

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

B.Sc. Fisheries (Hons.) Year-01, Semester-01(January- June) Final Examination' 2022

Course Code: **0831FRS101T**, Course Title: **Fisheries Resources (Theory)**

Full marks: 70; Time: 3 hours

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

**Section-A**

1. a) Define fisheries resources. 2  
b) Describe the different types of fisheries resources in Bangladesh. 2  
c) How can you utilize your knowledge on fisheries resources in the development of fisheries sector in Bangladesh? 3
2. a) Write down about "oxbow lakes". What are the major oxbow lakes areas in Bangladesh? 2  
b) What do you mean by the term "haor"? Enlist at least five major haors in Bangladesh with their location. 2  
c) Briefly discuss the fisheries resources in Kaptai lake. 3
3. a) Differentiate between exotic and invasive species. 2  
b) "SIS has high nutritional value" Explain this statement. 2  
c) "Exotic species act as a tool for biological control"- Explain this statement. 3
4. a) Define the term "fisheries cooperative". 2  
b) Write down the present status of GOs and NGOs involvement in fisheries sector in Bangladesh. 5
5. a) What is the single largest fishery in Bangladesh? 2  
b) Why are hilsa declared as GI product for Bangladesh? 2  
c) Describe the migration behavior of hilsa. 3
6. a) What do you know about sucker mouth catfish? Why is this fish a major concern for Bangladeshi aquatic environments? 4  
b) Write down the management strategies of sucker mouth catfish in Bangladesh waters. 3
7. a) Why Halda is called a native breeding ground for IMCs? 3  
b) How will you restore the natural breeding grounds of IMCs of the Halda River? 4

**Section B**

8. a) "Seaweed culture can boost the blue economy of Bangladesh" Explain. 3  
b) Write down the scope of bivalve culture in Bangladesh. 4
9. a) Define "gher". 2  
b) Enlist six commercially important shrimp and prawn species in Bangladesh with their common name and scientific name. 2  
c) What is PL? "The collection of PL from coastal waters is prohibited"-Justify the statement. 3
10. a) "Recreation can build confidence"- explain this statement. 2  
b) Draw and discuss the major river system of Bangladesh. 5
11. a) What do mean by non-piscine organisms? 2  
b) List 5 commercially important mollusc species in Bangladesh with their scientific name and common name. 2  
c) Describe the fisheries activities of Proshika. 3
12. a) Define Law, Act and Ordinance. 2  
b) Describe the contribution of the Hilsa fishery to the economy of Bangladesh. 2  
c) Mention some factors responsible for declining biodiversity in Tanguar haor. 3
13. a) Write down the importance of artificial fish seed production. 3  
b) What are the existing problems in artificial fish seed production and how can you mitigate those problems? 4
14. Write down the short note on **any two** of the following : 3.5 × 2 = 7  
i) Seaweeds; ii) Recreational Fisheries; iii) BFDC; iv) National Fish Policy.

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

B. Sc. Fisheries (Hons.) Year -01, Semester-01, Final Examination' 2022

Course No: **0831FZO101T**, Course Title: **Fisheries Zoology (Theory)**

Total Marks: 70      Time: 3 hours

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

**Section-A**

1. a) What do you understand by zoology, fisheries and fisheries zoology? 2  
b) Differentiate between the Kingdom Monera and Protista. 2  
c) How this course will be helpful for the development of skilled fisheries graduates? 3
2. a) Differentiate between the following terms: taxonomy vs. systematics, and taxon vs. category. 4  
b) Write down the prerequisite and rules of binomial nomenclature. 3
3. a) Explain the following terms: heterotrophs, cyst, pseudopods and kappa particles. 2  
b) Enlist the key characteristics of the phylum Protozoa. 2  
c) Briefly describe the sexual reproduction mechanisms in *Paramecium*. 3
4. a) Enumerate the economic importance of Crustaceans. 2  
b) Describe the life cycle of *Penaeus monodon* with diagram. 5
5. a) What do you mean by gastropods, cephalopods, and scaphopods? 2  
b) Explain the following terms: mantle, crop, radula and pneumostome. 2  
c) How the animals of the molluscan family contribute in fisheries and aquaculture? 3
6. a) What are the advancements of Chordates over other phyla? 3  
b) Write down the general characters of the class Aves. 2  
c) Differentiate between Pisces and Tetrapod. 2
7. Write short note on **any two (02)** of the following: 3.5 × 2 = 7  
a) Taxonomic hierarchy, b) Polymorphism in Cnidaria, c) Mussel and d) Ascariasis.

