



**UNIVERSITY OF SWAZILAND**  
**Faculty of Health Sciences**

**DEGREE IN ENVIRONMENTAL HEALTH**

**FINAL EXAMINATION PAPER 2007**

- TITLE OF PAPER** : FOOD MICROBIOLOGY
- COURSE CODE** : EHS 512
- DURATION** : 3 HOURS
- MARKS** : 100
- INSTRUCTIONS** :
- : READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
  - : ANSWER ANY FIVE (5) QUESTIONS
  - : EACH QUESTION CARRIES 20 MARKS.
  - : WRITE NEATLY & CLEARLY
  - : NO PAPER SHOULD BE BROUGHT INTO NOR OUT OF THE EXAMINATION ROOM.
  - : BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

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

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**Question 1**

Microbial behavior is not open to negotiation, unlike 'costing' or 'marketing concepts'. Microbes do not see, hear or respond to human pleas. They have no respect of persons or hierarchical status. What they can and will do is to breed rapidly unless positive preventative action is taken.

- a. Showing appropriate examples, explain the basic microbial classification in reference to bacterial biochemical properties. [6]
- b. Choose two (2) environmental factors and show how they affect or influence the food microflora. [14]  
Your answer should include appropriate examples

[20 Marks]

**Question 2**

- a. What (O) and (H) signify in the strain designation of *Escherichia coli* O157:H7? [4]
- b. Which two (2) foods are likely to be implicated in *E. coli* O157:H7 disease and why [4]
- c. How does the classification of bacteria such as gram negative and gram positive influence or affect survival in food? [5]
- d. Pasteurized milk has not found a niche in the Swazi market yet it is selling well in Europe and USA. Why is that so? [4]
- e. If raw milk is contaminated by *Staphylococcus aureus*, and after fermentation, is such emasi safe for human consumption? Explain your answer. [3]

[20 Marks]

**Question 3**

Fresh meat is a good medium for microorganisms growth since it afford many of the growth factors. This make meat a highly perishable food commodity and that requires that meat processors have to practiced the highest level of hygiene in order to preserve meat quality.

Explain therefore the measures necessary to ensure that meat leaving the abattoir is safe for human consumption. [20]

[20 Marks]

**Question 4**

- a) A foodborne outbreak investigation led you to believe that the causative agent is *Listeria monocytogenes*. How would you assist in developing a strategy that would eliminate future occurrences? [6]
- b) You have been requested to conduct a health talk to food retailers on canned food problems. Outline the main points to discuss with the retailers. [8]
- c) Discuss the microbial population of refrigerated food. [6]

[20 Marks]

**Question 5**

National governments have the responsibility to protect the health and welfare of their citizens. Carrying out this responsibility requires the development and implementation of national programmes, which ensures the safety and quality of food products, promotes development of trade in food products and protects the interest of the fair and honest food producer.

- a. In reference to food quality, what does the ISO 9000 family entails? [10]
- b. What do you understand by Codex Alimentarius? [5]
- c. Why is the Hazard Analysis Critical Control Points (HCCPs) preferred over the final product analysis in the food industry? [5]

[20 Marks]

**Question 6**

- a) A complain has been received by the Matsapha local authority that restaurant A is selling spoiled or rotten food to its customers. The restaurant is arguing that it is selling fresh food which is cooked every day and then kept in a hot-holding food displayer until serviced. The temperature of the hot-holding displayer is maintained at 55° C.

What advice would you give and why? [5]

- b) What is the role of government and the food industry in food safety? [10]
- c) Home canning of non-acidic foods is not recommended, why? [5]

[20 Marks]