

**Chattogram Veterinary and Animal Sciences University**  
**Department of Marine Bioresource Science**  
**MS in Marine Bioresource Science Final Examination Jul-Dec' 2022**  
**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.*

- |    |    |   |     |
|----|----|---|-----|
| 1. | a) | Discuss about ballast water plankton.   | 3.0 |
|    | b) | What are the factors that affect the growth and abundance of phytoplankton and zooplankton in the coastal and open water?   | 7.0 |
| 2. | a) | Ocean acidification has great impact on marine producers- Explain the statement.  | 4.0 |
|    | b) | Describe the food web of seagrass bed and mangrove ecosystem.   | 6.0 |
| 3. | a) | How benthos help in EPS formation?  | 2.0 |
|    | b) | Many factors are known to influence the settlement and alteration of benthic communities- Explain the statement.            | 8.0 |
| 4. | a) | Differentiate between upwelling and downwelling.  | 4.0 |
|    | b) | Why do upwelling zones and downwelling zones support more biomass than areas of the open sea where these zones don't exist. | 6.0 |
| 5. | a) | Enlist five techniques of modern fishing. What are the roles of remote sensing in ocean fishing?                            | 5.0 |
|    | b) | How you will detect a unexplored fishing ground?  | 5.0 |
| 6. | a) | Distinguish among transboundary stock, straddling stock and highly migratory stock?   | 5.0 |
|    | b) | Describe the process of oil formation in the sea.   | 5.0 |

**Chattogram Veterinary and Animal Sciences University**  
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**MS in Marine Bioresource Science Final Examination Jul-Dec' 2022**  
**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 Blue Biotechnology, Red Biotechnology, Green Biotechnology and White Biotechnology? 4  
b) Discuss the various application of biotechnology in the field of marine biology. 6
2. a) Enlists the common seaweed species of Bangladesh 2  
b) What is Agar? Discuss about the properties and isolation technology of agar from marine red algae? 5  
c) Discuss the various application of agar in food industry 3
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 is carotenoid? Mention the major sources of marine carotenoids.? 4  
b) Discuss about the properties, production procedure and application of marine derived alginates. 6
5. a) Why biotechnological application is necessary for marine organisms? 2  
b) What do you mean by PCR? Describe about the principle, component, procedure and application of PCR in marine biotechnology. 8
6. a) What is transgenesis? Discuss the standard procedure of transgenesis for the marine organism. 5  
b) What do you mean by biodiesel? Discussion the isolation procedure of biodiesel from the marine microalgae 5

**Department of Marine Bioresource Science**  
**Chattogram Veterinary and Animal Sciences University**  
**MS in Marine Bioresource Science Final Examination Jul-Dec' 2021**  
**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) Write down the common methods of stock enhancement in fisheries sector? 5.0  
b) Describe your idea on habitat restoration in marine environment? 5.0
2. a) Enlist potentials, problems and progress of stock enhancement of coastal fisheries. 5.0  
b) Justify the existing fishing bans as stock enhancement approach in Bangladesh? 5.0
3. a) How GnRH play role in gonad maturation and fertilization? 4.0  
b) Enlist the stimulating hormones and their doses used for artificial breeding in marine fishes. 3.0  
c) What do you know about the successes in artificial breeding in marine fishes of Bangladesh? 3.0
4. a) Describe the common methods used for studying the reproductive biology of marine fishes 5.0  
b) Differentiate between sequential and simulateneous hermaphroditism. 2.0  
c) What are the pros and cons of gonochorism and hermaprodtism in marine environment? 3.0
5. a) What is fish sanctuary? Give an example of a successful fisheries management through fish sanctuary in Bangladesh perspective. 5.0  
b) Differentiate between MPA and ECA? What do you know about the MPA and ECA in the maritime boundary of Bangladesh. 5.0
6. a) Describe migratory pattern in fishes. 4.0  
b) Write short notes on any **two** (02): 6.0
  - i. EBFM;
  - ii. Fish sanctuary;
  - iii. Genetic conservation of marine fish;
  - iii. Reef restoration

