NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH AND APPLIED SCIENCES

DEPARTMENT OF NATURAL AND APPLIED SCIENCES

QUALIFICATION: BACHELOR OF SCIENCE HONOURS	
QUALIFICATION CODE: 08BOSH	**LEVEL:** 8
COURSE NAME: ADVANCED MICROBIOLOGY	**COURSE CODE:** AMB821S
SESSION: NOVEMBER 2019	**PAPER:** THEORY
DURATION: 3 HOURS	**MARKS:** 120

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Prof Sylvester Rodgers Moyo
MODERATOR:	Dr Ronnie Anthony Bock

INSTRUCTIONS

INSTRUCTIONS:

1. Answer all questions.
2. Please write neatly and legibly.
3. No books, notes and other additional aids are allowed.
4. Mark all answers clearly with their respective question numbers.

ATTACHMENTS:
None

PERMISSIBLE MATERIALS:
Non-Programmable Calculator

THIS QUESTION PAPER CONSISTS OF 4 PAGES (Including this front page)

SECTION A [50]

QUESTION 1 [20]

Indicate which statement is True or False.

1.1 One of the characteristics of microbes that are desirable to the industrial microbiologist is amenability to procedures for extraction and purification of desired product (2)

1.2 Major sources of microorganisms for use in industrial processes are soil, water, spoiled bread and fruits (2)

1.3 *Escherichia coli* does not appears as a Gram positive coccus which appears as a cluster of grapes when viewed under a light microscope. (2)

1.4 Congo fever is a typical example of a zoonotic disease. (2)

1.5 Streaking technique is a method of solid agar inoculation followed by Petri dish incubation. (2)

1.6 *Staphylococcus aureus* is one of the major bacterial strains used as an Indicator organism in microbiology. (2)

1.7 Industrial microbiologists use the term fermentation primarily to refer to the mass culture of microorganisms; the term has many other meanings to other microbiologists. (2)

1.8 Low-cost crude materials are frequently used as sources of carbon, nitrogen, and Phosphorus . (2)

1.9 Alcohol is a secondary metabolite that is produced after microorganism growth has slowed due to nitrogen limitation. (2)

1.10 A persons microbiome colonize a human body while still in the womb and before being born. (2)

QUESTION 2 [20]

2.1 Critically evaluate processes in the production of primary and secondary metabolites in a fermentation vat. (10)

2.2 You have been asked to create the processes required for the production of Penicillin in a newly proposed plant. Briefly outline how the antibiotic will be produced in your proposed fermentation vat. (10)

QUESTION 3 [10]

3.0 Critically evaluate the processes that take place in a fish factory with special reference to quality assurance procedures and their importance to the fish industry and the economy of the country. (10)

SECTION B [70]

QUESTION 4 [20]

4.0 The Medical Laboratory is an important service provision unit in the care, management and treatment of patients. Discuss the importance of the medical laboratory under the following headings.

4.1 Role of the medical laboratory in the hospital setting (5)

4.2 Stages a specimen undergoes in the laboratory to finality (5)

4.3 Give details of what happens during the analytical phase (5)

4.4 Sensitivity testing (5)

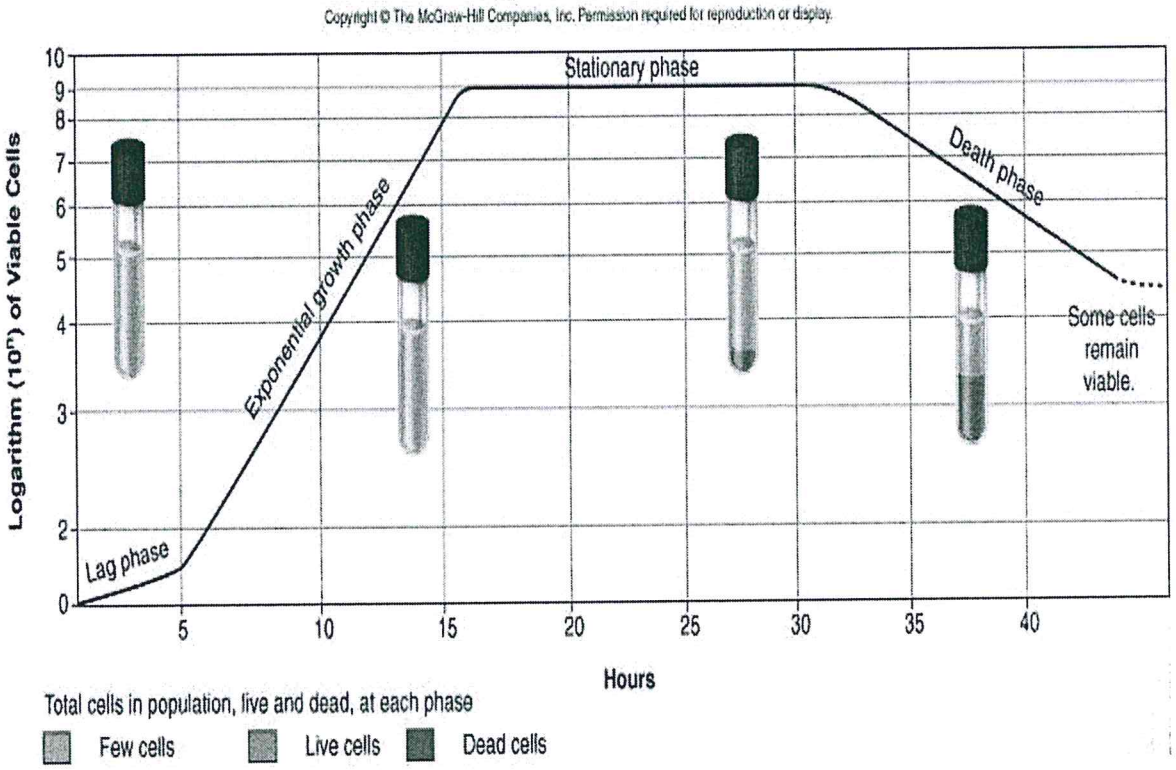
QUESTION 5 [20]

5.0 Yeast is very beneficial to man. Discuss four major uses of yeast that are of benefit to man. (20)

QUESTION 6 [20]

6.0 Study the chart below of different stages of microbial growth and answer

the questions below:



6.1 Describe five (5) factors influencing microbial growth. (10)

6.2 Identify and discuss the growth phases where primary and secondary metabolites take place. (10)

QUESTION 7 **[10]**

7.1 Define Microbiome. (3)

7.2 Evaluate the human being as a complex ecosystem. (7)

END