Answer __any05 (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 aquatic ecology. — 1
   b) Write down the importance of studying Freshwater Ecology. — 2
   c) Divide ecology based on its level of organization. — 4

2. a) What do you mean by ecological pyramids? — 2
   b) Briefly describe different types of ecological pyramids. — 3
   c) Differentiate between food chain and food web. — 2

3. a) Define trophic level. — 1
   b) Differentiate between habitat and ecological niche. — 2
   c) Elaborate homeostasis in an ecosystem with example. — 4

4. a) Define ecosystem. — 2
   b) List the structural components and functions of an ecosystem. — 2
   c) "Pond is an ideal ecosystem"- explain the statement. — 3

5. a) Classify freshwater organisms based on their mode of life. — 2
   b) Sktech zonation of a freshwater ecosystem. — 5

6. a) Define limiting factor. — 2
   b) Briefly describe the Liebig's Law of Minimum. — 5

7. a) What is cohort? — 1
   b) Distinguish between dispersal and dispersion of a fish population. — 3
   c) Illustrate patterns of population dispersion. — 3

Section B

8. a) Define species with examples. — 2
   b) Why keystone species is important for an ecosystem? — 2
   c) Enlist characteristics of a climax community. — 3

9. a) Classify ecological succession with examples. — 3
   b) Briefly describe the mechanisms of ecological succession. — 4

10. a) Differentiate ecotone and edge effects. — 3
    b) Illustrate the thermal stratification of a lake. — 4

11. a) Show the energy flow model in an ecosystem. — 2
    b) What are the specialized adaptations of fast flowing river communities? — 5

12. a) Define biotic potential. — 2
    b) Differentiate between "J"-shaped and "S"-shaped growth forms of population. — 5

13. a) Define territoriality and isolation. — 2
    b) Compare density-dependent and density-independent factors of a population. — 5

14. Write down short notes on any 02 (TWO) of the following:
    i) Primary productivity; ii) Feeding habits; iii) Ecological pyramids; iv) Periphyton — 3.5x 2= 7

Chattogram Veterinary and Animal Sciences University, Chattogram
Faculty of Fisheries
B.Sc. Fisheries (Hons.) Year-01, Semester-01; Final Examination, 2023
Course Code: 0831FTE101T Course Title: Fishing Technology (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) Discuss the strategies for applying fishing principles to achieve sustainable fish production in Bangladesh.   3
    b) Write in brief the importance of studying "Fishing Technology" to manage artisanal fisheries of Bay of Bengal.   4

2. a) Describe briefly Tex, Denier, and English cotton count system.   3
    b) Explain the construction of fishing twine.   4

3. a) Is it possible that trammel net is made of only two walls instead of three? Cite reasons in favour of your answer.   2
    b) Write down the working principle of FAD.   2
    c) Discuss net preservation techniques using $CuSO_4$.   3

4. a) Draw and label different parts of bottom otter trawl net.   3
    b) Compare between floats and sinkers. What are the criteria for selection of floats and sinkers?   4

5. a) Describe the steps in designing a fishing net.   3
    b) Discuss briefly about fabrication of fishing net.   4

6. a) Define ghost fishing and suggest its mitigating measures.   2
    b) Write down the names, their depth, locations and major fish species available in the commercial fishing grounds in Bangladesh EEZ.   5

7. a) Briefly describe main features of FAO code of practice for responsible fishing.   4
    b) Enlist the prohibited fishing methods according to "Marine Fisheries Ordinance-1983."   3

Section B

8. a) Enlist common and scientific name of 6 (six) commercially important fishes of the Bay of Bengal.   3
    b) Draw the working principal of an echo-sounder.   4

9. a) Schematically show the denotation for 210 D S 200 × 2 S 240 × 3 Z 60 and 120 Tex/4/3.   4
    b) What is rotenone? Write down the mode of action of rotenone on fish.   3

10. a) Enlist the factors responsible to determine efficiency of fishing gears.   2
    b) What is knotless net? Do you think this type of net is suitable for bottom fishing? Cite reasons in favour of your answer.   3
    c) Discuss tannin preservation with its advantages and disadvantages.   2

11. a) Why navigation is important for industrial fishing?   2
    b) How zone of divergence and convergence helps to locate fishing grounds?   2
    c) Discuss working principle of Radar.   3

12. a) Diagrammatically show the operation of a beach seine net.   3
    b) Illustrate different parts of a fishing trawler.   4

13. a) Classify different types of trawling. What types of fishes are caught by a fin fish trawler?   4
    b) Briefly describe the main features of "East Bengal Protection and Conservation Act 1950."   3

