2nd SEM. 2016/17

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME	:	FOOD AND NUTRITION SCIENCE, CONSUMER SCIENCE YEAR II
COURSE CODE	:	FNS 212
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. Food microbiology
ii. Ecology
iii. Gene expression
iv. Biofilms
v. Injury of cells

(10 Marks)

b) Differentiate between quorum sensing and signal transduction. **(20 Marks)**

c) Explain two **(2)** intrinsic factors that affect microbial growth. **(10 Marks)**

[TOTAL MARKS = 40]

QUESTION 2

Explain the meaning of growth kinetics. Illustrate using a normal growth curve. Also, explain and show (using illustration) how a normal growth curve might be affected if an effective antimicrobial treatment was to be applied.

(30 Marks)

[TOTAL MARKS = 30]

QUESTION 3

a) Discuss in detail how temperature affects microbial growth. **(12 Marks)**

b) State similarities and differences between injured cells and viable but non culturable cells. **(10 Marks)**

c) Explain the difference between Gram-negative and Gram-positive bacteria, giving two examples of each. **(8 Marks)**

[TOTAL MARKS = 30]

QUESTION 4

a) Discuss the following methods used to enumerate microorganisms in food: -

i. Aerobic plate count
ii. Standard plate count

(10 Marks)

b) Explain the *spiral plater*. Give an example of food samples best suited for this method and explain why that sample. What are the advantages and disadvantages of using this method?

(15 Marks)

c) If you were assigned the task of developing the ideal antimicrobial, what criteria would it have to meet?

(5 Marks)

[TOTAL MARKS = 30]