UNIVERSITY OF SWAZILAND

SUPPLEMENTARY 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)   What is the difference between intrinsic and extrinsic factors of food? Name one intrinsic factor and one extrinsic factor that you think are very important? Explain how they work.

(12 Marks)

c)   The DMC method has little or no value for foods with low microbial numbers. Why?   **(4 Marks)**

d)   The swab test and sticky-tape test are both methods for direct sampling of contact surfaces. List advantages and disadvantages for each.   **(14 Marks)**

[TOTAL MARKS = 40]

QUESTION 2

Write a narrative explaining the relationship between time and temperature as they relate to food and bacteria.

(30 Marks)

[TOTAL MARKS = 30]

QUESTION 3

a)   You are a director of microbiology at Freda's Family of Fine and Fancy Foods. The marketing department has directed that all the nasty preservatives be removed from all products. Explain how you can maintain the safety and quality of Freda's products.

(15 Marks)

b)   What are examples of structures where biofilms could grow? Explain why these would be food safety problems.

(15 Marks)

[TOTAL MARKS = 30]

QUESTION 4

a)   Discuss the following methods used to enumerate microorganisms in food: -
    i.   Spread plate
    ii. Pour plate

(10 Marks)

b)   Explain how decreasing water activity affects growth kinetics of bacteria.

(15 Marks)

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

(5 Marks)

[TOTAL MARKS = 30]