



2nd SEM. 2017/18

PAGE 1 OF 3

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

**PROGRAMME : FOOD SCIENCE, NUTRITION AND
TECHNOLOGY, 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.**

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN
GRANTED BY THE CHIEF INVIGILATOR**

QUESTION 1 (COMPULSORY)

- (a) Define the following terms:
- i) Food microbiology
 - ii) Ecology
 - iii) Cell viability
 - iv) Gene expression
- (10 Marks)**
- (b) Discuss the **three (3)** intrinsic factors that affect microbial growth.
- (15 Marks)**
- (c) Discuss in detail the **two (2)** ways in which bacteria cells can communicate to evoke action.
- (10 Marks)**
- (d) Describe the formation of biofilms.
- (5 Marks)**

[TOTAL MARKS = 40]

QUESTION 2

A hot dog company has been struggling to control *Listeria monocytogenes* hence their products have been linked to several product recalls as their hot dogs have resulted in many Listeriosis outbreaks. As a food microbiology specialist, you have been hired to help control this pathogen.

- i) Discuss the possible ways in which the *Listeria* ended up into the hot dogs.
- (10 Marks)**
- ii) Explain in detail how you would attempt to control the organism.
- (10 Marks)**
- iii) Explain the possible challenges you are likely to face in your attempt to eradicate the pathogen.
- (10 Marks)**

[TOTAL MARKS = 30]

QUESTION 3

- (a) List the individuals that are at risk of being affected by *Listeria monocytogenes*?
(5 Marks)
- (b) Describe the **three (3)** characteristics of STEC.
(15 Marks)
- (c) Explain the symptoms and complications of *E. coli* O157:H7.
(10 Marks)

[TOTAL MARKS = 30]

QUESTION 4

- (a) Calculate the bacterial number (CFU)/mL in a milk sample where 77 colony counts in 10^{-4} dilution in an APC plate were obtained.
(10 Marks)
- (b) You have been hired by a food industry to do surface testing for their food preparation areas.
- i) Discuss the importance of surface testing.
(10 Marks)
- ii) Explain **two (2)** methods that you could possibly use to test the surfaces, giving clear differences between two methods.
(10 Marks)

[TOTAL MARKS = 30]