UNIVERSITY OF ESWATINI

FINAL EXAMINATION PAPER

PROGRAMME	:	**FOOD SCIENCE, NUTRITION AND TECHNOLOGY AND CONSUMER SCIENCE YEAR II**
COURSE CODE	:	**FNS212**
TITLE OF PAPER	:	**FOOD MICROBIOLOGY**
TIME ALLOWED	:	**TWO (2) HOURS**
INSTRUCTIONS	:	**ANSWER QUESTION ONE (1) AND ANY OTHER TWO (2) QUESTIONS.**

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QUESTION 1 (COMPULSORY)

(a) Define the following terms:

i) Gene expression
ii) Cell viability
iii) Food microbiology
iv) Injury of cells

(10 Marks)

(b) Describe in detail **two (2)** ways in which bacteria cells communicate to each other in order to induce action. Use illustrations where necessary.

(30 Marks)

[TOTAL MARKS = 40]

QUESTION 2

(a) Describe **two (2)** major roles that microorganisms play in food, giving examples where appropriate.

(10 Marks)

(b) Explain the difference between Gram-negative and Gram-positive bacteria, giving **two (2)** examples of each.

(15 Marks)

(c) Explain **two (2)** methods which can be used to determine viability in viable non culturable cells (VNC).

(5 Marks)

[TOTAL MARKS = 30]

QUESTION 3

Describe in detail the role of temperature and time on bacterial growth using examples where necessary.

(30 Marks)

[TOTAL MARKS = 30]

QUESTION 4

(a) Describe the formation of biofilms.

(8 Marks)

(b) Discuss the following methods used to enumerate microorganisms in food:

i. Aerobic plate count
ii. Standard plate count

(10 Marks)

(c) Discuss advantages and disadvantages of swab test and sticky-tape tests in direct sampling of contact surfaces.

(12 Marks)

[TOTAL MARKS = 30]