

Chittagong Veterinary and Animal Sciences University, Chittagong

Faculty of Fisheries

Year -03, Semester-02, Final Examination; 2015

Course No: ABC-302(T), Course Title: Aquatic Biodiversity and Conservation (Theory)

Full Marks: 70; Time: 3 hours

Answer any 05 (FIVE) questions from each section. The figures in the right margin indicate full marks.

**Section A**

1. a) What is fish biodiversity? 1.0  
b) Differentiate between 'ecosystem diversity' and 'genetic diversity'. 2.0  
c) Briefly describe the 'ecological values' of biodiversity in context of Chittagong, Bangladesh. 4.0
2. a) How do fisheries contribute to agricultural economics and economic generation in Bangladesh? 2.0  
b) Mentioned the threatened SIS from three major water systems of Bangladesh. 3.0  
c) 'Consideration of economic values of SIS can be more beneficial in boosting its culture than its nutritional values' – justify. 2.0
3. a) Why does biodiversity degrade day by day? 2.0  
b) What do you consider to develop "Bangladesh National Congress" of red-lists? 5.0
4. a) What are the objectives of fisheries conservation? 3.0  
b) Write down the different "in-situ" ways of conserving fishes. Describe any four of them. 4.0
5. a) Define 'survey', 'surveillance' and 'monitoring'. 3.0  
b) Write down the ecological and biological principles in fish conservation. 2.0  
c) What are the characteristics of a vulnerable species? 2.0
6. a) Enlist six policies of fish conservation with their signing and ratification dates. 3.0  
b) Write down the groups and scientific names of cryopreserved fishes of Bangladesh. 2.0  
c) 'Establishment of fish sanctuary is the best way of fish conservation in nature' – justify. 2.0
7. Write short note on any 2 (two) of the followings: 3.5 x 2= 7.0  
a) Ramsar Convention; b) Life supporting plants in Hakaluki Haor;  
c) Biodiversity of St. Martin Island; d) Ecologically Critically Areas (ECAs).

**Section B**

8. a) What is aquatic biodiversity? 1.0  
b) Discuss the inter-linkage among different levels of biodiversity. 3.0  
c) Why should fisheries expert more focus on ecological values than its economic values? 3.0
9. a) What do you mean by protected area? 1.0  
b) Show the proposed protected areas in the map of Bangladesh. 4.0  
c) Differentiate between national park and game reserve. 2.0
10. a) How the publication of red-lists can be beneficial to the fish biodiversity conservation of Bangladesh? 2.0  
b) Write down the IUCN global categories of red-lists. 3.0  
c) Differentiate between 'Endangered' and 'Vulnerable' fishes. 2.0
11. a) Write down the importance of developing ecological and biological concepts in fish conservation. 2.0  
b) Describe any five of the developed ecological and biological concepts of fish conservation. 5.0
12. a) What are the roles of fish domestication as a conservation strategy? 2.0  
b) List down the domesticated indigenous fish species of Bangladesh. 5.0
13. a) Differentiate between 'in-situ' and 'ex-situ' conservation of fishes. 2.0  
b) Briefly describe the importance of fisheries conservation. 3.0  
c) "Cryopreservation of sperm may not always be an effective protocol of conservation" –justify. 2.0
14. Write short note on any 2 (two) of the followings: 3.5 x 2= 7.0  
a) CBD; b) Fish biodiversity in Sundarban Mangrove Forest; c) Global concern regarding marine environment degradations; d) Impacts of exotic fish species in Bangladesh.

Chittagong Veterinary and Animal Sciences University, Chittagong

Faculty of Fisheries

Year -03, Semester-02, Final Examination, 2015

Course No: SFD-302(T), Course Title: Shellfish Diseases (Theory)

Full Marks: 70; Time: 3 hours

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Answer any 05 (FIVE) questions from each section. The figures in the right margin indicate full marks.

**Section-A**

1. a) Define virus and mention its importance in shrimp diseases. 3  
b) Describe 'White Spot Syndrome' in shrimp with its etiology, clinical signs and distribution. 4
2. a) Distinguish between symptom and syndrome. 1  
b) Discuss Vibriosis in shrimp culture of Bangladesh with Pathology, diagnosis, epizootiology and control measures. 6
3. a) How do the environment play role in the maintenance of shrimp health? 2  
b) Briefly describe the environmental diseases of shrimp and prawn with signs and control measures. 5
4. a) 'Disease is a curse to shrimp aquaculture' - explain the statement. 5  
b) Give some recommendations to overcome the disease problem in shrimp aquaculture. 2
5. a) Mention parasitic diseases of shrimp with their causative agents. 3  
b) Describe one protozoan and one metazoan parasitic disease of shrimp with their pathological signs, effects on host and control measures. 4
6. a) Give a list of important crab diseases with their causative agents. 2  
b) Discuss any two diseases of crab with etiology, gross sign, diagnosis and health management measures. 5
7. Write short notes on any **02 (TWO)** of the followings: 3.5x2=7  
a) Importance of non-shrimp crustaceans; b) Cestode infection in shrimp; c) Yellow Head Diseases of shrimp