14. a) Write down the post fishing activities to be followed on a board vessel for commercial fishing of the Bay of Bengal.   3
    b) Differentiate between ESBN and MSBN. Write down the operation of ESBN in Bangladesh.   4

Chattogram Veterinary and Animal Sciences University, Chattogram
Faculty of Fisheries
B. Sc. Fisheries (Hons.) Year -01, Semester-01, Final Examination' 2023
Course No: 083EME101 (T), Course Title: Estuarine and Marine Ecology (Theory)
Total Marks: 70, Time: 3 hours

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

Section A

1. a) Define an estuary. Draw the morphological features of an estuary.   1+2= 3
   b) Classify estuary based on geomorphology.   4

2. a) Draw and describe the different habitats of an estuarine environment.   4
   b) 'An estuary is a nutrient flux'- explain.   3

3. a) Illustrate marine bottom topography.   3
   b) Differentiate between pelagic and benthic habitat of ocean with salient features.   4

4. a) Write down your idea on the components of an aquatic ecosystem.   2
   b) Compare estuarine with marine ecosystem.   2
   c) Show the energy transformation process through food web in a marine ecosystem.   3

5. a) How does organic and inorganic matter transform in an estuary?   3
   b) Discuss nitrogen and carbon cycling in marine ecosystem.   4

6. a) Characterize earth surface zones on the basis of latitude circle with diagram.   3
   b) Describe the geographical distribution of tuna and hilsha fish.   4

7. Write short notes on **any 02 (two)** of the following: 3.5×2= 7
   a) Geological structure of earth;   b) Sand dune; and   c) Population ecology.

Section B

8. a) Differentiate between habitat and niche.   2
   b) Define stenohaline and euryhaline organisms.   2
   c) Mention the key physico-chemical factors of an estuary.   3

9. a) How salinity distribution of an estuary varies?   4
   b) An estuary is a nutrient trap- explain.   3

10. a) What is evolution? Describe the types of evolution with the examples from fish.   1+3= 4
    b) What is natural selection? What are Darwin's propositions on evolution?   1+2= 3

11. a) Explain the symbiotic relationship observed in coral.   2
    b) Briefly discuss the Darwin's subsidence theory.   3
    c) What is coral bleaching?   2

12. a) Classify marine pelagic and benthic zone.   4
    b) 'Estuarine fishes need special types of adaptation'-justify.   3

13. a) Discuss the types of adaptation process in marine life with figure.   3
    b) Give faunal characteristics of brackish and marine water ecosystem.   4

14. Write short notes on **any 02 (two)** of the following: 3.5×2= 7
    a) Estuarine salt balance;   b) Stenohaline vs euryhaline; and   c) Photosysnthesis.

Chattogram Veterinary and Animal Sciences University, Chattogram
Faculty of Fisheries
B.Sc. Fisheries (Hons.) Year-01, Semester-01; Final Examination, 2023
Course Code: 0831FRS101 (T), 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) What do you mean by the term "fisheries resources"? | 2
    b) Mention some physical and biological resources in aquatic ecosystems. | 2
    c) Discuss the importance of the fisheries resources of Bangladesh. | 3

2. a) Define creek. | 1
    b) Mention major features of Mangroves. | 2
    c) Differentiate among Haor, Baor, and Beel. | 4

3. a) Write down some significance of rivers in fisheries sector. | 2
    b) Draw and label the major river system of Bangladesh. | 5

4. a) Discuss the structural difference between seaweed and plants with an appropriate diagram. | 4
    b) Outline the economic importance of seaweed in Bangladesh. | 3

5. a) Define recreational fishery | 1
    b) Enlist some recreational fisheries resources in Bangladesh and in the world. | 2
    c) Suppose you have a large derelict pond in your upazila. How can you make that water body as recreational fishery resources? | 4

6. a) What do you mean by invasive species? | 1
    b) Enlist four exotic fish species with their common name, scientific name, and country of origin. | 2
    c) Discuss some advantages and disadvantages of introducing Nile tilapia and Thai pangas in Bangladesh. | 4

7. a) List the sanctuary of Hilsha fish in Bangladesh. | 2
    b) Illustrate the life cycle of Hilsha fish. | 5

Section B

8. a) 'Resources are very limited on the earth' -Explain. | 3
    b) Classify resources with examples. | 4

9. a) Define SIS. | 1
    b) Distinguish between exotic and invasive fish species with examples. | 3
    c) Sucker Mouth Catfish is an invasive species and threat to the native habitat of Bangladesh. Why? | 3

10. a) Distinguish among three species of Hilsha available in Bangladesh with a proper diagram. | 4
    b) 'Hilsha is a euryhaline and anadromous fish species' Justify this statement. | 3

