CHATTOGRAM VETERINARY AND ANIMAL SCIENCES UNIVERSITY, CHATTOGRAM
MS in Fishing and Post-Harvest Technology
January-June Semester, Final Examination-2023
Course Code: **AFM-501 (T)**, Course Title: **Advanced Fisheries Microbiology**
Total Marks: 40; Time: 2 hours

Answer any four (04) of the following questions.

1. a) Why high temperatures preserve the fish? What are the causes of biological spoilage of heated canned foods? 5.0

    b) What is putrefaction? What are the predominant kinds of bacteria causing spoilage in chilled fish? What qualitative changes are expected to occur in the bacterial population in fish preserved at low temperatures? 5.0

2. a) Define aquatic bacteria. Give an outline of the economic significance of aquatic microorganisms. What will happen to most of the marine bacteria when transferred to freshwater? 5.0

    b) Define Food quality control and Food quality assurance. What is the Microbiological standard? What are the ICMS recommended microbiological limits for frozen raw crustaceans and frozen cooked crustaceans? 5.0

3. a) Write the name of bacteria and fungi causing spoilage in salted fish. What do you understand by the sub-lethal effect of low temperature? How microorganisms can recover from such effects? 5.0

    b) What is Salmonellosis? Briefly discuss the disease, food involved and treatment. What are the conditions necessary for an outbreak of Salmonellosis? What are the preventive measures? 5.0

4. a) Write down the quantitative and qualitative aspects of the microbial flora of the newly caught fish. What will happen to the microbial population in frozen food when stored for a long time? Why are most of the microorganisms killed at 60-70°C? 5.0

    b) Why low-temperature preservation increases the duration of the freshness of fish? Write down the general effect of low temperature on microorganisms. What is the critical range of temperature during freezing? Why it is harmful to both fish and microorganisms? 5.0

5. a) Define microbial contamination of fish. How fish mince and surimi are contaminated during processing? How would you differentiate between homofermentative and heterofermentative microorganisms? 5.0

    b) Write notes on any two (2) of the following: $2.5 \times 2 = 5.0$

    (i) Microbial changes in nitrogenous compounds in fish;

    (ii) Microbiology of salted and dried fish; and

    (iii) Importance of spore-former bacteria in the canning industry.

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MS in Fishing and Post-Harvest Technology
January-June Semester, Final Examination-2023
Course Code: **IFM-501(T)**, Course Title: **Industrial Fishery Management**
Total Marks: 40; Time: 2 hours

Answer any <u>four (04)</u> of the following questions

1. a) Define ITQ. Discuss the role of ITQ in the Fisheries sector. Why the knowledge regarding mechanism of management is important for Fisheries graduates?   5

   b) Discuss briefly the export scenario of fish and fishery products in Bangladesh. Schematically present the marketing channel of fish and fishery products.   5

2. a) What is canning? Discuss briefly the operational method of the Tuna canning industry.   5

   b) Write in brief the history of the sausage and ham industry. Describe the commercial fish sausage production method.   5

3. a) Discuss briefly the activities and responsibilities of the Production and Human Resources Management wing at fish processing plant. Differentiate between capital cost and operating cost.   5

   b) Discuss the role of the Export Promotion Bureau in the Fisheries sector.   5

4. a) What do you know about trade barriers? Discuss briefly the laws and regulations relating to fish trade.   5

   b) Briefly describe the possibilities and current issues regarding international trading.   5

5. a) What do you know about the fish-waste management status of Bangladesh? How will you utilize these wastes for the welfare of human beings?   5

   b) What is buyer satisfaction? Differentiate between sales promotion and publicity.   5

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MS in Fishing and Post-Harvest Technology
January-June Semester, Final Examination- 2023
Course Code: **AFT-501(T)**, Course Title: **Advanced Fishery Products Technology**
Total Marks: 40; Time: 2 hours

Answer any <u>04 (four)</u> from the following questions:

1. a) What do you know about new product development (NPD)? Discuss the key aspects/steps of NPD for fishery products.   5.0

    b) What is the significance of studying this course as a fisheries student, and how does it contribute to your academic and professional development?   5.0

2. a) What do you mean by proximate composition? Why is it important for product development?   5.0

    b) What are the potential health benefits associated with consuming value-added fish products? What are the nutritional advantages of value-added fish products compared to traditional fish products?   5.0

3. a) What are the challenges and solutions associated with extending the shelf life of fishery products while preserving their nutritional value?   5.0

    b) How can the risk of microbial contamination and growth be minimized during fish processing and storage?   5.0

