

Chittagong Veterinary and Animal Sciences University

Department of Fishing and Post Harvest Technology

M S in Fishing and Post Harvest Technology

July - December Semester, 2019; Final Examination

Course Code & Name: SWB 502(T) & Seaweed Biotechnology

Time: 2 hours; Full Marks: 40

Answer any 4 (FOUR) of the following questions:

1. Classify seaweed and write its culture potentialities in Bangladesh perspectives. Name 5 (five) common seaweed species found in the Bay of Bengal, Bangladesh territory. 10
2. Give a brief out line on commercial seaweed culture technique popular in seaweed culturing nations. 10
3. Do you think seaweed can be used as raw materials for pharmaceuticals and nutraceuticals industries? Write down importance of seaweeds on human health. 10
4. Define micro- and macro-alga. List down the products manufactured from macro-algae. Give a detail procedure of agar and carrageenan production from potential seaweed species. 10
5. What do you mean by functional products? Give a brief overview on functional products produced from macro-alga. 10
6. How do you know about bioremediation? Write down different bioremediation application to keep our aquatic habitat safe for concerned biota. How will you treat wastewater through bioremediation technology with seaweed? 10

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Course Code & Name: SFB 502(T) & Seafood Biochemistry

Time: 2 hours; Full Marks: 40

Answer any 4 (FOUR) of the following questions:

1. Classify seafood protein on the basis of solubility. Why fish protein is being considered as balanced protein for human body? List down essential amino acids present in a marine bony fish. 10
2. How do you explain post-mortem changes in newly caught marine fish? Which biochemical component plays significant role in post-mortem changes. Write down the role of pigmentation in quality aspects of fish. 10
3. Enlist the macro- and micro-nutrients present in a whole bony fish. Write the role of fish minerals on human health. 10
4. What are the physical properties of fish muscle protein. Give the procedure of extraction of fish muscle protein. 10
5. Differentiate taste and flavour. What are the flavor substances present in fish? Discuss the active compounds responsible for taste and flavor of seafood.
6. What do you mean by chemical contaminants? List down the name of organic and inorganic contaminants exist in marine environment. Write the effects of chemical contaminants on aquatic biota.

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Course Code & Name: AFP 502(T) & Advanced Fish Processing

Time: 2 hours; Full Marks: 40

Answer any 4 (FOUR) of the following questions:

1. Define Fish Processing. How will you process different value added frozen products from newly caught cultured *Penaeus monodon*? 10
2. Give a brief processing outline of exportable dried fishery products. 10
3. What is fish meal? How will you prepare fish meal from low-cost trash fish? 10
4. Explain the following terms: i) Standard; and (ii) Specification. Differentiate between product specification and process specification. Write down the importance of standard and specification. 10
5. Give a brief overview on technological, biochemical and bacteriological problems of frozen fish and fishery products subsequent cold storage. 10

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Course Code & Name: FBT 502(T) & Fishery By-products Technology

Time: 2 hours; Full Marks: 40

Answer any 4 (FOUR) of the following questions:

1. What do you mean by fishery by-products? What is the composition of fish meal? Give a detail procedure to prepare fish meal by wet rendering method. 10
2. Explain the term fish peptide'. Write down the sources of fish peptides. Discuss production protocol of fish peptides from fishery bi-products. 10
3. What is FPC? How will you process FPC from raw fish? Write down the nutritive value of FPC and significance of FPC on commercial aspect. 10
4. Write the significance of shark's fin in seafood industry. How you process pear essence from marine fish? 10
5. What do you mean by nutraceutical products? Give a detail protocol of agar preparation from seaweed. Write the industrial application of seaweeds in agar preparation. 10
6. How will you process carrageenan and mannitol from seaweeds? Write commercial importance of alginate and carrageenan. 10

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July - December Semester, 2019; Final Examination

Course Code & Name: BFP 502(T) & Biotechnology in Fish Processing

Time: 2 hours; Full Marks: 40

Answer any 4 (FOUR) of the following questions:

1. Write down industrial applications of protease. What are the prospects and constraints to establish protease manufacturing industry in Bangladesh? 10
2. Classify fish muscle protein. Describe briefly preparation of fish protein hydrolyzates in a processing industry. 10
3. Write the composition of crustacean waste. How will you manage crustacean waste in an ISO certified fish processing plant? What is IQF? 10
4. How will you prepare chitin and chitosan from shrimp waste in a fish processing plant? Briefly describe the applications of crustacean wastes in biotechnology. 10
5. Write down principles of packaging. List down different packaging materials used in food processing industries. Explain different food packaging methods practiced in food processing industries. 10

Chattogram Veterinary and Animal Sciences University

Faculty of Fisheries

Department of Fisheries Resource Management

Master of Science in Fisheries Resource Management, July-December Semester Final Examination'
2019

Course No: **MCR-502 (Compulsory)**, Course Title: **Mangroves Conservation and Restoration**

Total Marks: 40, Time: 2 hours

Answer any **FOUR** questions. Illustrate your answer wherever necessary. Figure in the right margin indicates full marks.

1. a) How mangrove forests act as a 'bio-shield' to protect climatic disorders in surrounding areas? – Explain with examples. **3.0**
b) Discuss the potential impacts of climate change on the ecology of *Sundarbans* mangrove forest. **7.0**
2. a) What are the effects of tidal fluctuation in the nutrient dynamics of mangrove ecosystem? **3.0**
b) Plan and prepare an effective management approach for aquatic mangrove resources in Bangladesh. **7.0**
3. a) Enlist the major constraints of aquaculture in mangrove area. **3.0**
b) "Banning on the development of aquaculture farms in mangrove areas can only be considered as a stopgap to face the challenges of mangrove conservation."- To what extent you agree or disagree with this statement in the context of Bangladesh. **7.0**
4. a) What are keystone components? - Provide examples. **3.0**
b) Criticize the on-going threats of eco-tourism adjacent to *Sundarbans* mangrove forest and recommend by judging their merits. **7.0**
5. a) Why mangrove ecosystem is called a 'nutrient trap'? **3.0**
b) Discuss the role of mangrove ecosystem as a natural habitat of aquatic fauna. **7.0**
6. a) How do mangroves contribute in the maintenance of planet's carbon cycle? **3.0**
b) Discuss the significance of mangrove ecosystem as a tool of biological research. **7.0**