**Section-B**

8. a) What is the significance of shellfish diseases? 3  
b) Write down the impact of shellfish diseases on export market of Bangladesh. 4
9. a) What is fungal granuloma? 1  
b) Describe two fungal diseases of shrimp and prawn. 6
10. a) Mention the causes of disease outbreak in shellfish. 2  
b) Discuss dietary deficiency diseases of shrimp. 5
11. a) Write down the importance of mollusks in our daily life. 2  
b) Discuss in brief two infectious diseases of oyster mentioning their etiology, gross sign, pathology and control measures. 5
12. a) Distinguish between infectious and non-infectious diseases. 1  
b) What are the non-infectious diseases of shrimp? 1  
c) Discuss general indicator of shellfish health. 5
13. a) Enlist important diseases of crayfish with their causative agents. 2  
b) Discuss two infectious diseases of lobster with their etiology, gross signs, pathology and control measures. 5
14. Write short notes on any **02 (TWO)** of the followings: 3.5x2=7  
a) Bacterial shell diseases of shrimp; b) Diseases of clam; c) Present status of shellfish diseases in Bangladesh

**Chittagong Veterinary and Animal Sciences University, Chittagong**  
**Faculty of Fisheries**  
**Year -03, Semester-02, Final Examination, 2015**  
**Course No: FGB-302(T), Course Title: Fish Genetics & Biotechnology (Theory)**  
**Full Marks: 70; Time: 3 hours**



Answer any 05 (FIVE) questions from each section. The figures in the right margin indicate full marks.  
 Use separate answer script for each section.

**Section-A**

- |    |   |           |
|----|---|-----------|
| 1. | a) Define genetics.   | 1.0       |
|    | b) Write down the significance of studying fish genetics.   | 3.0       |
|    | c) What do you know about biotechnological approaches in fish?                                    | 3.0       |
| 2. | a) What are the distinguishing features of prokaryotic and eukaryotic cells?                      | 2.0       |
|    | b) Show with a labeled diagram the constituents of a eukaryotic cell and mention their functions. | 5.0       |
| 3. | a) What do you know about DNA templating, replication fork and okazaki fragments?                 | 3.0       |
|    | b) Briefly describe the DNA replication process.  | 4.0       |
| 4. | a) State the Mendel's law of independent assortment.  | 1.0       |
|    | b) Define complete and incomplete dominance.  | 1.0       |
|    | c) Briefly describe the inheritance of scale pattern in common carp.                              | 5.0       |
| 5. | a) Define quantitative phenotype.   | 1.0       |
|    | b) What are the components of phenotypic variance?  | 1.0       |
|    | c) What are the components of phenotypic variance is exploited in hybridization and why?          | 1.0       |
|    | d) Discuss heterosis with an example.   | 4.0       |
| 6. | a) Define inbreeding.   | 1.0       |
|    | b) What are the negative impacts of inbreeding?   | 2.0       |
|    | c) Discuss the approaches that are commonly used in controlling inbreeding.                       | 4.0       |
| 7. | Write short note on <i>any two</i> of the followings:   | 3.5×2=7.0 |
|    | a) Crossing over;   |           |
|    | b) Multiple allelism; and   |           |
|    | c) Genetic-environmental interaction variance   |           |

**Section-B**

- |     |  |     |
|-----|--|-----|
| 8.  | a) Define ploidy.  | 1.0 |
|     | b) Briefly describe different types of aneuploidy.   | 3.0 |
|     | c) What do you know about composition of chromosome?   | 3.0 |
| 9.  | a) Define gene, genome and gene pool.  | 2.0 |
|     | b) Briefly describe the lethal gene action with example.   | 5.0 |
| 10. | a) Define cryopreservation.  | 1.0 |
|     | b) What do you mean by extenders and cryoprotectants?  | 1.0 |
|     | c) Make a list of five extenders and cryoprotectants commonly used for cryopreservation of fish sperm. | 3.0 |
|     | d) Distinguish between live gene bank and cryogenic gene bank.   | 2.0 |
| 11. | a) Define fertilization with their types.  | 2.0 |
|     | b) Briefly describe the egg-sperm interaction during fertilization with diagram.                       | 5.0 |
| 12. | a) What do you meant by gene manipulation?   | 1.0 |
|     | b) What types of gene you will choose for gene manipulation?   | 2.0 |
|     | c) Briefly describe the gene manipulation techniques in fish.  | 4.0 |
| 13. | a) What is meant by chromosome manipulation?   | 1.0 |
|     | b) Describe the method for the production of gynogenetic fish.   | 4.0 |
|     | c) Write down the application of androgenesis.   | 2.0 |
| 14. | a) What do you meant by test cross and back cross?   | 2.0 |
|     | b) Write down differences between linkage and crossing over?   | 4.0 |
|     | c) What do you know about sex linked traits?   | 1.0 |