**Chattogram Veterinary & Animal Sciences University, Chattogram**  
**Department of Marine Bioresources Science**  
**Master of Science in Marine Bioresource Science**  
**January-June Semester Final Exam, 2022**  
**Course Title: Marine Resources Conservation and Management; Course No. MCM – 502**  
**Total Marks: 40, Time: 2 hours**

*Answer any four (04) from each section of the following questions*

1. a) Give a comprehensive scenario about global capture fisheries. 5  
b) Briefly describe the components of an effective compliance and enforcement programme practice for marine fisheries management. 5
2. a) Discuss the major challenges of high seas fisheries. 5  
b) Give a comprehensive outline regarding coastal and marine conservation strategy for Bangladesh. 5
3. a) Give a brief outline on CBFM and EBFM focusing on coastal and marine fisheries management. 5  
b) Discuss the different strategies applied for effective fisheries enhancement programme. 5
4. a) Ocean management is considered as a great challenge for future generation. 5  
Now give an overview of future marine resources management approaches according to present resources status and management tools.  
b) Briefly describe the major management plans initiated by the Government of Bangladesh to achieve the Blue Economy Development goal. 5
5. Short Notes (answer any two) 5×2=10  
a) VBGF b) Swept area method, c) Marine Conservation in International Law

# Chattogram Veterinary and Animal Sciences University

## Department of Marine Bioresource Science

### Faculty of Fisheries

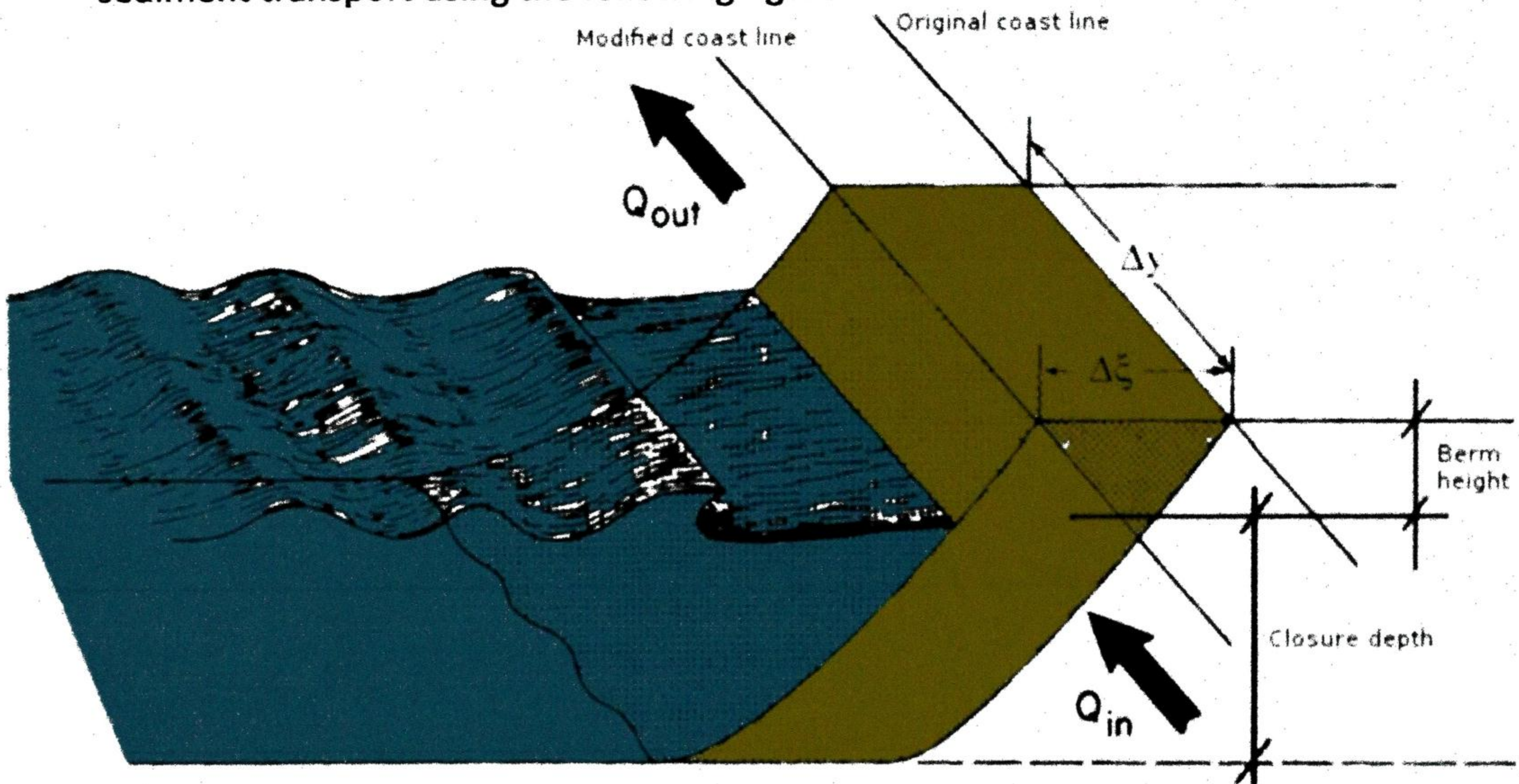
MS in Marine Bioresource Science, January-June Semester Course Final Exam 2022

