

**Chattogram Veterinary and Animal Sciences University**  
**Department of Marine Bioresource Science**  
**MS in Marine Bioresource Science Final Examination Jul-Dec' 2021**  
**Course No: BOC-502 (T), Course Title: Biological Oceanography (Theory)**  
**Total Marks: 40, Time: 2 hours**

*Answer any 4 (four) questions. Illustrate your answer whenever necessary.*

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|----|----|---|-----|
| 1. | a) | Discuss about ballast water plankton.   | 3.0 |
|    | b) | The ultimate consequences of eutrophication effect co- occurring organisms and alter food web dynamics-Explain the statement. | 7.0 |
| 2. | a) | How you will clarify the productivity of mangroves?   | 4.0 |
|    | b) | Which factors mainly affect the coastal productivity?   | 6.0 |
| 3. | a) | Describe the importance of benthic biodiversity.  | 5.0 |
|    | b) | Many factors are known to influence the settlement and alteration of benthic communities- Explain the statement.              | 5.0 |
| 4. | a) | Differentiate between upwelling and downwelling.  | 3.0 |
|    | b) | Upwelling is one of the major contributing factors in marine fish production- Justify the statement.                          | 7.0 |
| 5. | a) | What is fishing tactics and fishery forecasting?  | 4.0 |
|    | b) | How you will detect a new fishing ground?   | 6.0 |
| 6. | a) | Differentiate between straddling stock and migratory fish stock.  | 5.0 |
|    | b) | Describe the world's major fishing grounds.   | 5.0 |

**Chattogram Veterinary and Animal Sciences University**  
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**Course No: MBT-502 (T), Course Title: Marine Biotechnology (Theory)**  
**Total Marks: 40, Time: 2 hours**

*Answer any 4 (four) questions. Figures in the right margin indicate the full mark.*

1. a) What do you mean by marine biotechnology? Discuss the various application of biotechnology in the field of marine biology. 5  
b) Discuss the extraction process of sodium alginates from the seaweed 5
2. a) Enlists the common seaweed species of Bangladesh by mentioning their utilization and bioactive compounds. 3  
b) What is carrageenan? Mention the application of carrageenan in the food industry 2  
c) Discuss the extraction procedure of carrageenan from seaweed 5
3. a) What do you mean by single-cell protein? What are the sources of single-cell protein? 3  
b) Discuss the production process of single-cell protein mentioning its advantage and disadvantages 5  
c) Mention the various application of single-cell protein 2
4. a) What are the common bioactive compounds derived from marine organisms? 3  
b) Discuss the generalized procedure of isolation of bioactive compounds from marine organisms. 7
5. a) Why biotechnological application is necessary for marine organisms? 2  
b) What is polyploidy? Discuss the procedure of the polyploidy induction process for marine fishes. 5  
c) Briefly discuss the process of cryopreservation for marine fish 3
6. a) What is transgenesis? Discuss the standard procedure of transgenesis for the marine organism. 6  
b) Discuss the various application of transgenesis for marine organisms 4

