

**Chittagong Veterinary and Animal Sciences University**  
**Faculty of Fisheries**  
**Department of Aquaculture**  
**MS in Aquaculture, July-December Semester, Final Examination 2017**  
**Course Code: IAF-502 (T); Course Title: Integrated Aquafarming (Theory)**  
**Full Marks 40; Time 2 hour**

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

1. a) Integrated agro-aquaculture systems are beneficial than conventional farming systems – explain. 6  
b) What are the important factors to be considered for integrated aquafarming? 4
2. a) Discuss the rationale of complex and multi-component integrated systems. 5  
b) Write in brief about one multi-component integrated systems. 5
3. a) Write down the importance of rice-fish culture. 2  
b) Enumerate the characteristics of suitable fish species for integrated rice-fish system. 2  
c) Briefly discuss the integrated rice-fish system. 6
4. a) What do you mean by IMTA? 2  
b) Write down the major components of IMTA and their role in aquaculture. 3  
c) Evaluate the potential benefits and scope in Bangladesh. 5
5. a) How do you establish integrated aquaculture-horticulture system? 5  
b) Discuss the economic efficiency of aquaculture-horticulture system. 5
6. a) How public health aspects are related to livestock-aquaculture system? 3  
b) Briefly describe the socio-economic consideration during integrated aquafarming. 7

**Chittagong Veterinary and Animal Sciences University**  
**Faculty of Fisheries**  
**Department of Aquaculture**  
**MS in Aquaculture, July-December, Final Examination 2017**  
**Course Code: AFT-502 (T); Course Title: Aquaculture Feed Technology (Theory)**  
**Full Marks 40; Time 2 hour**

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

1. a) Enlist some conventional and unconventional fish feedstuffs available in Bangladesh. 2  
b) Briefly describe the nutritional quality of one plant origin and one animal origin feedstuffs. 8
2. a) Write down the importance of non-nutrient components in fish feed. 3  
b) Discuss binder and fiber as non-nutrients components. 7
3. a) What do you mean by feeding regime? 2  
b) Write down the importance of feeding regime in commercial aquaculture. 3  
c) Enumerate the feeding methods used in modern aquaculture. 5
4. a) Classify fish feeds. 5  
b) How do you control the quality of feed during storage? 5
5. a) Write down the selection criteria of ingredients during feed formulation. 4  
b) Discuss the fish feed manufacturing process. 6
6. a) Write down the importance fish feed laws and regulations. 3  
b) Discuss the energy balance equation and its use in aquaculture. 7

**Chittagong Veterinary and Animal Sciences University**  
**Faculty of Fisheries**  
**Department of Aquaculture**  
**MS in Aquaculture, July-December, Final Examination 2017**  
**Course Code: AQP-502 (T); Course Title: Aquatic Pathology (Theory)**  
**Full Marks 40; Time 2 hour**

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

1. a) Classify pathology. 4  
b) Illustrate the mechanism of cell death. 6
2. a) What is systemic pathology? 2  
b) Discuss some common circulatory pathology. 5  
c) Explain the term- neoplasm. 3
3. a) Briefly describe two important viral diseases of fish with their signs, pathology, epizootiology, isolation and identification and control. 10
4. a) What is experimental infection? 2  
b) Write in brief about two bacterial diseases found in fishes. 8
5. a) Enlist some infectious diseases of shellfish. 3  
b) Discuss some non -infectious diseases of shellfish. 7
6. a) Discuss two mycotic diseases of fish with their pathology, epizootiology, diagnosis, pathogenesis, prevention and control. 10

**Chittagong Veterinary and Animal Sciences University**  
**Faculty of Fisheries**  
**Department of Aquaculture**  
**MS in Aquaculture, July-December, Final Examination 2017**  
**Course Code: AQI-502 (T); Course Title: Aquatic Immunology (Theory)**  
**Full Marks 40; Time 2 hour**

