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RAJARATA UNIVERSITY OF SRILANKA  
FACULTY OF APPLIED SCIENCES

B.Sc. (Special) Degree in Applied Biology  
Fourth year – Semester II Examination – April / May 2016

ZOO 4310 – POST HARVEST TECHNIQUES IN FISHERIES

Time: Three (03) hours

Answer six (06) questions.

1. a) Write a brief account on the importance of fish in human health and nutrition. (60 marks)  
b) Discuss the factors, which affect the chemical composition of fish. (40 marks)
2. a) Explain “rigor mortis” in fish muscle. (40 marks)  
b) Briefly discuss the factors that affect rigor mortis in fish muscle. (25 marks)  
c) Write a concise account on microbial inversion in fish muscle. (35 marks)
- 3 a) “Icing is a very effective method for preserving tropical water fishes rather than cold water fishes”. With suitable examples justify this statement. (30 marks)  
b) Illustrate the formation of formaldehyde in fish muscle. (30 marks)  
c) Discuss the variation of fish quality that occurs during the different phases of following graph (figure 1). (40 marks)

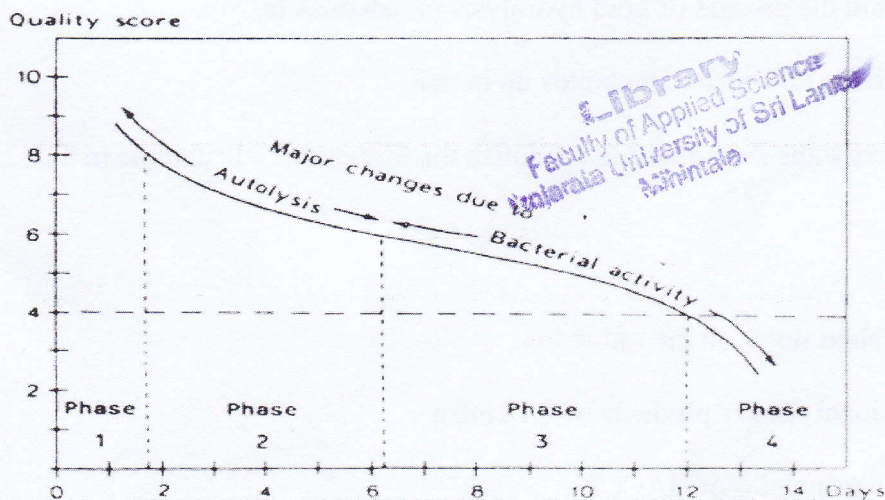


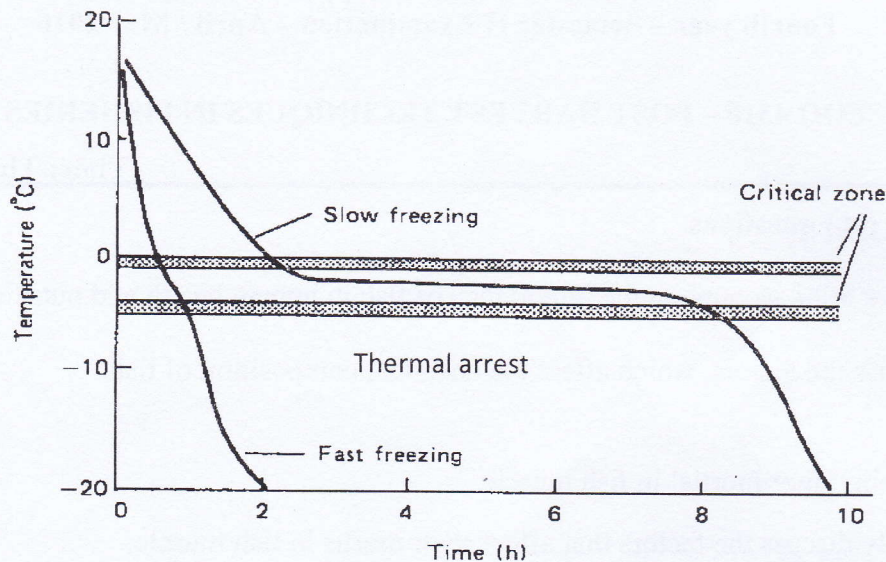
Figure 1. Changes in sensory quality of fish stored in ice



4. Figure 2 indicates the temperature changes of food through critical zone during freezing.

a) Explain the effect of freezing rate on quality of fish. (40 marks)

b) Discuss the "Thermal arrest" shown in the graph (figure 2). (20 marks)



**Figure 2. Temperature changes of food through critical zone**

c) Describe the role of Refrigerated Sea Water (RSW) in fish preservation and its advantages over normal icing. (40 marks)

5. a) Explain the process of lipid hydrolysis in fish muscle. (30 marks)

b) Elucidate how histamine builds up in fish. (50 marks)

c) Describe the steps that can minimize the formation of histamine in fish. (20 marks)

6. Write short notes on the following.

a) Traditional fishery products of Sri Lanka (40 marks)

b) Seven principles of HACCP (30 marks)

c) Microbiological hazards in fish processing industry. (30 marks)



7. The flow diagram and the details given below are involved in processing of raw Tilapia fish for exportation. Identify the potential hazards in the process and prepare a hazard analysis worksheet for the production.

(100 marks)

Product Description

|                                     |  |
|-------------------------------------|--|
| <b>Raw Material:</b>                | Tilapia  |
| <b>Raw material harvest Area:</b>   | Mahakandarawa Tank in Anuradhapura district              |
| <b>Raw material received:</b>       | Directly from harvesters                                 |
| <b>Finished Product:</b>            | Tilapia fillet packaged in polythene bag & stored in ice |
| <b>Food additives, ingredients:</b> | ---  |
| <b>Intended use:</b>                | Ready-to-cook  |
| <b>Intended consumers:</b>          | General public   |

Process Flow Diagram

