

Chattogram Veterinary and Animal Sciences University
Faculty of Fisheries
Department of Aquaculture
MS in Aquaculture, Jul-Dec semester, Final Exam/2023
Course Code: IAF-502 (T), Course Title: Integrated Aqua-farming
Full Marks: 40; Time: 2hours

Answer **any four (04)** from the following. Figure in the right margins indicates full marks. Splits answers is not acceptable.

1. a. Write down the different components for integrated multi-trophic aquaculture (IMTA). 2
- b. Explain in details the points need to be consider for designing an effective IMTA system. 4
- c. Summarize the advantages and disadvantages of integrated multi-trophic aquaculture (IMTA). 4

2. a. Write down the major potential linkages between livestock and fish production? 3
- b. Write down the benefits and future development of livestock-fish farming in Bangladesh. 3
- c. Explain in details the types of livestock cum aquaculture systems. 4

3. a. Explain in details the three major types of Rice-Aquaculture Farming. 4
- b. Write down the benefits and disadvantages of rice-aquaculture farming. 2
- c. Write down the management system of rice-aquaculture farming. 4

4. a. Explain in details the integration between aquaculture and horticulture 6
- b. Write down the advantages and economic efficiency of integrated aquaculture and horticulture. 4

5. a. Write short note any 2 of the following: i) Poultry-Fish System; ii) Rabbit-fish integration; iii) Rice-aquaculture farming with livestock. 2.5x2=5
- b. Write down the basic principle of Integrated Farming. 5

Chattogram Veterinary and Animal Sciences University
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Department of Aquaculture
MS in Aquaculture, (July-December) Final Examination, 2023
Course Code: AQI-502 (T), Course Title: Aquatic Immunology
Total Marks: 40 Time: 2 hours

Answer any 4 (four) questions from the following. Figures in the right margin indicate full mark.

1. a) What are the advantages of using immunostimulants in aquaculture? 2
b) Write in brief about the use of immunostimulants in aquaculture. 3
c) Discuss the immunosuppressive effects of environmental pollutants. 5

2. a) Differentiate between vaccines and immunostimulants. 2
b) What is antibody and antibody titre? 2
c) Write in brief about different immunodiagnostic methods used in aquatic animal disease diagnosis with their advantages and disadvantages. 6

3. a) Name different defense line in fish immunity. 1
b) Discuss non-specific immunity in fish. 6
c) Explain immunoglobulin formation and functions. 3

4. a) Write down the characteristics of an ideal fish vaccine. 2
b) How will you vaccinate fish in tropical fish farms and hatcheries? 5
c) What are risks and limitations of fish vaccination in aquaculture? 3

5. a) Differentiate between finfish and shrimp immune system. 2
b) Write in brief about the immunity in shrimp. 6
c) What is an antigen? Name different types of antigens. 2

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Faculty of Fisheries

Department of Fisheries Resource Management

Master of Science in Fisheries Resource Management, July-December Semester Final Examination' 2023

Course Code: **WQA-502 (Compulsory)**, Course Title: **Water Quality and Pollution Analysis**

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) Mention some special characteristics of water to support fishes as a living media. 4
- (b) Develop a comparison on the productive and unproductive ponds on the basis of water quality variables. 6
2. (a) Compare and contrast between point source and non-point source of water pollution. 4
- (b) Write down the causes and effects of coastal pollution due to point and non-point sources of water pollution. 6
3. (a) "High level of ammonia found in winter season than the summer season"-Explain. 3
- (b) Identify the H₂S gas problem in your fish pond. 3
- (c) Describe the different methods of applying lime in your fish pond. 4
4. (a) Develop a model of re-circulatory aquaculture system. 6
- (b) How integration of aquaculture system helps to enhance fish production? 4
5. (a) Differentiate between sewage and sludge. 3
- (b) "Sewage pollution is a great barrier in water body"- explain the statement. 3
- (c) Describe the major causes and remedial measures of sewage pollution. 4
6. (a) How to achieve good water quality management in aquaculture? 4
- (b) Write down the impacts of flora and fauna in the aquatic systems due to water pollution. 6

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Department of Aquaculture
MS in Aquaculture, (July-December) Final Examination, 2023
Course Code: AQP-502 (T), Course Title: Aquatic Pathology
Total Marks: 40 Time: 2 hours

Answer any 4 (four) questions from the following. Figures in the right margin indicate full mark.

