Chattogram Veterinary and Animal Sciences University
Faculty of Fisheries
Department of Aquaculture
MS in Aquaculture, July-December Semester, Final Examination 2019
Course Code: ACA- 502, Course Title: Advanced Coastal Aquaculture
Full Marks: 40; Time: 2 hour

Answer **any 04 (four)** from the followings. Figure in the right margin indicate full marks of the questions.

1.	a)	Explain the present scenario of crab culture in Bangladesh.	4
	b)	Write in brief about different culture techniques of molluscs.	6
2.	a)	Do you think aquaculture sector has changed in Bangladesh throughout the last decades? How?	5
	b)	What are the existing problems in aquaculture in Bangladesh?	5
3.	a)	Write down the prospects of finfish culture in coastal environment.	3
	b)	Discuss the culture technique and management of seabass.	7
4.	a)	What is biosecurity?	2
	b)	Write in brief about the international biosecurity measures and protocols.	6
	c)	Do you think biosecurity status in our country is acceptable?	2
5.	a)	What is quarantine?	2
	b)	Give an overview of shrimp seed production in Bangladesh.	8
6.	a)	Discuss the impact of aquaculture on coastal environment.	6
	b)	Live feed culture is important in coastal aquaculture practice – explain the statement.	4

Chattogram Veterinary and Animal Sciences University, Chattogram
Department of Aquaculture
MS in Aquaculture
July- December Semester Final Examination/2019
Course Code. and Title: **AQI – 502, Aquatic Immunology**
Total Marks: 40, Time: 2 hours

Answer any 04 (four) questions. Figures in the right margin indicate full marks.

1.	a)	What is immunity and immunology? Mention the applications of immunology.	2
	b)	Compare between innate and adaptive immunity in fish.	4
	c)	Discuss about some rapid immunodiagnostic techniques for aquaculturecandidates.	4
2.	a)	Draw and level the immune organs and cells in fish.	5
	b)	Explain the immunocompetent cells in fish immunology.	5
3.	a)	What do you know regarding haemolymph and haemocyte?	4
	b)	Discuss about the characterization of haemocytes for crustacean immune system.	6
4.	a)	Distinguish between cellular and humoral factors of the immune system.	4
	b)	Describe the steps involved in the phagocytosis process.	6
5.	a)	Draw and level a typical immunoglobulin molecule.	5
	b)	Describe the steps involved in the antibody production in fish.	5

Chattogram Veterinary and Animal Sciences University
Faculty of Fisheries
Department of Aquaculture
MS in Aquaculture, July-December Semester, Final Examination Examination 2019
Course Code: AQP- 502, Course Title: Aquatic Pathology
Full Marks: 40; Time: 2 hour

Answer **any 04 (four)** from the followings. Figure in the right margin indicate full mark of the questions.

1.	a)	What is the importance of disease diagnosis in aquaculture?	3
	b)	Write in brief about the disease diagnosis methods in aquaculture.	7
2.	a)	What is systemic pathology?	1
	b)	Describe some common systemic pathology.	7
	c)	What is neoplasm?	2
3.	a)	Give a list of diseases of lobster with their etiology.	3
	b)	Write in brief about two infectious diseases of crab.	7
4.	a)	Enumerate the effects of different stressors in fish.	4
	b)	How will you mitigate them?	4
	c)	How the effect of stress varies in different life stages of fish?	2
5.	a)	Write in brief about some non-infectious diseases in fish.	6
	b)	Give a list of infectious diseases of molluscs with their etiology.	2
	c)	Describe any one of them.	2
6.	a)	What is experimental infection?	2
	b)	Write in brief about one viral, one bacterial and one fungal disease of fish.	8

Chattogram Veterinary and Animal Sciences University

Faculty of Fisheries

Department of Aquaculture

MS in Aquaculture, Jul-Dec semester, Final Exam/2019

Course No&Title.: IAF-502 (T); Integrated Aquafarming (Theory)