**Chittagong Veterinary and Animal Sciences University, Chittagong**  
**Faculty of Fisheries**  
**Year -03, Semester-02, Final Examination 2015**  
**Course No: MFM-302(T), Course Title: Marine Fisheries management (Theory)**  
**Full Marks: 70; Time: 3 hours**

*Answer any 05 (FIVE) questions from each section. The figures in the right margin indicate full marks.  
 Use separate answer scripts for each section.*

**Section-A**

- |    |  |          |
|----|--|----------|
| 1. | a) What is Marine Fisheries Management?  | 2        |
|    | b) Diagrammatically represent the functions and responsibilities of Fisheries Management.  | 3        |
|    | c) Briefly discuss the types of information collected for sustainable Fisheries Management.  | 2        |
| 2. | a) Differentiate between artisanal fisheries and industrial fisheries.   | 2        |
|    | b) Give a scenario of fish catch statistics of Bangladesh.   | 2.5      |
|    | c) Write down the future management issues of capture fisheries in Bangladesh.   | 2.5      |
| 3. | a) What is fish school?  | 1.5      |
|    | b) Specify important biological characteristics of fishing ground.   | 2.5      |
|    | c) Illustrate major techniques used to detect fishing grounds.   | 3        |
| 4. | a) Write down the characteristics of Sundarban mangrove forest.  | 2        |
|    | b) Narrate the role of mangrove ecosystem in marine fisheries sector.  | 1.5      |
|    | c) 'Floral and Faunal diversity of Sundarban mangrove forest and its biogeochemical cycle assist to develop sustainable fisheries management'-Explain the statement. | 3.5      |
| 5. | a) Define fishing crafts and fishing gears.  | 1.5      |
|    | b) How a gear is selected for catching demersal and pelagic fishes?  | 2.5      |
|    | c) Enumerate traditional fishing gears used in coastal areas of the Bay of Bengal.   | 3        |
| 6. | a) Define MSY and MEY.   | 2        |
|    | b) Write down importance of Fishing Effort Management and Catch Management.  | 2        |
|    | c) How can you impose Fishing Effort Management and Catch Management?  | 3        |
| 7. | Write short notes on any (02) <b>TWO</b> of the followings:  | 3.5x2= 7 |
|    | a) Subsistence fisheries; b) Sea-ranching; c) Marine Protected Areas; d) Bay of Bengal.  |          |

**Section-B**

- |     |   |          |
|-----|---|----------|
| 8.  | a) What are the operational objectives of Marine Fisheries Management?                          | 2        |
|     | b) Explain the input controls and output controls for fisheries management.                     | 2        |
|     | c) What are the basic parameters used for potential yield analysis?                             | 3        |
| 9.  | a) What do you mean by marine pelagic resources?  | 2.5      |
|     | b) Enumerate the status of Hilsha production in Bangladesh.                                     | 1.5      |
|     | c) Sketch the breeding areas of Hilsha in the coastal water of Bangladesh.                      | 3        |
| 10. | a) What is aft?   | 1.5      |
|     | b) Discuss high sea fishing techniques upto the outer limit of EEZ.                             | 2.5      |
|     | c) Specify the graphical representation among fishing methods, practices and fishery resources. | 3        |
| 11. | a) What do you mean by stock assessment?  | 2        |
|     | b) Illustrate the status of marine fishery resources along the Bay of Bengal coast.             | 2.5      |
|     | c) Give an account of the present trend of marine capture fisheries of the world.               | 2.5      |
| 12. | a) What do you understand by isometric growth?  | 2        |
|     | b) Briefly discuss the length weight relationship of fish.                                      | 5        |
| 13. | a) What are the objectives of CCRF?   | 2        |
|     | b) Sketch the conceptual model for sustainable Ecosystem Based Fisheries Management (EBFM).     | 2        |
|     | c) Specify the merits and demerits of EBFM.   | 3        |
| 14. | Write short notes on any (02) <b>TWO</b> of the followings:                                     | 3.5x2= 7 |
|     | a) Length at first capture ( $L_c$ ); b) Tools for EBFM; c) CPUE; d) TAC Management             |          |