**Section-B**

8. a) What do you mean by classification, ICZN and ICBN? 2  
b) Differentiate between binomial and trinomial nomenclature of animals. 2  
c) Enlist the taxonomic characters found in fishes. 3
9. a) Sponges are plant or animals? Justify your answer. 2  
b) Draw and label a choanocyte. 2  
c) What do you know about the body forms of Poriferans? 3
10. a) What do you know about the origin of names of the phylum Annelida? 2  
b) Point out five key identifying characters of Annelids. 3  
c) Draw and label the life cycle of earthworm. 2
11. a) What are the reasons for the phylum Arthropods being the largest phylum in the animal kingdom? 2  
b) What do you know about book lung and green gland? 2  
c) Describe the different ways Arthropods transmit diseases. 3
12. a) Write down the identifying characters of phylum Echinodermata. 3  
b) What do you know about madreporite in Echinoderms? 2  
c) Classify the phylum Echinodermata up to class with example. 2
13. a) Mention the excretory organs of the following phylum: Platyhelminthes, Annelida, Arthropoda, Mollusca and Chordata. 2  
b) Briefly describe the life cycle of a Platyhelminthes. 5
14. a) What are the fundamental characters of Chordata? 2  
b) "All vertebrates are chordates but all chordates are not vertebrates"-Explain. 2  
c) Differentiate between Urochordata and Cephalochordate. 3

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

B. Sc. Fisheries (Hons.) Year-01, Semester-01, Final Examination' 2022  
Course Title: **Estuarine and Marine Ecology**; Course Code: **083EME101T**  
Full 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 ecology and ecosystem. 2  
b) What are the basic components of ecosystem and how they interact in marine ecosystem? 2  
c) Describe estuary formation processes with appropriate example of each one. 3
2. a) Divide the estuarine habitats based on tidal influence. 3  
b) Classify estuary on the basis of vertical structure of salinity with proper example. 4
3. a) Illustrate marine habitats with a schematic diagram. 3  
b) Point out the major adaptive features of marine fishes that help them to survive. 4
4. a) Interpret 'Darwin's Subsidence Theory' on the origin of coral reef formation. 4  
b) "Coral reef ecosystems are very sensitive to the environmental changes"- discuss the statement with a proper explanation. 3
5. a) Show the structure of an ideal aquatic food web with flow diagram. 3  
b) Show the energy transformation process through food web. 4
6. a) Classify earth surface zones on the basis of latitude circle with a diagram and indicate the differences in each zone. 3  
b) What is biogeochemical cycle? Discuss the Phosphorus cycle in marine areas. 4
7. Write short note on any 02 (two) of the following: (3.5x2)= 7  
a) Ecological niche; b) Population and community; and c) Ecological pyramids.

**Section B**

8. a) Interpret how the morphology of estuaries differs according to the major forcing factors. 3  
b) Classify estuary based on geomorphology with appropriate example. 4
9. a) Characterize the major features of estuaries. Assess how estuaries act as nutrient trap. 3  
b) Classify the estuarine communities depending on their zonation with illustration. 4
10. a) What do mean by nutrient cycling? Discuss the effects of coastal upwelling and downwelling. 3  
b) Outline nitrogen cycling processes in estuarine ecosystem. 4
11. a) Differentiate between- 4  
i) Habitat and niche; ii) Benthic and pelagic; iii) River and sea; and iv) Seamounts and trench.  
b) 'Deep sea fishes need special types of adaptations.' - Justify the statement with examples 3
12. a) Differentiate soft coral from hard coral. How do zooxanthellae act as foundation for coral reefs? 4  
b) 'Coral reefs act as sanctuaries for ornamental fishes'. Justify through drawing a food web. 3
13. a) Discuss the effects of ocean acidification on marine environment and communities. 3  
b) Explain the differences among tropical, temperate and polar communities with their adaptations. 4
14. Write short note on any 02 (two) of the following: (3.5x2)= 7  
a) Estuarine vs marine ecosystem; b) Delta vs Fan; and c) Saltmarsh.

