

Chattogram Veterinary and Animal Sciences University
Faculty of Fisheries
Department of Aquaculture
MS in Aquaculture, Jul-Dec semester, Final Exam/2020
Course Code: SAC-502 (T), Course Title: Sustainable Aquaculture and Climate Change
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 the sustainable aquaculture? Write down the importance of sustainable aquaculture. 2
b. What are the different resources used efficiently for sustainable aquaculture? 4
c. Summarized the potential benefits and challenges of community-based marine aquaculture. 4
2. a. Summarize the natural resources with features and utilization pattern in the Coastal Villages of South-Western Bengal Delta, Bangladesh. 4
b. Write down the impacts of climate change on fisheries and aquaculture. 3
c. Write down the socio-economic features of a fish a farmer. 3
3. a. 'The conflict prevention program must consider four main building blocks and supporting interventions'- explain in details. 4
b. Summarize the negative effects of climate change and extreme weather events on employment. 2
c. Write down the impacts of climate change in the ocean. 4
4. a. Explain in details the positive and negative environmental impacts on aquaculture. 6
b. Explain in details the food safety for fishery and aquaculture products in the context of climate change. 4
5. a. Explain in details following subjects on the base of climate changes: a) Climate Change and Hydrological Events; and b) Water Resource Supply Demand. 5
b. Define the living shorelines approach (LSA). Write down the benefits of LSA compared with "hard" coastal protection approaches. 5

Chattogram Veterinary and Animal Sciences University
Faculty of Fisheries
Department of Aquaculture
MS in Aquaculture, Jul-Dec semester, Final Exam/2020
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 application of hormones in fish culture. 3
b. List of hormones used to induce maturation and spawning in fish 3
c. Summarize the impact of the hormone on the environment and consumer health. 4
3. a. Write down the advantages and disadvantages of using fiber during feed formulation. 4
b. Summarize the benefits of using binders in feed formulation. 3
c. What are the factors affecting the efficacy of the binding agent. 3
4. a. Define formulated feed. Write down the advantages of formulated feeds in aquaculture. 2
b. Write down in details the different types of feed formulation methods 8
5. a. Write down the function of carotenoid during feed formulation. 5
b. Summarize the importance of feeding stimulants 5

Chattogram Veterinary and Animal Sciences University
Faculty of Fisheries
Department of Aquaculture
MS in Aquaculture, Jul-Dec semester, Final Exam/2020
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. Explain in details the mullet (*Mugil cephalus*) culture technique in Bangladesh. 4
b. Write down two different systems used for crab fattening. 3
c. Summarize the possible environmental impacts of aquaculture. 3
2. a. Write down the criteria for selection of shrimp hatcheries. 3
b. What are the characteristics need to be considering for the broodstock quarantine unit. 4
c. List down the different guidelines to adopt for feed and feed management in shrimp farming. 3
3. a. Write down the control measurements of predators and pests. 4
b. Give a flow chart for the pest control strategy. 2
c. Write down the ethics of predator management. 4
4. a. Write down the environmental impacts of wild fish collection. 2
b. Write down the different steps for collection of fish and shellfish seed from the wild. 8
5. a. Explain in details the transportation of live wild fish and shrimp. 5
b. Summarize the status, prospect and problems of coastal aquaculture in Bangladesh. 5

Chattogram Veterinary and Animal Sciences University
Faculty of Fisheries
Department of Aquaculture
MS in Aquaculture, Jul-Dec semester, Final Exam/2020
Course No & Title.: AQP-502 (T); Aquatic Pathology (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. Summarize the impacts of fish diseases in the context of Bangladesh. 3
b. Write down the prevention and control measures of viral diseases. 3
c. Write down the causative agent, fish host, gross signs of the following viral diseases: 4
Epizootic Ulcerative Syndrome (EUS); Catfish Virus Disease (CCVD); Spinning
Tilapia (ST) Syndrome and Grass Carp Hemorrhagic Disease
2. a. List out three (03) bacterial, fungal and parasitic diseases occurs in fish. 4
b. Explain in details the causative agent, signs, diagnosis, control method and treatment 6
of the following bacterial diseases found in mud crabs: Bacterial necrosis;
Luminescent bacterial disease
3. a. Write down the causative agent, pathology and pathogen viability of Fusarium 4
infection parasitic diseases in crayfish.
b. How to control the spread of crayfish plague in aquaculture. 2
c. List out 3 commonly found bacterial, viral and parasitic diseases in Crayfish. 4
4. a. Write down the mode of transmission of fungi in aquaculture. 2
b. Write down the etiology, host range, pathogenic sign and symptoms, clinical diagnosis 8
and treatments of Cotton Wool Disease and Yellow Muscle Disease in fish.
5. a. Explain in details the causative agent, signs and symptoms, prevention and control of 7
non-infectious diseases of muscle necrosis, soft-shell syndrome and red disease.
b. Differentiate general vs. systemic pathology. 3

Chattogram Veterinary and Animal Sciences University
Faculty of Fisheries
Department of Aquaculture
MS in Aquaculture, Jul-Dec semester, Final Exam/2020
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 factors need to be considered while selecting integrated farming systems. 2
b. Explain in details the advantages and constraints of integrated aquaculture farming systems. 4
c. Summarize the advantages and disadvantages of integrated multi-trophic aquaculture (IMTA). 4
2. a. What are the major considerations to adopt integrated aqua-farming in Bangladesh? 3
b. Write down the socio-economic consideration for integrated farming systems. 3
c. Summarize the economic efficiency of integrated aquaculture and horticulture. 4
3. a. Explain in details the different management steps for rice-aquaculture farming system. 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 aquaculture-horticulture. 5

Chattogram Veterinary and Animal Sciences University
Faculty of Fisheries
Department of Aquaculture
MS in Aquaculture, Jul-Dec semester, Final Exam/2020
Course No & Title.: AQI-502 (T); Aquatic Immunology (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. Write down the importance of immunostimulant. Give the sources and types of immunostimulant used for fish. 3 3
b. Explain in details the different types of vaccines used in aquaculture. 3
c. Write down the administration strategies of fish vaccine. 4
2. a. Define agglutination. Write down the types and application of agglutination reaction. 4
b. Define antibody. Write down the types of antibodies with their function. 2
c. Distinguish between monoclonal and polyconal antibodies. 4
3. a. Write down the advantages and disadvantages of different vaccine deliveries. 4
b. What are the different types of vaccine available for aquaculture use? 2
c. Write down the advantages and disadvantages of live, subunit and DNA vaccines? 4
4. a. What are the factors affecting the efficiency of immunostimulants? 4
b. Summarize the types of immunostimulants used in aquaculture. 2
c. Write down the advantages and disadvantages of immunostimulants. 4
5. a. Explain in details the immunosuppressive effects of environmental pollutants in aquaculture. 7
b. Draw a diagram of the categories of immunity in fish body 3