**Chittagong Veterinary and Animal Sciences University, Chittagong**  
**Faculty of Fisheries**  
**Year -03, Semester-02, Final Examination, 2015**  
**Course No: ADC-302(T), Course Title: Aqua-farm Design and Construction (Theory)**  
**Full Marks: 70; Time: 3 hours**

*Answer any 05 (FIVE) questions from each section. The figures in the right margin indicate full marks.*

**Section-A**

1. a) Define Aqua-farm Design and Construction and mention its aims and importance. 2  
b) What are the general engineering principles of aqua-farm construction? 2  
c) Justify the importance of social and economic factors for site selection. 3
2. a) Write down the importance of engineering aspects in aqua-farming? 2  
b) Enumerate ecological and biological factors for site selection of an aqua-farm. 5
3. a) What are the major characteristics of a species suitable for aqua-farming? 3  
b) Discuss the land based aquaculture systems with appropriate diagrams. 4
4. a) What is the total cost of a project? 2  
b) Describe the stages of an aqua-farm project design. 5
5. a) What do you mean by hydraulic circuit? 2  
b) Write down the main elements of hydraulic circuit? 2  
c) Mention the types of pumps used in aqua-farming. 3
6. Write short notes on any **02 (TWO)** of the followings: 3.5x2=7  
a) Artificial reef; b) Types of feeder; c) Hatchery components

**Section-B**

7. a) What do you mean by aquaculture systems? 2  
b) Discuss water based aquaculture systems with appropriate diagrams. 5
8. a) Define tender, contract, bid and project ancillaries. 2  
b) Describe the stages of design process for construction of a fish farm. 5
9. a) Give your concept about specialized aquaculture systems. 3  
b) What types of aerators are used in aqua-farms? 4
10. a) Distinguish between aeration and oxygenation. 1  
b) Write an essay on oxygen budget for an aqua-farm. 6
11. Describe the water flow through pipes, channels, sluice gates and tidal gates. 7
12. Write short notes on any **02 (TWO)** of the followings: 3.5x2=7  
a) Physical methods for waste water treatment; b) Ranching; c) Capital cost and operation cost

**Chittagong Veterinary and Animal Sciences University, Chittagong**  
**Faculty of Fisheries**  
**Year -03, Semester-02, Final Examination, 2015**  
**Course No: AMB-302(T), Course Title: Agribusiness and Marketing (Theory)**  
**Full Marks: 70; Time: 3 hours**

*Answer any 05 (FIVE) questions from each section. The figures in the right margin indicate full marks. Use separate answer script for each section.*

**Section-A**

1. a) Define business and agribusiness. Discuss the scope of agribusiness in the field of fisheries of Bangladesh. 5.0  
b) Write down the challenges and opportunities of agribusiness. 2.0
2. a) Define entrepreneurship. Write the important characteristics of an entrepreneur. 3.0  
b) Discuss the functions of an entrepreneur in the context of small scale fisheries enterprises development in Bangladesh. 4.0
3. a) What do you mean by market segmentation? Write the objectives of market segmentation. 3.0  
b) Explain the different methods of market segmentation. 4.0
4. a) What do you understand by project appraisal? Why it is done? 2.0  
b) Briefly discuss the discounted project appraisal techniques with limitations. 5.0
5. a) State the importance of evaluating the marketing system. 2.0  
b) State the Structure-Conduct-Performance model for marketing performance. 5.0
6. Write short notes on **any two** of the following: 3.5×2=7.0
  - a) Public private partnership;
  - b) Resource allocation in agribusiness productivity; and
  - c) Market promotion

**Section-B**

7. a) Distinguish between whole selling and retailing. Briefly discuss the approaches of marketing. 5.0  
b) How a trade channel disrupted? 2.0
8. a) Define marketing cost and margin. Write the reasons for higher marketing cost and margin. 4.0  
b) How will you measure marketing efficiency? 3.0
9. a) Define marketing research. Write the necessities for marketing research. 2.0  
b) Discuss the steps for marketing research with limitations. 5.0
10. a) Define price and pricing. Why pricing is a crucial activities in marketing? Explain. 4.0  
b) How the retail traders settle their commodity price in contrast of Bangladesh. 3.0
11. a) Give definition of farm gate prices, whole sale price, and retail price. 3.0  
b) State the problems of fish marketing (from the view point of management in rural bazaar and urban markets). 4.0
12. Write short notes on **any two** of the followings: 3.5×2=7.0
  - a) Co-operative marketing system;
  - b) Marketing mix;
  - c) Small and Marginal Enterprise (SME)

