2. The number of marks are given in brackets () at the end of each question or part question.3. Write clearly and neatly.4. Number the answers clearly. | |

THIS QUESTION PAPER CONSISTS OF 3 PAGES (Including this front page)

SECTION A**(40)****QUESTION 1 (20)**

- 1.1 Several theories have been postulated to try and explain whether an HIV virus is a living entity or not. From what you have studied, briefly discuss whether the HIV virus is a living or non-living entity? Give reasons to justify your answer. (5)
- 1.2 Discuss, why in the early 1860s, scientist erroneously placed bacteria and fungi under the Kingdom Plantae. (5)
- 1.3 Evaluate the use of positive and negative staining techniques in the identification and classification of bacteria. (10)

QUESTION 2 (20)

- 2.1 Distinguish between endotoxins and exotoxins. (2)
- 2.2 Briefly discuss how the following factors influence microbial death.
(i) Time of exposure. (2)
(ii) Environmental factors. (2)
(iii) Number and type of microorganism present. (2)
- 2.3 Briefly discuss the viable plate count method for the enumeration of bacteria. (12)

SECTION B**(60)****QUESTION 3 (20)**

- 3.1 Describe the principle on which the Gram stain is based. (3)
- 3.2 Explain why the oil immersion objective lens (marked with black rings) are immersed in oil during use. (3)

- 3.3 What is a fastidious microorganism? (2)
- 3.4 How does the microbiologist overcome the challenges of culturing fastidious microorganism with examples (3)
- 3.5 Discuss the exchange of genetic information in bacteria. (9)

QUESTION 4 (20)

- 4.1 Give an account of how microorganisms are used for the extraction of low-grade ores. (10)
- 4.2 Discuss the role of microorganisms in sewage and water treatment. (10)

QUESTION 5 (20)

- 5.1 "Bacteria shows a great deal of diversity in their nutritional patterns". Discuss this statement. (20)

END OF QUESTION PAPER