Course Title: Eco-engineering and Coastal Defense; Course Code: ECD 502(T)

Total Marks 40, Time: 2 hours

Answer any **FOUR** questions, Illustrate your answer wherever necessary. Figures in the right margin indicate full mark.

1. a) What do you mean by alongshore sediment transport? 2
- b) Specify the significance of the alongshore sediment transport process. 2
- c) Illustrate briefly the mathematical CERC formula for estimating alongshore sediment transport using the following figure. 6



2. a) How can you specify eco-engineers? 2
- b) In which way the eco-engineers act as nature based solutions for coastal protection? 3
- c) Discuss briefly the ecological and economical role of eco-engineering approaches. 5
3. a) Mention the importance of wave monitoring in the coastal defense sector. 3
- b) Discuss concisely the different measuring techniques to monitor wave properties used in the sea surface, above sea surface and ocean bottom with proper examples. 7
4. a) Differentiate between soft and hard engineering approaches. 2
- b) Specify the positive and negative impacts of beach nourishment. 3
- c) Illustrate briefly the direct and indirect protection measures for coastal erosion control. 5
5. a) Specify the criteria for the selection of breakwaters. 3
- b) Categorize the breakwaters system for coastal protection. 3
- c) Demonstrate concisely the applicable coastal structure to reduce the wave speed along the coastal belt of Bangladesh. 4
6. a) What do you mean by living shorelines? 2
- b) How does the seagrass reduce wave speed? 3
- c) In which way the artificial dunes enhance the coastal vegetation process as well as contribute to coastal stability? 5

**Chattogram Veterinary and Animal Sciences University**  
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**MS in Marine Bioresource Science Final Examination Jul-Dec' 2022**  
**Course No: CMP-502 (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) As a marine researcher, formulate a chart to assess the issues regarding coastal and marine pollution in the coastal areas of Bangladesh. 6.0  
b) Formulate your plan to reduce the impacts of coastal and marine pollution 4.0
2. a) Compare and contrast between bioindicator and biomarker along with their selection criteria. 4.0  
b) Briefly speculate the formation and treatment process of an eutrophic water body. 6.0
3. a) Compose a scenario regarding the harmful effects of aquaculture in Chokoria Sunderban. 4.0  
b) Interpret the distinction between EIA (Environmental Impact Assessment) and IERA (Integrated Environmental Risk Assessment) from their policy making to application. 6.0
4. a) Outline the aftermath of COVID related increased pollution load in the ocean. 5.0  
b) Generate an eco-friendly mitigation method for the COVID pollution load. 5.0
5. a) Illustrate the general sewage treatment process and criticize the effectiveness of each steps. 6.0  
b) Propose a concept on 'Turning trash into treasure'. 4.0