**Chittagong Veterinary and Animal Sciences University, Chittagong**  
**Faculty of Fisheries**  
**Year -03, Semester-02, Final Examination; 2015**  
**Course No: FPT-302(T), Course Title: Fishery Products Technology (Theory)**  
**Full Marks: 70; Time: 3 hours**

*Answer any 05 (FIVE) questions from each section. The figures in the right margin indicate full marks.*

**Section A**

1. a) Define canning. What are the advantages of canning over other preservation methods? 2.0  
b) Write short notes on i) TDT curve ii) 12 D concept. 3.0  
c) Why ~~brown~~<sup>blue</sup> discoloration appeared in canned product? 1.0  
d) Write down 5 important canned products available in the market. 1.0
2. a) Write down some traditional fishery products of Bangladesh. 1.0  
b) What is isinglass? Explain production of isinglass. 3.0  
c) Write down scientific and technological development of fishery products. 3.0
3. a) What do you mean by smoking? 1.0  
b) Write down the quality problems of smoked products. 3.0  
c) Is it possible to improve conventional smoking process? Justify your answer. 3.0
4. a) List out commercially important seaweeds available in Bangladesh. 2.5  
b) Discuss briefly the methods of Agar production from seaweed with schematic flow diagram. 3.0  
c) Which area of Bangladesh do you think suitable for the production of seaweeds? 1.5
5. a) Define fermentation. 1.0  
b) Discuss about the preparation of 'Shidhal' in Bangladesh. 3.0  
c) Briefly describe the preparation of fish sauce. 3.0
6. a) Mention the factors affecting uptake rate of salt in salted products. 1.5  
b) How impurities of salt affect the quality of salted products? 1.5  
c) Write about spoilage of salted fish with proper control measures. 4.0
7. a) Differentiate between drying and dehydration. 2.0  
b) How gel forming ability influence the quality of surimi? 2.0  
c) Write down the production methods of dried shark fin rays. 3.0

**Section B**

8. a) Give a flowchart of shrimp supply chain in the processing industry. 3.0  
b) Briefly discuss the present status of shrimp and fish processing industry in Bangladesh. 4.0
9. a) Define cold storage. What are the characteristics of an ideal cold storage? 2.0  
b) Describe different types of cold storage with advantages and disadvantages. 3.0  
c) Write a short note on BFFEA. 2.0
10. a) What is FPC? Mention its uses. 2.0  
b) Write down the production method of FPC from trash fish. 3.0  
c) Write a short note on fish protein hydrolysates. 2.0
11. a) Why fish insulin is better than cattle insulin? 2.0  
b) Discuss the preparation of fish oil with schematic diagram. 3.0  
c) What is fish silage? Draw a flow diagram of fish silage production from fish offal. 2.0
12. a) Mention scientific names of five commercially important marine fish species for producing dried fishery products. 1.5  
b) Write down the procedure of traditional dried fishery products. 2.5  
c) Describe the scientific and technological problems associated with fish drying. 3.0
13. a) Define surimi with advantages and disadvantages. 2.0  
b) What are the selection criteria of raw materials for surimi? 1.5  
c) What do you mean by Rapid Alert System for Fish and Feed (RASFF)? 1.5  
d) Mention 10 value added shrimp products of Bangladesh. 2.0
14. a) What are the benefits of seaweeds? 2.0  
b) Write down the biochemical and technological problems associated with frozen products. 3.0  
c) Write a short note on Carrageenan. 2.0

**Chattogram Veterinary and Animal Sciences University, Chattogram**

**Faculty of Fisheries**

B. Sc. Fisheries (Hons.) Year-3, Semester-2, Final Examination' 2019

Course No: **SFD-302 (T)**, Course Title: **Shellfish Diseases (Theory) (Old curriculum)**

Total Marks: 70, Time: 3 hours

Answer any **05 (five)** questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.

**Section-A**

1. a) What are the general health indicators of shellfishes?  
b) Mention the distinct indicators to determine the disease state of shellfishes in aquaculture of Bangladesh.
2. a) Why environmental factors are so crucial for shrimp aquaculture? 3  
b) Discuss the present status of shellfish aquaculture in Bangladesh. 4
3. a) Explain the importance of health management in shrimp aquaculture. 5  
b) How you will prevent dietary diseases in prawn? 2
4. a) Name important infectious agents in shellfish farming. 2  
b) Briefly describe WSS with its causative agent, clinical signs, preventive and control measures. 5
5. a) What do you know about crab culture in Bangladesh? 2  
b) Discuss two important diseases of crab. 5
6. a) What do you know about the farming of lobster, crabs and crayfish? 2  
b) Discuss major diseases of lobster and crayfish. 5
7. Write short notes on any **02 (two)** of the following: 3.5 X 2 = 7  
a) Oyster disease, b) Withdrawal period and c) YHD.