4. a) How do you assess and control the quality of canned fishery products, including sensory evaluation, chemical analysis, and microbiological testing?   5.0

    b) What are the steps involved in the canning process for fishery products, from raw material preparation to sealing the cans?   5.0

5. a) Which fish species are commonly used as raw materials for preparing Nga-pi, and could you provide a detailed manufacturing protocol for fish paste (Nga-pi) in Bangladesh?   5.0

    b) Enumerate the advantages and disadvantages of drying as a preservation method for fishery products. Explain strategies and techniques employed to effectively address the challenges associated with dried fishery products.   5.0

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MS in Fishing and Post-Harvest Technology
January-June Semester, Final Examination-2023
Course Code: **FPT-501(T)**, Course Title: **Fish Preservation Technology**
Total Marks: 40; Time: 2 hours

Answer any four (04) of the following questions

1. a) What do you mean by Fish Preservation Technology? How you will assess the freshness of fish through bacteriological and mechanical methods? — 5.0

   b) Write down the importance of quality assessment of fish. Describe the terminologies with example: stunning, spiking, bleeding and gutting. — 5.0

2. a) Define rigor. Discuss briefly the rigor-mortis changes in fish. — 5.0

   b) Describe the impact of rigor-mortis on maintaining the quality of fish. How to control the effect of rigor-mortis? — 5.0

3. a) What are the factors need to be considered for designing an ideal cold-storage? — 5.0

   b) Describe briefly the short- and long-term processing and preservation of fish. — 5.0

4. a) Diagrammatically represent an ideal fish freezing plant. — 5.0

   b) Discuss the technological and biochemical problems associated with freezing. — 5.0

5. a) What do you know about sensory evaluation by quality index method (QIM)? Discuss the QIM scheme proposed for *Seriola dumerili*. — 5.0

   b) Describe briefly with example the Torry Scoring System for cooked and chilled fish. — 5.0

Chattogram Veterinary and Animal Sciences University

Department of Fishing & Post Harvest Technology

M S in Fishing and Post Harvest Technology

January – June Semester, 2022; Final Examination

Course Code & Name: ATF 501(T) & Analytical Techniques in Fish Processing

Time: 2 hours; Full Marks: 40

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Answer **any 4 (FOUR)** of the following questions:

1. (i) What do you mean by physical attributes? How will you assess fish quality through physical attributes? (2+4)

   (i) How will you estimate Hypoxanthine through Liquid Chromatography method? (4)

2. (i) Write down principal nutrient contents of fish. How will you determine moisture and pH content? (1+3)

   (ii)Give a detail analytical procedure of ash and salt content in fishery products. (3+3)

3. (i) How will you make sure that the marine fish product decomposed by bacterial spoilage? Write down

   (1+5)   the detail analytical procedure of quality parameter that mostly related with bacterial spoilage.

   (ii) What do you mean by G and P value in preserved fish? Give the equation of G and P value estimation. (4)

4. I)Give a list of lipids are considered to assess quality aspects of fish and fishery products. (1+3x3)
   Write down detail procedure of the followings parameters:
   (ii) Free fatty acid for fish muscle; (ii) Peroxide value; and (iii) TVB-1 direct MgO method.

5. (i) Define true protein and crude protein. How will you determine protein through Biuret method? (1+4)
   (ii) Why knowledge on assessment of formaldehyde is important for a quality control officer? (1+4)
   Give a detail procedure of formaldehyde estimation from a fish sample.

6. How can you explain essential amino acid and essential fatty acid with examples? Write down a (4+6)
   detail analytical procedure of Non-Protein Nitrogen (NPN) when the sample is fishery based product.

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January-June Semester, Final Examination-2022
Course Code: **MFT-501(T)**, Course Title: **Modern Fishing Technology**
Total Marks: 40; Time: 2 hours

Answer any four (04) from the following questions.

1. a) Briefly describe the industrial fishing methods used in the Bay of Bengal. 5.0
   b) Discuss catch composition and marketing channel of artisanal fishing of Bangladesh. 5.0

2. a) Write short note on fish handling on board of vessels. 5.0
   b) Differentiate between shoaling and schooling. Briefly describe the shoaling behavior of Mackerel. 5.0

3. a) Briefly describe fish detection method by using SONAR. 5.0
   b) Illustrate the working principle of EPIRB. 5.0

4. a) Write down the names, their depth, location and major fish species available in the commercial fishing grounds in Bangladesh EEZ. 5.0
   b) Briefly describe the main features of Marine Fisheries Act, 2020. 5.0

5. a) Write short note on engine mounting. 5.0
   b) Briefly describe different types of fishing vessel's engine. 5.0