Full Marks: 40; Time: 2hours

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

1.	a.	Define Integrated multi-trophic aquaculture (IMTA). Write down the components for IMTA.	4
	b.	Explain in details the potential benefits and scope of IMTA system in Bangladesh.	2
	c.	Write the advantages and disadvantages of IMTA	4
2.	a.	Define integrated farming. Write down the advantages of integrated fish farming.	4
	b.	How the integration of fish culture into small-holder crop/livestock systems affects asset accumulation and livelihoods of Bangladesh.	4
	c.	What are the factors need to be considered for integrated farming system?	2
3.	a.	What are the major considerations to adopt integrated aqua-farming in Bangladesh?	4
	b.	Write down the socio-economic consideration for integrated farming systems	2
	c.	Summarize the different steps involved inconcurrent and alternate system for Rice-Fish Culture.	4
4.	a.	Write down the principles and benefits of rice-fish farming system.	4
	b.	Summarized the different steps need to be considered for integrated farming of fish-crops-livestock.	4
	c.	What are the basic steps involved in waste-animal-fish farming system.	2
5.	a.	Explain in details the major management practice during rice-fish culture system	6
	b.	Discuss the integrated rice and crustaceans culture system in aquaculture	4

Chattogram Veterinary and Animal Sciences University

Faculty of Fisheries

Department of Aquaculture

MS in Aquaculture, Jul-Dec semester, Final Exam/2019

Course No&Title.: AFT-502 (T);Aquaculture Feed Technology (Theory)

Full Marks: 40; Time: 2hours

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

1.	a.	What are the different components is essential for fish when you prepare their feed.	2
	b.	Write down in details how you formulate the feed for your fish.	4
	c.	Summarize the effects on the nutritional value of feeds during processing.	4
2.	a.	Define the digestibility. Write down the factors affecting digestibility.	4
	b.	Write down the method use for determination of digestibility.	2
	c.	Explain in details the carbohydrate digestibility in fish.	4
3.	a.	Write down the key objectives of the national fisheries policy.	2
	b.	What are the goal of International code of conduct for different feed ingredients in fish feed.	4
	c.	Summarize the recommendation for the code of practice on Good Animal Feeding.	4
4.	a.	Write down the conventional and unconventional feedstuffs available for feed formulation.	4
	b.	Differentiate between conventional and unconventional feedstuffs.	2
	c.	Define the anti-nutritional factors in feed formulation and write down the major 4 groups of antinutrient of plant origin.	4
5.	a.	Explain the advantages and disadvantages of using fiber in feed formulation.	6
	b.	Write down the sources of fiber in ingredients used for making fish feed.	4

Chattogram Veterinary and Animal Sciences University, Chattogram
Department of Aquaculture
MS in Aquaculture
July- December Semester Final Examination/2019
Course Code. and Title: **SAC–502,Sustainable aquaculture and ClimateChange**
Total Marks: 40, Time: 2 hours

Answer any 04 (four) questions. Figures in the right margin indicate full marks.

1.	a)	Explain the contribution of IPCC in managing sustainable aquaculturepractices.	5
	b)	Compare different RCPs based on climate change issues.	5
2.	a)	What is the role of resource usage and the environmental aspects in sustainable aquaculture management?	3
	b)	Describe the physico-chemical factors and their consequences on aquaculture systems.	7
3.	a)	Compare vulnerability and resilience of any ecosystem for aquaculture practice.	4
	b)	Discuss on the 7 key principles of resilience for Social-Ecological Systems (SES).	6
4.	a)	What is the concept of sustainable aquaculture development?	3
	b)	Describe the 9 properties of resilient Social-Ecological System.	7
5.	a)	Write short note on Multi-dimensional Resilience framework.	4
	b)	Describe DPSIR (Driver-Pressure-State-Impact-Response) model as an analytical tool for climate resilient aquaculture.	6