**Section B**

8. a) Name major environmental problems in shrimp farming. 2  
b) Discuss dietary health problems of shrimp with their control measures. 5
9. a) Define chemotherapy and chemotherapeutic. 2  
b) Enumerate the chemotherapeutics used in shellfish aquaculture with their mode of action. 5
10. a) Differentiate between protozoan and metazoan diseases in shellfish. 2  
b) Describe common protozoan parasitic diseases of crustaceans with their clinical signs, distribution, and host range and control measures. 5
11. a) Mention the importance of mollusc farming in Bangladesh. 2  
b) Briefly discuss major diseases of mollusc. 5
12. a) Why the outbreak of fungal diseases is occurred in the shellfish farms? 2  
b) Describe fungal diseases of crustaceans with special emphasis on their mitigation measures. 5
13. a) What do you know about diseases of clam? 4  
b) Discuss the treatment methods of these diseases. 3
14. Write short notes on any **02 (two)** of the following: 3.5 X 2 = 7  
a) Disease producing factors, b) Epizootiology and c) Metazoan infection in shrimp.



**Chattogram Veterinary and Animal Sciences University, Chattogram**  
**Faculty of Fisheries**

B. Sc. Fisheries (Hons.) Year -03 Semester- 02, Final Examination' 2019

Course No: **ABC 302 (T)**, Course Title: **Aquatic Biodiversity and Conservation (Theory)**

Total Marks: 70, Time: 3 hours

Answer any **05 (five)** questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.

**Section-A**

1. a) What do you mean by biodiversity? 1  
b) How can you differentiate among species, ecosystem and genetic biodiversity? 3  
c) Write down the economic and ecological importance of aquatic biodiversity. 3
2. a) What do you mean by "IUCN Red-list"? 1  
b) Specify the goals of Red-list program. 2  
c) What are the categories of IUCN Red-list? 4
3. a) How can biodiversity conservation help with climate change adaptations? 3  
b) How can we minimize the scale and impact of climate change on coastal and marine biodiversity? 4
4. a) What is SIS? 1  
b) What are the on-going threats in the natural habitats of SIS? 3  
c) Explicate your suggestions to overcome those. 3
5. a) Why *ex-situ* conservation is called long-term conservation? –Discuss. 2  
b) Describe different *in-situ* ways of fisheries conservation. 5
6. a) What stands for FFS? Write its importance in the context of aquatic conservation. 2  
b) Briefly summarize the aquatic biodiversity of *Tanguar Haor* along with their threats and recommendation. 5
7. a) Write a note on - 'success of Bangladesh over the dispute of delimitation of maritime boundary.' 3  
b) How exploration of 'Blue-economy' can be helpful in achieving the SDG- 'Life below water' in the context of Bangladesh? -Explain 4

**Section B**

8. a) What do you mean by ecotourism? 1  
b) Enlist the ways of habitat alteration and loss due to human activities. 3  
c) Describe the FAO Code of Conduct for Responsible Fisheries. 3
9. a) Describe the ecological principles of aquatic biodiversity conservation. 3  
b) Describe the UNESCO World Heritage Convention (WHC) in brief. 4
10. a) What do you know about the protected areas? Describe their types with examples. 4  
b) Illustrate the notified protected areas of Bangladesh on a map. 3
11. a) What do you mean by Ecologically Critical Areas (ECAs)? 1  
b) Why 'swatch of no ground' has been declared as MPA? 2  
c) Briefly describe the aquatic biodiversity of *Sundarbans* mangrove forest. 4
12. a) What is conservation aquaculture? 1  
b) What do you know about live gene banking as a conservation tool? 2  
c) "Exotic fishes are effective means of utilizing vacant niches"- To what extent you agree or disagree with this statement? 4
13. a) Why legal framework of biodiversity conservation should be in line with fishers' interest? 3  
b) "Establishment of fish sanctuaries is the best conservation tool in the context of Bangladesh."- justify the statement. 4
14. a) Which is the first international agreement for globe's biodiversity conservation? Mention its goals. 3  
b) What are your recommendations for convenient imposition of CBD in Bangladesh? 4

**Chattogram Veterinary and Animal Sciences University, Chattogram**  
**Faculty of Fisheries**

B. Sc. Fisheries (Hons.) Year-3, Semester-2, Final Examination' 2019  
Course No: **FPH-302 (T)**, Course Title: **Fish Pharmacology (Theory)**

Total Marks: 70, Time: 3 hours

Answer any 05 (five) questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.

