



UNIVERSITY OF SWAZILAND

FACULTY OF HEALTH SCIENCES

**B.Sc. ENVIRONMENTAL HEALTH SCIENCE AND
FOOD SCIENCE**

SEMESTER I

**SUPPLEMENTARY EXAMINATION PAPER - JULY
2017**

TITLE OF PAPER: FOOD MICROBIOLOGY

COURSE CODE: EHM407

DURATION: 2 HOURS

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. WRITE NEATLY AND CLEARLY
6. BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

SPECIAL REQUIREMENTS: NONE

**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE
INVIGILATOR.**

QUESTION 1

- a. Explain the difference between 2-class and 3-class attribute sampling plans for food. [5]
- b. Explain the impact of increasing the number of defective units that can be accepted in sampling plan on the effectiveness of the plan. [5]
- c. Outline the steps and state the sampling plan that is suitable for inspecting perishable cured canned meats. [5]
- d. Describe how food contact surfaces are evaluated under the following headings:
 - i. Swab/swab-Rinse Methods. [3]
 - ii. Contact plate. [2]
 - iii. Direct surface contact. [3]
 - iv. Sticky film. [2]

[25 Marks]

QUESTION 2

- a. Briefly describe the principles involved in the hurdle concept. [5]
- b. Explain how microorganisms respond under the following conditions:
 - i. pH stress. [5]
 - ii. Heat shock. [5]
- c. Describe the concept of water activity. [5]
- d. How does water activity influence the shelf-life of food? [5]

[25 Marks]

QUESTION 3

- a. List the criteria used to select Lactic Acid Bacteria as probiotics. [7]
- b. Name the 4 categories of bacteriocins and describe the structure of the molecule in each category. [8]
- c. Discuss the concerns associated with antibiotics in the food chain. [10]

[25 marks]

QUESTION 4

- a. Identify the type of microorganism and describe the typical symptoms of food poisoning that may occur in the following circumstances:

- i. Refrigerated storage of ready-to-eat food. [5]
- ii. Salads stored at room temperature. [5]
- iii. Fermented sausages (e.g. salami). [5]
- iv. Blown cans of canned beef. [5]
- v. Raw milk cheese. [5]

[25 Marks]

QUESTION 5

Write notes on the following:

- a. Prokaryotes [5]
- b. Mesophiles [5]
- c. Psychrotrophs. [5]
- d. Thermophiles. [5]
- e. Modified atmosphere packaging. [5]

[25 Marks]

END OF EXAMINATION PAPER