



**UNIVERSITY OF  
SWAZILAND**

**FACULTY OF HEALTH SCIENCES**

**B.Sc. ENVIRONMENTAL HEALTH SCIENCE**

**END OF SEMESTER I EXAMINATIONS**

**TITLE OF PAPER:** FOOD MICROBIOLOGY I

**COURSE CODE:** EHS503

**DURATION:** 2 HOURS

**DATE:** DECEMBER 2011

**INSTRUCTIONS:**

1. READ THE QUESTIONS CAREFULLY.
2. ANSWER **ANY 4 QUESTIONS**.
3. EACH QUESTION CARRIES 25 MARKS. WHERE A QUESTION IS SUBDIVIDED INTO PARTS, THE MARK FOR EACH PART IS SHOWN IN BRACKETS.
4. NO PAPER SHOULD BE BROUGHT INTO THE EXAMINATION ROOM.
5. BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

**SPECIAL REQUIREMENTS: NONE**

DO NOT OPEN THE QUESTION PAPER UNTIL INSTRUCTED TO DO SO BY THE INVIGILATOR.

### QUESTION 1

- a. Briefly explain why *Listeria monocytogenes* is of concern in refrigerated food. [10]
- b. Lebanon bologna is a type of cured, smoked, fermented, semi-dry sausage. The thermal processing of Lebanon bologna typically does not exceed 49 °C due to undesirable effects on quality of high heat on the final product.
  - i. Name two food poisoning microorganisms that may survive in this product. [2]
  - ii. State the hurdles to microbial growth that are present in the product. [8]
  - iii. Briefly explain the circumstances when food poisoning due to this product may occur. [5]

[25]

### QUESTION 2

- a. Use a diagram to illustrate the growth phases of microorganisms in food. [5]
- b. Discuss the factors that influence the growth of microorganisms under the following headings:
  - i. pH. [5]
  - ii. Water activity. [5]
  - iii. Antimicrobial substances. [5]
  - iv. Redox potential. [5]

[25]

### QUESTION 3

- b. Explain the difference between bacteriocins and antibiotics. [10]
- c. Discuss the concerns associated with antibiotics in the food chain.

[15]

[25]

**QUESTION 4**

- a. Briefly explain the purpose of the Gram stain. [5]
- b. Describe the characteristics of an ideal indicator microorganism. [10]
- c. Discuss what should be included in a microbiological specification for food. [10]

[25]

**QUESTION 5**

- a. Discuss the difference between infection and intoxication type food poisoning. [10]
- b. Discuss the food safety precautions that should be taken in the handling and storage of ready-to-eat and cooked food. [15]

[25]

**END OF EXAMINATION**