



**UNIVERSITY OF
SWAZILAND**

FACULTY OF HEALTH SCIENCES

B.Sc. ENVIRONMENTAL HEALTH

B.Sc. ENVIRONMENTAL HEALTH AND FOOD SCIENCE

SEMESTER I EXAMINATIONS

TITLE OF PAPER: FOOD MICROBIOLOGY

COURSE CODE: EHM407

DURATION: 2 HOURS

DATE: DECEMBER 2015

INSTRUCTIONS:

1. READ THE QUESTIONS CAREFULLY.
2. ANSWER ANY **FOUR (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

Write notes on the following:

- a. Prokaryotes [5]
- b. Mesophiles [5]
- c. Intermediate moisture foods (10)
- d. Psychrotrophs. [5]

[25]

QUESTION 2

Discuss the pathogenesis of *E. coli* O157:H7 and *Salmonella enteritidis* under the following headings:

- a. Infective dose. [4]
- b. Incubation period. [4]
- c. Key symptoms. [11]
- d. Impact of disease. [6]

[25]

QUESTION 3

- a. What is the significance of coliform presence in food? (5)
- b. Briefly explain why some strains of *E. coli* have been implicated in fermented sausages. [5]
- c. *E. coli* O104:H4 was reported in bean sprouts in a food poisoning outbreak in Germany in 2012. Explain why this strain was particularly virulent and difficult to stop. [15]

[25]

QUESTION 4

- a. Briefly discuss the characteristics of food poisoning caused by *B. cereus*. [10]
- b. Describe the type of microorganism that may contaminate and multiply in the following foods:
 - i. Canned foods. [5]
 - ii. Refrigerated vegetable salad. [5]
 - iii. Beef stew. [5]

[25]

QUESTION 5

- a. Briefly explain why it is essential to have a sampling plan for poultry products. [5]
- b. Discuss why testing for *Salmonella* requires a 2-class and not 3-class attribute sampling plan. [10]
- c. Discuss the meaning of *m*- and *M*-values in a sampling plan for *Staphylococcus aureus*. [10]

THE END