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

**B. Sc. Fisheries (Hons.), Year-02, Semester-01 (January-June), Final Examination' 2022**  
**Course No.: 0831FTE-101(T), Course Title: Fishing Technology (Theory)**  
**Total Marks: 70, Time: 3 hours**

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

**Section-A**

1. a) Write down the principles of fishing. 3  
b) Briefly discuss the relationship of "Fishing Technology" with "Fish Quality" and "Fisheries Management". 3  
c) What do you mean by UNCLOS? 1
2. a) Differentiate between ESNB and MSNB. Write down the operation of ESNB in Bangladesh. 3  
b) Do you think that knotless net is suitable for fishing in bottom water? Cite reasons in favor of your answer. 2  
c) Schematically show TED in a commercially important bottom trawl net. 2
3. a) Enlist common name and scientific name of commercial important pelagic and demersal fish (3 from each) available in the Bay of Bengal. 3  
b) Write down the names, their depth, location and major fish species available in the four commercial fishing grounds in Bangladesh EEZ. 4
4. a) Describe briefly the methods of coal-tar preservation of fishing net used in sea water. 3  
b) What is the principle of tannin preservation? 2  
c) What do you know about fishing without gears? 2
5. a) Why nylon is considered as an ideal fish net fibre? - Explain. 2  
b) Schematically show the denotation for 400 Tex S 250 × 5 S 100 × 3 S 50. 2  
c) Discuss briefly the construction of fishing twine. 3
6. a) How zone of divergence and convergence helps to locate fishing grounds? 2  
b) Illustrate the working principle of GMDSS. 3  
c) Differentiate between fish location and fish detection. 2
7. a) When a foreign fishing vessel can enter in Bangladesh water without license? 2  
b) Write short note on "Marine Fisheries Act, 2020". 5

**Section-B**

8. a) Compare between trammel net and beach seine net operated in the Bay of Bengal. 4  
b) Write down the principle of electrofishing. What precautions are required during electrofishing? 3
9. a) Mention the responses of fish towards different kinds of stimuli. 3  
b) What do you mean by ghost fishing? What are its implications upon marine environment? Suggest its mitigating measures. 4
10. a) Draw and label different parts of a trawl net. 3  
b) Classify fishing gears according to the international classification and give example from each category. 4
11. a) Classify fibre. Write down the trade name and chemical name of 5 (five) fibres. 3  
b) Write down the advantages and disadvantages of fishing twines made up of 2 strands, 3 strands and 4 strands. 4
12. a) Write briefly operation procedure of EPIRB. 3  
b) Write down any two methods of fishing used in aquaculture ponds in Bangladesh. 4
13. a) Distinguish between "Fyke net" and "Aerial trap". 3  
b) Classify trawling into different categories. What species of fishes are caught by finfish trawler? 2  
c) Draw the block diagram of an echo-sounder. 2
14. Write down short notes any 2 (TWO) of the following: 3.5 x 2 = 7  
a) Ichthyotoxic plant; b) RV Meen Shandhani; and c) FAO-CCRF.

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

B.Sc. Fisheries (Hons.) Year-01, Semester-01 (January- June) Final Examination' 2022

