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|---|---|---|---|
| **FACULTY** | AGRICULTURE, ENGINEERING AND NATURAL SCIENCES | | |
| **DEPARTMENT** | FOOD SCIENCE AND SYSTEMS | | |
| **SUBJECT** | GENERAL MICROBIOLOGY | | |
| **SUBJECT CODE** | FST3681/F3611SG | | |
| **DATE** | JUNE 2024 | | |
| **DURATION** | 3 HOURS | **MARKS** | 100 |

# FIRST OPPORTUNITY EXAMINATION

**Examiner: Dr. MNNN Shikongo- Nambabi**

**Internal Moderator: Prof. C Ntahonshikira**

**External Moderator: Dr. PJ Williams**

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

***Instructions:***

- **Answer all five (5) questions**

## UNIVERSITY OF NAMIBIA EXAMINATIONS

## QUESTION 1

**a)** What is meant by Koch's postulates and what microbial theory are they related to? **[6]**

**b)** The terms Taxonomy and Classification are synonymous. Discuss. **[4]**

**c)** Outline one (1) characteristic common to all microorganisms. **[2]**

**d)** Write short essays about the following on microorganisms:

**i)** Nomenclature **[4]**

**ii)** Factors affecting their survival in a terrestrial environment. **[4]**

## QUESTION 2

**a)** Discuss the differences of the following features between Prokaryotes and Eukaryotes:

**i)** DNA **[3]**

**ii)** Photosynthesis **[3]**

**b)** Define the following terms

**i)** Staphylococci **[2]**

**ii)** Streptococci **[2]**

**c)** Describe how the following methods are applied to prokaryotic taxonomy:

**i)** DNA-DNA hybridisation **[5]**

**ii)** DNA Melting temperature **[5]**

## QUESTION 3

**a)** Describe the cell shape, and economic importance of the following:

**i)** Fungi **[6]**

**ii)** Algae **[6]**

**b)** Microorganisms exist everywhere in nature. Their presence has either beneficial or negative effects to humans, plants or animal health. Giving specific examples explain how humans have managed to survive and progress in such a world.

**i)** At home **[4]**

**ii)** In the laboratory **[4]**

## QUESTION 4

**a)** Compare and contrast Bright field and Dark field microscopy. **[6]**

**b)** Compare and contrast Fractional sterilization (Tyndallisation) and autoclaving. **[8]**

**c)** Outline three (3) disadvantages associated with the use of natural penicillin and discuss how this problem was addressed in modern technology. **[6]**

## QUESTION 5

**a)** Answer the questions below and give statements to support your opinion.

**i)** Viruses are microorganisms. True/False? **[4]**

**ii)** *Chlamydiae* are bacteria. True/False? **[4]**

**b)** Give a brief account of three (3) possible consequences/manifestations of viral infections in animal and plant cells. **[6]**

**c)** Discuss the features that make Mycoplasmas different from most bacteria and outline their importance to the Namibian economy. **[6]**

**END OF EXAMINATIONS**