**Section-A**

1. a) Define fish pharmacology. What are the objectives of fish pharmacology? 3  
b) Discuss the scope and prospects of pharmacology in aquaculture. 4
2. a) Define pharmacodynamics and pharmacokinetics. What do you know about the drug metabolism in fish? 5  
b) Enumerate the main actions of drugs. 2
3. a) What do you mean by dose response and withdrawal period? 2  
b) Which precaution should be taken during the application of aquadrugs? 3
4. a) 'Some pathogenic microorganisms are susceptible to disinfectants' - explain. 4  
b) Describe some disinfectants applicable to aquaculture with their mode of action. 3
5. a) Distinguish between agonist and antagonist. 4  
b) What are the antibacterial agents of fish? List down the dosages of some FDA recommended antibacterials in fish. 2
6. a) Describe some breeding inducing and sex control agents with their doses and applications in the aquaculture of Bangladesh. 5  
b) Explain the toxicological perspectives of aqua-drugs on the osmoregulation of freshwater fish. 4
7. Write short notes on any 02 (two) of the following: 3.5 X 2 = 7  
a) Safety of aquaculture medicines, b) Withdrawal period and c) Drug resistance.

**Section B**

8. a) Categorize the criteria for the selection of routes for drug administration. 2  
b) Illustrate the drug administration process in fish. 5
9. a) Describe the use of breeding including drugs in aquaculture. 6  
b) Write down the impact of hormone in induced brood fish. 1
10. a) What are the rules for the best practice of fish anaesthesia? 3  
b) Discuss about anaesthetics usage in different fish species. 4
11. a) Explain aquaculture as a source of antibiotic resistance in human pathogens. 3  
b) What are the possible effects of aquadrugs on fish health? 4
12. a) Describe standard methods for disinfecting wastewater. 2  
b) What are the routine disinfection procedures in aquaculture? 5
13. a) How is drug approved before using in the field of aquaculture? 3  
b) Discuss how you can reduce the adverse effects of drugs. 4
14. Write short notes on any 02 (two) of the following: 3.5 X 2 = 7  
a) Drug laws, b) Possible effects of aqua-drugs on environment and c) Immunostimulants in aquaculture.

# Chattogram Veterinary and Animal Sciences University, Chattogram

## Faculty of Fisheries

B. Sc. Fisheries (Hons.) Year -03 Semester- 02, Final Examination' 2019

Course No: CCF 302 (T), Course Title: **Climate Change and Fisheries (Theory)**

Total Marks: 70, Time: 3 hours

Answer any **05 (five)** questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.

### Section-A

1. a) What is climate change? 2  
b) What are the causes of the climate change? 3  
c) How is Bangladesh vulnerable to climate change? 2
2. a) How does global warming affect the ocean? 4  
b) Why is climate change a threat to the coral reef ecosystem? 3
3. a) What is primary production? 2  
b) How climate change is altering the rate and distribution of primary production in the world's oceans? 5
4. a) What does ODS stands for? Point out the some uses of it. 2  
b) Mention the purpose of 'Montreal Protocol'. 2  
c) Discuss the effectiveness of this protocol as a successful international treaty in conserving the climate of the globe. 3
5. a) Differentiate between artisanal fisheries and marine fisheries. 2  
b) How institutional policy can be helpful in meeting climatic challenge? 3  
c) Enlist the factors that control the 'vulnerability' of regions, groups and hot spots. 2
6. a) Mention the contribution of Fisheries Sector in terms of GDP, Agricultural Economics and Income Generation of People. 3  
b) Estimate aquaculture's potential contribution to climate change. 4
7. a) Define adaptation response in climate science. 2  
b) Enlist the factors responsible for successful adaptive capacity in Asia. 2  
c) Provide your possible suggestions to achieve such factors in favorable conditions. 3