11. a) What do you mean by IMCs? | 2
    b) Write down the natural breeding grounds of IMCs. | 2
    c) "The seed production of IMCs from natural waters is drastically declining"-what is your opinion about this statement? | 3

12. a) Describe the key features of a fisheries institution. | 4
    b) Enlist 5 GOs and NGOs involved in fisheries development in Bangladesh. | 3

13. a) Define non-piscine organisms. | 2
    b) Distinguish among shrimp, prawn, and crab. | 5

14. Write down short notes on any 02 (TWO) of the following:
    i)Lakes ; ii) NGOs; iii) BFRI; iv) Cooperatives | 3.5x 2= 07

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 animal, animal diversity and animal kingdom? 3
   b) Summarize the importance of studying Fisheries Zoology in context of fisheries. 4

2. a) What do you mean by contractile vacuole and food vacuole? 2
   b) Write down the difference between cilia and flagella. 2
   c) What do you understand by conjugation, autogamy and cytogamy in _Paramecium_? 3

3. a) Write down the ecological significance of jellyfish. 2
   b) Briefly explain the life cycle of jellyfish. 5

4. a) Explain the following terms: vermiform, metamerism, clitellum, and hermaphrodite. 4
   b) List down the economic significance of Annelids. 3

5. a) Draw, label and describe the trachea and Malpighian tubule of Arthropoda. 4
   b) What do you understand by cyclopropagative, cyclodevelopmental and transovarian transmission of disease? 3

6. a) Enlist the larval form of different groups of invertebrates. 2
   b) Mention the notable functions of mantle and radula. 2
   c) Summarize some intelligence behaviour of _Octopus_. 3

7. Write short note on **any 02 (two)** of the following: 3.5 × 2 =7
   a) Taeniasis, b) _Penaeus monodon_, c) Statocyst, and d) Water vascular system

Section-B

8. a) Point out the basic features for zoological nomenclature. 2
   b) What do you understand by law of priority? 2
   c) Classify animals on the basis of level of organization with example. 3

9. a) What do you understand by taxonomy and systematics? 2
   b) Enlist the physiological and molecular taxonomic characters. 2
   c) What are the main requirements for taxonomic descriptions? 3

10. a) Explain the following terms: porocyte, pinacocyte, choanocyte, and archaeocyte. 4
    b) How sponges reproduce asexually by forming gemmules? 3

11. a) What do you understand by roundworm, ringworm, and flatworm? 2
    b) What do you know about phasmid? 2
    c) Sketch and describe the life cycle of a Nematodes. 3

12. a) Differentiate between male and female mud crab. 2
    b) Discuss the economic significance of Crustacea in context of Bangladesh. 2
    c) Illustrates the life cycle of mud crab. 3

13. a) Draw and label the general morphology of Echinoderms. 2
    b) Enlist the classes of Echinoderms with example. 2
    c) What do you know about madreporite and pedicellariae? 3

14. a) How Vertebrates differs from Chordates? 2
    b) Classify Vertebrates with one example from each class. 2
    c) Point out the general characteristics of Amphibia. 3

MODERATED

Chattogram Veterinary and Animal Sciences University, Chattogram
Faculty of Fisheries
B. Sc. Fisheries (Hons.) Year-01 Semester-01, Final Examination, 2023
Course No: 0613CSC101T, 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 marks.*
Use separate answer script for each section. Splitting answer is strongly discouraged.
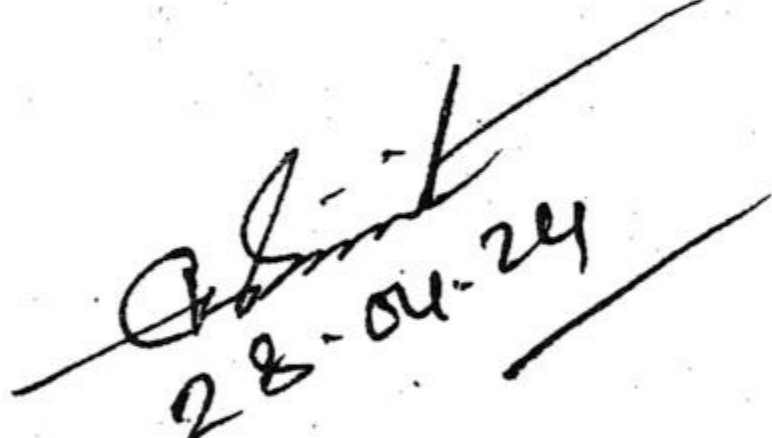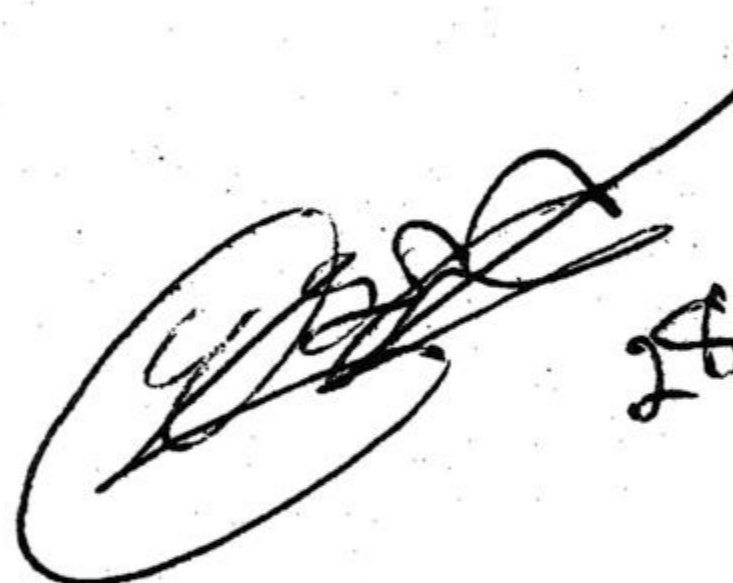
Section-A

