UNIVERSITY OF ESWATINI

FACULTY OF HEALTH SCIENCES

B.Sc. ENVIRONMENTAL HEALTH AND FOOD SCIENCE

B.Sc. ENVIRONMENTAL HEALTH SCIENCE

SEMESTER I

RESIT EXAM

JANUARY 2020

TITLE OF PAPER: FOOD MICROBIOLOGY

COURSE CODE: EHS323

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. "Water activity is a better indicator of perishability of food". Briefly discuss this statement. [8 marks]

b. Explain how the redox potential of a food influences the type of spoilage microorganisms likely to be found on it. [7 marks]

c. Bacillus cereus can lead to types of food poisoning. Describe these types, outlining the incubation period and the typical symptoms. [10 marks]

[TOTAL: 25 marks]

QUESTION 2

a. Describe the benefits of probiotics on human health under the following headings:

i. Lactose malabsorption [5 marks]
ii. Suppression of cancer. [7 marks]
iii. Coronary Heart Disease. [3 marks]
iv. Intestinal infections. [10 marks]

[TOTAL: 25 marks]

QUESTION 3

Explain the meaning and significance of the following terms in food safety:

a. Danger zone temperature. [8 marks]
b. Psychrotrophs. [5 marks]
c. Mesophiles. [5 marks]
d. Modified Atmosphere Packaging. [7 marks]

[TOTAL: 25 marks]

QUESTION 4

a. Why is *Listeria monocytogenes* difficult to control when it establishes in a food processing environment. [7 marks]
b. Explain why culturing techniques are not enough to establish the source of a food poisoning outbreak. [6 marks]
c. Describe the characteristics of food poisoning caused by the following microorganisms:
   i. *Clostridium botulinum.* [5 marks]
   ii. *Salmonella enterica* serotype Typhi. [7 marks]

[TOTAL: 25 marks]

QUESTION 5

Write notes on the following:

a. 2-class and 3-class attribute sampling plans. [12 marks]
b. Bacteriocins in food. [13 marks]

[TOTAL: 25 marks]

END OF EXAMINATION PAPER