Course Code: **0831FWE101T**, Course Title: **Freshwater Ecology(Theory)**

Full marks: 70; Time: 3 hours

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

**Section-A**

- |   |   |
|---|---|
| 1. a) Define freshwater ecology.  | 1 |
| b) Differentiate between autecology and synecology.                               | 2 |
| c) Write down the scope of ecology.   | 4 |
| 2. a) Define ecosystem.   | 1 |
| b) Differentiate between food chain and food web.                                 | 2 |
| c) What do you know about the structure and function of an ecosystem?             | 4 |
| 3. a) Differentiate between lentic and lotic habitats.                            | 3 |
| b) How do you differentiate among individuals, species, population and community? | 4 |
| 4. a) Define limiting factor.   | 1 |
| b) Classify limiting factors of freshwater with examples.                         | 2 |
| c) State "Shelford's Law of tolerance" with its subsidiary principles.            | 4 |
| 5. a) Define habitat and niche with examples.                                     | 2 |
| b) Briefly discuss types of population interactions with example.                 | 5 |
| 6. a) Write down the zonation of the lotic system.                                | 3 |
| b) Explain the thermal stratification of a lake.                                  | 4 |
| 7. a) What are the ecological ages of population?                                 | 1 |
| b) Differentiate between 'J'-shaped and 'S'-shaped growth forms of population.    | 2 |
| c) Explain the mechanism of ecological succession in a community.                 | 4 |

**Section B**

- |   |             |
|---|-------------|
| 8. a) Show energy flow model in an ecosystem.   | 2           |
| b) Classify ecological pyramids with graphic representations.                                 | 5           |
| 9. a) Discuss the way of maintaining a healthy freshwater ecosystem.                          | 3           |
| b) How do freshwater lotic organisms adapt to prevailing conditions?                          | 4           |
| 10. a) List down the characteristics and factors of a river ecosystem.                        | 2           |
| b) Explain ecosystem components by giving an example of a pond.                               | 5           |
| 11. a) Define rapid zone and pool zone with diagram.  | 3           |
| b) Classify freshwater organisms based on their life form.                                    | 4           |
| 12. a) Differentiate between 'Stenohaline' and 'Euryhaline'.                                  | 2           |
| b) Compare Liebig's law of the minimum with Shelford's law of tolerance.                      | 5           |
| 13. a) How can you apply ecological studies in environmental protection?                      | 4           |
| b) What are the advantages of aggregation in a population?                                    | 3           |
| 14. Write down the short note on any two of the following                                     | 3.5 × 2 = 7 |
| i) Homeostasis and ecological balance; ii) Allee's principle and ii) Ecotone and edge effect. |             |

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

**Faculty of Fisheries**

B. Sc. Fisheries (Hons.) Year-01, Semester-01, Final Examination' 2022

Course No: **BCH-101 (T)**, Course Title: **Biochemistry (Theory)**

Total Marks: 70, Time: 3 hours

Answer any **3 (three)** questions from each section, where questions 1 and 5 are compulsory. Figures in the right margin indicate full mark. Use separate answer script for each section.

**Section-A**

1. a) Define biochemistry. Write down the scope of biochemistry. 4  
b) What is the functional unit of life? Draw and label the different parts and organelles of it. 4  
c) Define biomolecules. Enumerate the biomolecules found in a eukaryotic cell. 3
2. a) Show the carbohydrates are not only responsible for supplying energy in a biological system, but also for providing support in structural development and genetic coordination. 4  
b) How does liver degrade glycogen? In what way new glycogen molecule form? 4  
c) What is the relationship between ATP synthesis and glycolysis? What are the steps in glycolysis chain. 4
3. a) Define lipids. Classify them with appropriate example. Write down their functions. 4  
b) Write down the structure of the followings with their physiological importance: i) Lecithin ii) Sphingomyelin iii) Plasmalogen and iv) GM<sub>3</sub> 4  
c) "Plant fats are preferred over animal fats"- Show the reason. How does lipid increase the risk of cardiovascular disease? 4
4. a) Write short notes on any two of the followings: i) Epimers ii) Anomers iii) Deoxy sugar and iv) Reducing sugar. 4  
b) Discuss the structure and functions of two biochemically important disaccharides. 4  
c) Match the following: 4  
Adenine, Glyceraldehyde, Ribose, Glycine  
Vs  
Pentose, Triose, Amino acid and Nitrogen base