1. a) Briefly discuss the basic organization of a computer system with a block diagram — 3
    b) List the fundamental electronic components of different generation of computers. — 3
    c) Find out the difference between data and information. — 1
2. a) What is virtual RAM? Which one is taken as an input in the computer system, data or information? Justify. — 3
    b) Write down the differences between volatile and non-volatile memories. — 4
3. a) Define software. Briefly explain system and application software with suitable examples. — 4
    b) Write down the significant differences between storage and memory. — 3
4. a) Define Central Processing Unit (CPU). List the two main components of the CPU and explain how they work together in a computer system. — 4
    b) Identify input and output devices from the following: — 3
    (*i*) Joystick; (*ii*) Mouse; (*iii*) Printer; (*iv*)Scanner; (*v*) Keyboard; (*vi*) OCR; (*vii*) Microphone; (*viii*) MICR; (*ix*) Plotter.
5. a) What is user interface? Briefly describe the characteristics of command line interface (CLI). — 5
    b) Discuss the four primary functions of an operating system. — 2
6. a) What is web browser? List some popular web browser. — 2
    b) Identify how Flash Memory technology combines the best features of RAM and ROM. — 5
7. a) What is Cache Memory? How does it reduce the mismatch of processor and main memory speed? — 4
    b) Write down the significant differences between single user-multi tasking operating system and multi user-multitasking operating system. — 3

Section-B

8. a) Convert the following numbers from the given base to the target base as indicated below: — 3
    (*i*) $(971.78125)_{10}$ to Hexadecimal
    (*ii*) $(61.12)_8$ to Decimal
    (*iii*) $(3d05.E)_{16}$ to Binary
    b) Perform the following binary operations: — 2
    (*i*) $(110011.001)_2 + (111101.111)_2$
    (*ii*) $(1101011101)_2 - (11011110)_2$
    c) What is the largest binary number that can be obtained with 16 bits? What is its Decimal equivalent? — 2
9. a) Define network topology. Write down the advantages and disadvantages of the following types of network topology with appropriate figure: — 4
    (*i*) Star topology (*ii*) Mesh topology
    b) Write down the differences between compiler, interpreter and assembler. — 3
10. a) Define the following type of text codes: (*i*) Extended ASCII; (*ii*) Unicode; (*iii*) EBCDIC. — 3
    b) What do you mean by data transmission? Briefly explain serial transmission and parallel transmission with block diagram. — 4
11. a) What is computer virus? How does a virus affect the computer performance? How can you secure your computer from virus attack? — 4
    b) Suppose a CRT monitor with resolution 640×480 is scanned 20 times by an electron gun within 1 second, then — 3
    (*i*) Find the total number of pixels on the screen.
    (*ii*) What will be the refresh rate of that monitor
12. a) Briefly explain how does the high-level language overcome the limitations of the machine language? — 3
    b) For logical inputs A and B and output Y, please construct truth tables for the following logic operations: (*i*) NOR and (*ii*) XOR — 4

13. a) What do you mean by Database Management System (DBMS)? Give some examples 3
where DBMS is used.

b) State protocol. Define the following protocols: (*i*) SMTP; (*ii*) FTP; (*iii*) HTTP; (*iv*) 4
TCP/IP.

14. a) Briefly explain the relationships among hardware, software and users. 4

b) Write down the characteristics of following types of computers: 3
(*i*) Workstation; (*ii*) Mini computer and (*iii*) Handheld computer.