

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**

FACULTY OF APPLIED SCIENCES

BACHELOR OF SCIENCE HONOURS DEGREE EXAMINATIONS

DEPARTMENT OF APPLIED BIOLOGY AND BIOCHEMISTRY

**THEORY: FOOD MICROBIOLOGY SBB2206**

MAY 2003

2 1/2 HOURS (100 marks)

**INSTRUCTIONS**

Answer Four (4) Questions. Each question carries 25 marks. Where a question contains subdivisions, the mark value for each subdivision is given in brackets. Illustrate your answer where appropriate with large, clearly labelled diagrams.

1. Give an account of the following:
  - (a) staphylococcal food poisoning (12 marks)
  - (b) botulism (13 marks)clearly outlining the characteristics of the causal organism, incidence, symptoms and pathogenicity.
  
2. What are the roles of intrinsic parameters in the spoilage of the following foods:
  - (a) fruits
  - (b) cereals
  - (c) fish
  - (d) cheese
  - (e) sugar (5 marks each)
  
3. *Salmonella typhimurium* is one of the most important causes of foodborne illnesses worldwide. Briefly describe the:
  - (a) features of the bacterium (6 marks)
  - (b) ecology of the bacterium and its association with foods (5 marks)
  - (c) symptoms and prevention of Salmonellosis (5 marks)
  - (d) isolation and laboratory identification of *Salmonella* (9 marks)Describe the incidence, types of microorganisms and their roles in the spoilage pattern of the following:
  - (a) aerobic and vacuum packaged beef (13 marks)
  - (b) raw milk (12 marks)
  
5. HACCP is a Quality Management System which can be applied to achieve a microbiologically safe food product. Explain its principles and outline how it can be applied in the production of fruit flavoured yoghurt.
  
6. Write briefly on the role of the following agents in controlling microbial populations in foods:
  - (a) chemical preservatives (13 marks)
  - (b) irradiation (7 marks)
  - (c) chilled storage (5 marks)

**END OF EXAMINATION**

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