**Chattogram Veterinary & Animal Sciences University, Chattogram**

**Department of Marine Bioresource Science**

**Master of Science in Marine Bioresource Science Final Exam Jul-Dec, 2021**

**Course No. MCM – 502; Course Title: Marine Resources Conservation and Management**

**Total Marks: 40, Time: 2 hours**

*Answer any 4 (four) questions. Figures in the right margin indicate full mark.*

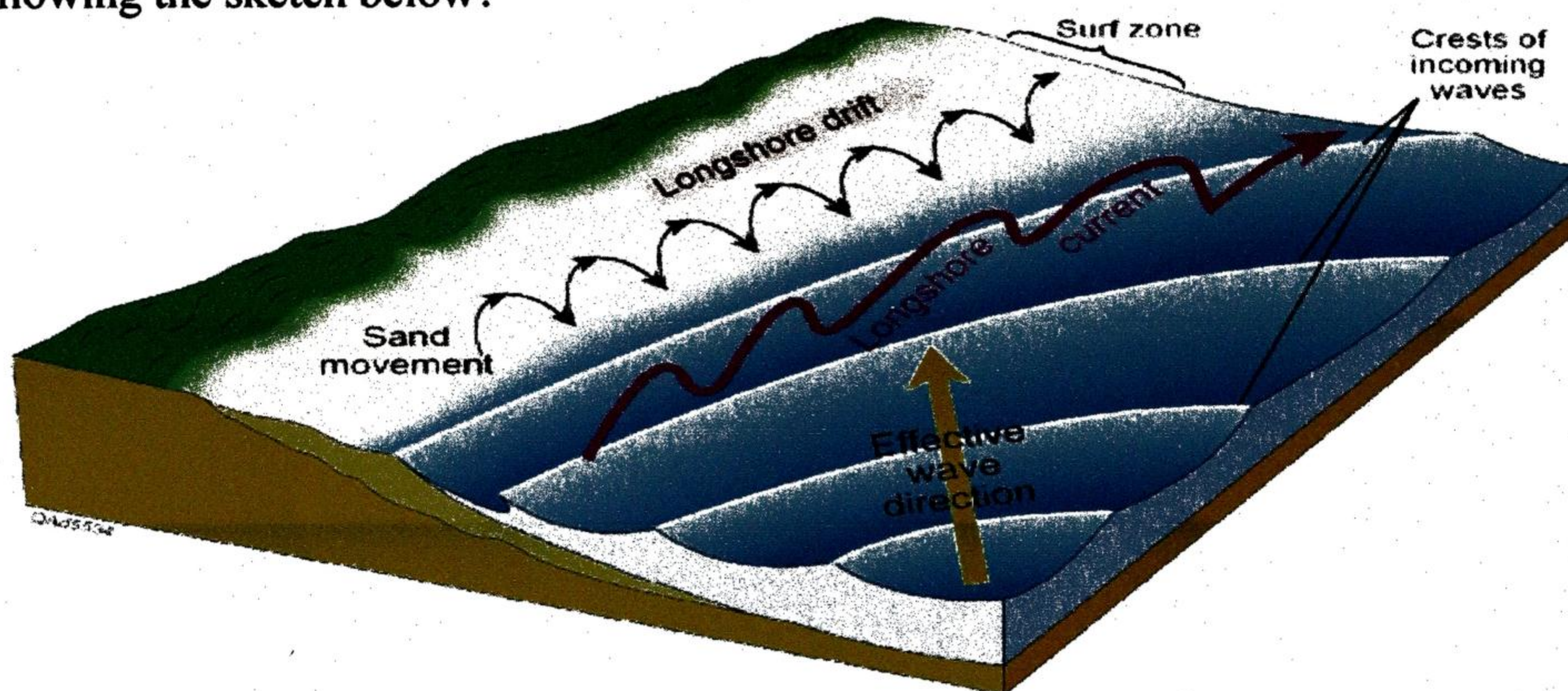
1. a) Define marine protected areas. Give a complete overview of the major components of an Effective Compliance and Enforcement Program (The Enforcement Chain). 5  
b) Give a logical framework of CBFM (Marine perspective). 5
2. a) Explain the following terms: genetic diversity, species diversity, and ecosystem diversity. 3  
b) Discuss the present trend of global marine capture fisheries. 3  
c) Give a complete overview of major conservation techniques practiced globally. 4
3. a) Illustrate the major fishing zones of the Bay of Bengal (BOB). 4  
b) Describe the present thread of BOB fisheries. 3  
c) Give a short note on Swept area method. 3
4. a) Explain the significance of marking and tagging in marine fisheries research. 3  
b) Discuss the different methods of marking and tagging applied in fisheries research. 4  
c) Briefly describe the major activities of UNCLOS. 3
5. a) “Bangladesh has a great potential of Blue revolution in near future” – explain the statement. 3  
b) Discuss the major management approaches of the Bay of Bengal. 4  
c) Give a short note on “Gear selectivity”. 3

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**Course No: MSE-502 (T), Course Title: Marine Stock Enhancement (Theory)**  
**Total Marks: 40, Time: 2 hours**