**Section B**

5. a) Define protein. Classify proteins with suitable examples. 5  
b) Write down the biological significance of proteins 3  
c) Define of the following terms: 2  
i) Denaturation ii) Isoelectric point  
d) Draw the structure of the following peptide with its corresponding code: E-C-G 1
6. a) Define nucleic acids. Write down the functions and classification of nucleic acids. 5  
b) Define the following terms: 2  
i) Translation ii) Central dogma iii) Gene iv) Transcriptome  
c) Define enzymes. Enumerate the factors affecting enzyme activity 3  
d) Define rancidity. Enumerate the factors affecting rancidity 2
7. a) Why do cells require free energy? What is the role of ATPase in energy transduction? 3  
b) Define glycolysis? Write down the irreversible steps of glycolysis. 3  
c) Differentiate between  $\beta$ -oxidation and fatty acid biosynthesis. 3  
d) Define hormone. Enumerate the hormone produce from posterior pituitary. 3
8. Write short notes on **any four** of the following: 3x4=12  
a) Optical properties of carbohydrate b) Oligomeric protein c) Watson-Crick model DNA  
d) Roles of vitamins as coenzymes d) Vander Waals interactions f) Lipid profiling

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

B. Sc. Fisheries (Hons.) Year -01 Semester-01, Final Examination' 2022

Course No: **0613CSC-01(T)**, Course Title: **Computer Science (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) Define computer system. Briefly describe the functionalities of essential hardware components of a computer system. 1+3=4  
b) What are the advances of computer system systems in terms of “automation” and “accuracy”? 1  
c) Write down the characteristics of the following types of computers (any two): 2  
    i) Workstation ii) Network Server and iii) Supercomputer
2. a) Identify the reasons of optical disk drives having larger access times compared to magnetic disk drives. 4  
b) What is a WWW browser? What types of navigation facilities do modern web browsers support to help users save time while surfing the internet. 3
3. a) What do you mean by data and information? Briefly explain the four phases of the information processing cycle. 1+4 = 5  
b) Why binary system is used in digital computer? 2
4. a) Control Unit and Arithmetic Logic Unit are the two main components of CPU of a computer system. Describe the primary functions of each of these components. 4  
b) Differentiate between the characteristics of primary and secondary storage of a computer system. 3
5. a) What do you mean by computer generation? Describe the characteristics of fourth and fifth generation computers. 1+3=4  
b) Write down the significant differences between system software and application software. 3
6. a) What is operating system? Write down some major functionalities of an operating system. 3  
b) Briefly explain how MODEM work as modulator and demodulator with necessary diagram. 4
7. a) What do you mean by DBMS? Give some examples where DBMS is used. 2  
b) Briefly explain the features of the following types of operating system: 2.5x2=5  
    i) Real time operating system ii) Multi user and multitasking operating system.

**Section B**

8. a) Define positional and non-positional numbers systems with example. 1  
b) Convert the following by showing your conversion steps clearly: 3  
    i)  $5B4.54_{16} = ?_8$   
    ii)  $7251.12_{10} = ?_2$   
    iii)  $526.7_8 = ?_{10}$   
c) Perform the following binary operations 3  
    i)  $1101.1101_2 - 1010.01_2$   
    ii)  $1100110_2 / 11_2$

9. a) What do you mean by programming language? Write down the differences between high level and low level language. 1+4=5
- b) Define computer network. List some benefits of computer network. 2
10. a) Define the following type of text codes: 3
- i) ASCII ii) Unicode and iii) EBCDIC
- b) What is cache memory? How it reduces the mismatch of processor and main memory speed? 4
11. a) What is use interface? Briefly describe the characteristics of graphical and user interface (GUI). 4
- b) Briefly describe the functionalities of optical storage device. 3
12. a) What is Unicode? How did Unicode help to overcome the difficulties of exchanging text file internationally? 3
- b) Identify few significant challenges of wireless communication as proposed to wired communication. 2
- c) What is firmware and what is its importance to a computer system architect? 2
13. a) Suppose you set up a network to connect all digital devices of your home. What is the name of your designed network? Write down the properties of your designed network. 5
- b) Draw the logic gate and truth table for AND and OR gate of three variables x, y, z. 2
14. a) Briefly describe the reasons why storing a large software consisting of million lines of program codes in a single source code file? How a linker helps to solve this problem? 3
- b) Explain why I/O devices are very slow when compared to the speed of primary storage devices and CPU? 2
- c) How does a flowchart help a programmer in program development? 2