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
Faculty of Fisheries
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

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' 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 H_2S 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

Chattogram Veterinary and Animal Sciences University
Faculty of Fisheries
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

Chattogram Veterinary and Animal Sciences University
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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

Chattogram Veterinary and Animal Sciences University
Faculty of Fisheries
Department of Aquaculture
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 generals 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.	Summaries 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