*Answer any 4 (four) questions. Figures in the right margin indicate full mark.*

1. a) What is stock enhancement? What is the importance of stock enhancement? 3.0  
b) Enlist potentials, problems and progress of stock enhancement in marine fisheries. 5.0  
c) What is habitat restoration in Fisheries? 2.0
2. a) What major guidelines should be considered before implication of stock enhancement? 4.0  
b) Write down the fishing bans with their duration, purpose in Bangladesh. 2.0  
c) Write down the justification and importance of 65 days fishing ban in Bangladesh as fish stock improvement. 4.0
3. a) How GnRH play role in gonad maturation and fertilization? 4.0  
b) How cryopreservation and gene banking can be applied in stock enhancement in fisheries? 4.0  
c) What estuarine and marine fishes have been artificially bred in Bangladesh? 2.0
4. a) Describe the artificial propagation procedure of two commercially important marine fish. 5.0  
b) Classify fish migration? How fish migration can influence breeding of fish? 5.0
5. a) Write down the objectives of a fish sanctuary. 2.0  
b) Give a scenario of Hilsa fish sanctuary of Bangladesh as a stock improvement measure. 4.0  
c) Describe briefly an ECA and an MPA in the maritime area of Bangladesh. 4.0
6. a) What is hermaphroditism in fish? What are the types of hermaphroditism seen in marine fish? 4.0  
b) Write short notes on any two (02): 6.0
  - i) Artificial propagation of marine invertebrates
  - ii) Successful models of stock enhancement in Fisheries
  - iii) EBFM
  - iv) Genetic line development

1. a) What do you understand by coastal hydrodynamics and morphodynamics? 2.0  
b) Explain how effective wave direction influence longshore current along the beach following the sketch below? 2.0



- c) How can you estimate along-shore sediment transport using mathematical modelling approaches? 6.0
2. a) What do you understand by bar and berm according to their occurrence and distributional pattern? 2.0  
b) Classify the coastlines with proper examples. 4.0  
c) Illustrate briefly the geo-morphology of a coast with its features. 4.0
3. a) How BwN can be adapted with increasing coastal flood risks? 2.0  
b) Categorize the main interventions for the preservation and maintenance of the morphological behaviors of the coasts. 4.0  
c) What are the direct passive and indirect measures can be taken for the beach protection? 4.0
4. a) Mention the purposes of breakwaters and design information related to their installation process. 4.0  
b) Briefly provide an extensive review of the applicable breakwater types. 6.0
5. a) Write down the significance of artificial dune. 2.0  
b) Specify the strength and weakness of beach nourishment coupled with structural interventions for ensuring coastal defense mechanism? 4.0  
c) Denote the schematic classification of the nature based solution. 4.0
6. a) What do you understand by eco-engineering approach? 2.0  
b) Illustrate the opportunities for combined adaptation and resilience strategies for coastal areas of Bangladesh. 2.0  
c) Discuss in brief the nature based coastal defense test cases implemented along different coastal areas with specific example. 6.0

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**Course No: CMP-501 (T), Course Title: Coastal and Marine Pollution (Theory)**  
**Total Marks: 40, Time: 2 hours**

*Answer any 4 (four) questions. Figures in the right margin indicate full mark.*

1. a) Compare and contrast in between bioindicator and biomarker. 3.0  
b) As a marine scientist, formulate a plan to assess the issues regarding impacts of aquaculture in the coastal areas of Bangladesh. 7.0
2. a) Summarize bioaccumulation and biomagnification in context of aquatic ecosystem. 5.0  
b) Briefly discuss the treatment process of agricultural waste. 5.0
3. a) Compose a scenario regarding the harmful effects of ship breaking activities in Vatiary. 4.0  
b) Interpret the pros and cons of EIA (Environmental Impact Assessment) and IERA (Integrated Environmental Risk Assessment). 6.0
4. a) Outline the aftermath of oil spillage in Sunderban Mangrove Forest during 2014 tanker blast. 3.0  
b) Assess the sources and effects of major pollution sources in the Bay of Bengal coast. 7.0
5. a) Comply different types of environmental assessments, their characteristics and functions 6.0  
b) Compile the diverse effects of water pollution on aquatic biota. 4.0