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

1. a) What do you mean by fish haematology? 2  
b) Enumerate the innate immunity in fish. 8
2. a) Differentiate between antigen and antibody. 2  
b) Illustrate the lymphoid organs in fish. 4  
c) Discuss about routes and types of antigen. 4
3. a) Write down the importance of serology and immunodiagnostics in aquaculture. 3  
b) Briefly describe some new molecular methods of rapid diagnosis of fish and shrimp diseases. 7
4. a) Give a comparison between immunosuppression and immunostimulation. 2  
b) What are the functions of immunostimulants? 2  
c) Discuss the immunotoxicological effects of environmental contaminants. 4
5. a) Write down the characteristics of an ideal immunomodulator. 3  
b) What do you know about the application of immunomodulators? 5  
c) Classify hemocytes. 2
6. a) Distinguish between polyclonal and monoclonal antibody. 2  
b) Write down the importance of vaccine development. 3  
c) Discuss the current status of fish vaccination. 5

**Chittagong Veterinary and Animal Sciences University**  
**Faculty of Fisheries**  
**Department of Aquaculture**  
**MS in Aquaculture, July-December, Final Examinations 2017**  
**Course Code: ACA-502 (T); Course Title: Advanced Coastal Aquaculture (Theory)**  
**Full Marks 40; Time 2 hour**

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

1. a) Write in brief the prospects and problems of coastal aquaculture in Bangladesh. 6  
b) How environment is closely related to coastal aquaculture? 4
2. a) What do you mean by Biosecurity? 2  
b) Enumerate the basic biosecurity measures in an aquaculture practice. 5  
c) Discuss the function of biological filter. 3
3. a) What are the basic components of a brackishwater fish farm? 5  
b) Illustrate the operational steps of shrimp hatcheries and farms. 5
4. a) Write down the salient features of different culture systems of shrimps in coastal region of Bangladesh. 5  
b) Enumerate the impact of wild fish and shellfish seed collection on coastal region. 5
5. a) Pest and predators are great concern in shellfish culture in coastal region- explain the statement. 4  
b) Discuss the potentiality of seabass culture in Bangladesh. 6
6. a) Identify the major problems and constraints of crab culture in Bangladesh. 4  
b) Discuss the current status of transportation and marketing of coastal fish and shellfishes. 6

**Chittagong Veterinary and Animal Sciences University**

**Faculty of Fisheries**

**Department of Aquaculture**

**MS in Aquaculture, July-December Semester, 2017**

**Course Code: SAC-502(T); Course Title: Sustainable Aquaculture and Climate Change(T)**

**Full Marks 40; Time 2 hour**

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

1. a) What are the preconditions of sustainable aquaculture? 3  
b) Discuss the conceptual tools of sustainable development. 7
2. a) What is the role of ecology in sustainable aquaculture? 4  
b) Enumerate the efficiencies of resource use in aquaculture. 6
3. a) Identify the causes of climate change. 4  
b) Discuss the impacts of climate change on Bay of Bengal. 6
4. a) Write down the principles of Governance. 3  
b) What are the types of Governance? 5  
c) What do you know about international policy on climate change? 2
5. a) Briefly describe the social impact of climate change. 5  
b) Give some recommendations to reduce the environmental and social impacts of climate change. 5
6. a) Write down the standards of sustainable aquaculture framework. 4  
b) Discuss any five of them. 6

**Chittagong Veterinary and Animal Sciences University**

**Faculty of Fisheries**

**Department of Aquaculture**

**MS in Aquaculture, July-December Semester, 2017**

**Course Code: SAC-502(T); Course Title: Sustainable Aquaculture and Climate Change(T)**

**Full Marks 40; Time 2 hour**

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

1. a) What are the preconditions of sustainable aquaculture? 3  
b) Discuss the conceptual tools of sustainable development. 7
2. a) What is the role of ecology in sustainable aquaculture? 4  
b) Enumerate the efficiencies of resource use in aquaculture. 6
3. a) Identify the causes of climate change. 4  
b) Discuss the impacts of climate change on Bay of Bengal. 6
4. a) Write down the principles of Governance. 3  
b) What are the types of Governance? 5  
c) What do you know about international policy on climate change? 2
5. a) Briefly describe the social impact of climate change. 5  
b) Give some recommendations to reduce the environmental and social impacts of climate change. 5
6. a) Write down the standards of sustainable aquaculture framework. 4  
b) Discuss any five of them. 6