### Section B

8. a) How does climate change impact on inland capture fisheries and related livelihoods in Bangladesh? 4  
b) What kind of adaptation strategies might help to reduce these impacts? 3
9. a) What are the threats to aquaculture from climate change? 2  
b) How climate change is increasing the risk to aquaculture posed by diseases? 2  
c) What are the challenges of predicting climate change impacts on culture fisheries? 3
10. a) Why aquaculture has been considered as an important "remedy" to successfully address the challenges to global food security arising from climate change? 5  
b) Does aquaculture contribute to climate change? 2
11. a) Define green-house effects. 2  
b) Why is water vapor not considered as a potential 'green-house gas'? 2  
c) If earth's ice melts and flows into the ocean, what would happen to the planet's rotation? 3
12. a) Enlist the hypotheses that relate fish recruitment in marine environment. 2  
b) Show schematically the Oscillating Control Hypothesis. 3  
c) Differentiate between 'food chain' and 'food web'. 2
13. a) Describe the potential positive impacts of climate change in fisheries sector. 4  
b) Illustrate a graph to show the contribution of aquaculture and capture fisheries to fish for human consumption over years. 3
14. Write short notes: (Any **two**) 3.5×2=7  
a) Physiological effects of climate change, b) Ecosystem Approach to Aquaculture,  
c) Fridays for Future, d) UNFCCC.

**Chattogram Veterinary and Animal Sciences University, Chattogram**  
**Faculty of Fisheries**  
 B. Sc. Fisheries (Hons.) Year -3 Semester-2, Final Examination' 2019  
 Course No: **MFM-302 (T)**, Course Title: **Marine Fisheries Management(Theory)**  
 Total Marks: 70, Time: 3 hours

*Answer any 5 (five) questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.*

**Section-A**

- |    |  |  |             |
|----|--|--|-------------|
| 1. | a)   | Differentiate between Marine Fisheries Management and Inland Fisheries Management.   | 2           |
|    | b)   | Diagrammatically represent the function and responsibilities of a fisheries management authority.  | 2           |
|    | c)   | Suppose you are studying Marine Fisheries Management at B. Sc. Fisheries (Hons.) level. So what will be your field of work after the graduation? | 3           |
| 2. | a)   | Differentiate between crafts and gears.  | 2           |
|    | b)   | Classify the trawlers with their target species.   | 2           |
|    | c)   | Explain the role of long line fishing for sustainable fisheries management.  | 3           |
| 3. | a)   | Summarize the principles of EBFM.  | 3           |
|    | b)   | Describe the tools of EBFM used for fisheries management.  | 4           |
| 4. | a)   | Sketch the recruit type sea ranching program.  | 2           |
|    | b)   | Why IUU are major threats in world marine fisheries management?  | 2           |
|    | c)   | How closed season are implemented for managing the marine fisheries sector?  | 3           |
| 5. | a)   | Mention the name and location of major fishing grounds of the Bay of Bengal (BoB).   | 2           |
|    | b)   | What do you know about the hydro-biological features of major fishing grounds of BoB?  | 5           |
| 6. | a)   | What is meant by artisanal fisheries?  | 2           |
|    | b)   | Write the name of different gears used in artisanal fishing in the Bay of Bengal.  | 3           |
|    | c)   | What do you know about the livelihood of artisanal fishermen of our country?   | 2           |
| 7. | Write down short notes <b>any 2 (TWO)</b> on following:                                  |  | 3.5 X 2 = 7 |
|    | a) Mangrove Fisheries, b) Fishing Efficiency and c) Fishing in the international waters. |  |             |

**Section B**

- |     |  |   |             |
|-----|--|---|-------------|
| 8.  | a)   | Define Fisheries Management.  | 2           |
|     | b)   | Write about the purpose and significance of fisheries management.                         | 3           |
|     | c)   | What are the major limitations in the management of our marine fisheries resources?       | 2           |
| 9.  | a)   | What are the common methods of fisheries management?                                      | 2           |
|     | b)   | What do you know about the input and output control measures in fishery management?       | 3           |
|     | c)   | Give some examples of input and output control measures in fishery management.            | 2           |
| 10. | a)   | What do you understand by MSY and MEY in fisheries management?                            | 2           |
|     | b)   | Summarize the present trend of marine capture fisheries in Bangladesh.                    | 5           |
| 11. | a)   | Describe the term "Fishing Efficiency".   | 1           |
|     | b)   | Why understanding the life cycle Hilsha fish is important for its management?             | 2           |
|     | c)   | Develop a management framework for the MFM of Bangladesh.                                 | 4           |
| 12. | a)   | What is LFDA?   | 1           |
|     | b)   | Explain gear selectivity.   | 2           |
|     | c)   | Assemble the major parameters used in gear selectivity.                                   | 4           |
| 13. | a)   | Define CCRF with its nature and scope.  | 2           |
|     | b)   | How MFTS generate the management actions for "Marine Fisheries Rules 1983" in Bangladesh. | 5           |
| 14. | Write down short notes <b>any 2 (TWO)</b> on following:  |   | 3.5 X 2 = 7 |
|     | a) MSY and MEY, b) Length Frequency Analysis and c) Community Based Fisheries Management (CBFM). |   |             |