1. a) What are the reasons of cell death in fish? 4
b) Discuss gill pathology and liver pathology in diseased fish. 6
2. a) How pathological study can play role in the improvement of aquaculture production? 3
b) Write in brief about bacterial infection in the aquaculture of Bangladesh. 7
3. a) Why viral diseases are great threat to aquaculture industry throughout the world? 3
b) Discuss some viral diseases in fish. 7
4. a) Write in brief about some mycotic diseases in fish. 6
b) Enumerate some non-infectious diseases of crustaceans. 4
5. a) Enlist some infectious diseases of shellfish with their etiology. 3
b) Discuss some pathogenic diseases in mollusks. 7

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Department of Aquaculture
MS in Aquaculture, Jul-Dec semester, Final Exam/2023
Course Code: AFT-502 (T), Course Title: Aquaculture Feed Technology
Full Marks: 40; Time: 2hours

Answer **any four (04)** from the following. Figure in the right margins indicates full marks. Splits answers is not acceptable.

1. a. Define anti-nutritional factors. Write down the major anti-nutritional and contaminations in feed ingredients. 4
b. Explain in details the conventional and non-conventional feedstuffs for feed formulation 3
c. Differentiate conventional and non-conventional feedstuffs used for feed formulation. 3
2. a. Write down the different types of feed according to life stages of fishes. 3
b. Write down the factors that affect the quality of feed. 3
c. Illustrate the factors influencing digestibility. 4
3. a. Define and classify hormones. 3
b. Explain in details the use of binders in aquaculture 4
c. Factors affecting the efficacy of the binding agent 3
4. a. Write down in details the fish feed preparation process. 4
b. What are the criteria should be checked when screening potential feedstuffs for feed formulation? 2
c. Define feeding methods. Explain in details different types of feeding methods used in aquaculture. 4
5. a. According to the mode of action classify antioxidants 3
b. Write down the function of antioxidants. List out commonly used natural antioxidants in feed. 4
c. Illustrate the criteria for selecting feed antioxidants 3

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MS in Aquaculture, Jul-Dec semester, Final Exam/2023
Course Code: ACA-502 (T), Course Title: Advanced Coastal Aquaculture (Theory)
Full Marks: 40; Time: 2hours

Answer **any four (04)** from the following. Figure in the right margins indicates full marks. Splits answers is not acceptable.

1. a. Define coastal aquaculture. List down 3 fin fish, shrimp and crab species scientific name cultured in farms and hatcheries. 2
- b. Explain in details different factors which need to be considered during operation, management and seed production of brackish water fish farms. 4
- c. Culture technique of `molluscs. 4
2. a. Write down two different systems used for crab fattening. 2
- b. Illustrate the culture technique of crab. 4
- c. Write down the general principles of Integrated Pest Management (IPM) 4
3. a. Explain in details the production cycle of *Mugil cephalus* 3
- b. Write down the culture technique of Mullet (*Mugil cephalus*) 5
- c. Illustrate how to control predators. 2
4. a. Explain in details the seabass culture technique in Bangladesh. 4
- b. How you are going to do the management of sea bass hatchery and farm 2
- c. Write down the problems with natural seed collection compared to reproduction in captivity 4
5. a. Summarize the environmental impacts of wild fish collection. 3
- b. Differentiate culture technique of shrimp among gher, extensive, improved extensive, semi-intensive and intensive culture system. 5
- c. Explain in details different methods of live fish and shrimp transportation. 2