

Chittagong Veterinary and Animal Sciences University, Chittagong
Department of Marine Bioresource Science

Master of Science in Marine Bioresources Science, January-June Semester Final Examination' 2018
Course No: PCO-501 (Compulsory), Course Title: Physical and Chemical Oceanography
Total Marks: 40, Time: 2 hours

Answer any FOUR questions. Illustrate your answer wherever necessary.

- 1 a) Define topography and bathymetry. How is a shore different from a coast? 3
b) Draw a schematic diagram of the benthic environment of the marine habitat. 3
c) What do you know about compensation depth and critical depth of marine environment 2
d) Compare and contrast among Bay, Gulf and Ocean. 2
2. a) Marine sediments are usually combinations of terrigenous and biogenous deposits-- Justify the statement. 2
b) What is ooze? Oozes form from the rigid remains of living creatures –Explain the statement. 2
c) Hydrogenous sediments form directly from seawater. Explain the statement. 2
d) Briefly describe the classification of marine sediments by source of particles including their distribution and relative contribution to the area covered to ocean floor. 4
- 3 a) What is calcium carbonate compensation depth? How does it affect ooze deposition at great depths? 2
b) Seawater but not pure water have the colligative properties. What are these colligative properties of seawater? 3
c) What are the factors affecting the salinity of sea and ocean waters? Show is diagram how the salt is added and lost in ocean environment? 5
- 4 a) Discuss the properties of different types of waves? 4
b) Discuss about the physico-chemical features of Bay of Bengal. 6
- 5 a) What do you know about upwelling? Briefly discuss about the mechanism and impacts of upwelling in coastal and oceanic environment? 7
b) Write a short note on gulf stream. 3
- 6 a) What do you know about surface current and thermohaline circulation? Discuss the effects of thermohaline circulation on global climate. 6
b) Discuss the role of tides on marine life and ecosystem. 4

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Course No: **MRF-501 (Elective)**, Course Title: Mangrove and Reef Fisheries

Total Marks: 40, Time: 2 hours

Answer any **FOUR** questions. Illustrate your answer wherever necessary.

- 1 a) Mangroves function as natural habitat for endangered species—Explain the statement. 3
b) Discuss about the ecological and economic roles of mangroves. 7
2. a) Discuss in brief about the red mangrove, white mangrove, black mangrove, button wood mangrove and yellow mangrove. 5
b) Why mangrove forest are abundant in alluvial soil and acid sulphate soil? 3
c) What do you mean about mangrove regeneration? 2
- 3 a) Briefly discuss about floral and faunal diversity of Sundarban mangrove forests. 4
b) What are the major threats of mangrove destruction? Discuss how can you conserve mangrove forests in the context of Bangladesh 6
- 4 a) Coral reefs are home to 25% of all marine life on the planet---Explain the statement with mentioning the diversity of species found in the coral reef ecosystem. 3
b) What are the major threats of coral reef fisheries? Discuss about your management plan for sustainable utilizations and conservations of coral reef associated fisheries. 7
- 5 a) Discuss how climate change affecting the coral reef ecosystem? 5
b) MPAs promote responsible fishery management and habitat protection in coral reef ecosystem---Justify the statement. 3
c) What do you know about Coral Reef Resilience? 2
- 6 a) What do you mean by ecosystem-based coral reef fisheries management? 2
b) Discuss about the present status and major issues of Sundarban's mangrove fisheries of Bangladesh 8

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Course No: **TMB-501 (Compulsory)**, Course Title: Tropical Marine Biology

Total Marks: 40, Time: 2 hours

Answer any **FOUR** questions. Illustrate your answer wherever necessary.

- 1 a) What is Tropical Marine Biology? How will you apply your knowledge of Tropical Marine Biology in the field of marine sector in Bangladesh? 5
- b) How marine archaea differ from bacteria? How marine bacteria contribute in nitrogen fixation and nitrification in marine environment? 5
2. a) Phytoplankton is the base of food chain"- explain the statement. 2
- b) Differentiate between Calcareous and Siliceous phytoplankton. 2
- c) Briefly discuss the major factors affecting growth and distribution of phytoplankton in Oceans. 6
- 3 a) Discuss about different migratory patterns seen in Hilsha fish in Bangladesh? 4
- b) Describe the life cycle of Hilsha fish in Bangladesh. 6
- 4 a) What is benthic community? Briefly discuss about the distribution of benthos in marine environment. 5
- b) Discuss the role of benthic community in marine ecosystem. 5
- 5 a) Discuss the negative impacts of dinoflagellates in the marine environment. 5
- b) Discuss the generalized life cycle and reproduction of marine dinoflagellates. 5
- 6 a) Discuss about different types of migration observed in marine fish? 6
- b) Discuss about the different types of reproductive modes observed in marine fishes. 4

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Course No: **MED-501 (Compulsory)**, Course Title: Marine Ecological Dynamics
Total Marks: 40, Time: 2 hours

Answer any **FOUR** questions. Illustrate your answer wherever necessary.

- 1 a) What do you mean by marine ecological dynamics? 2
b) Discuss about the major ecological factors in marine biomes. 8

2. Compare and contrast among the following topics-
 - a) Macro habitat and Micro habitat 2
 - b) Habitat and Niche. 2
 - c) Food chain and Food Web 2
 - d) Trophic level and Trophic structure 2
 - e) Pyramid of biomass and Pyramid of numbers 2

- 3 a) Discuss about the production and decomposition of organic matter in a marine ecosystem? 4
b) Discuss about various communities found in different regions of intertidal zones of a marine ecosystem. 6

- 4 a) What do you know about BoBLME? What are the objectives and outcomes of BoBLME 4
b) Discuss about the different components of BoBLME projects. 6

- 5 a) Classify the marine organisms based on the life styles and nutrition. 3
b) What do you understand by demersal fish, benthic fish and benthopelagic fish? 3
c) Discuss the about the various adaptations founds in the deep sea organisms to live in the hadal zone of marine environment. 4

- 6 a) Discuss about various adaptations found in the organisms to live in sandy shore environment? 5
b) Discuss about the interrelationship between and among different communities in marine ecosystem. 5

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Course No: **MBO-501 (Elective)**, Course Title: **Marine Botany**

Total Marks: 40, Time: 2 hours

Answer any **FOUR** questions. Illustrate your answer wherever necessary.

- 1 a) Compare and contrast among the green algae, brown algae and red algae. 3
b) There are three distinctive ecosystem zonation in the coast such as supratidal, 7
intertidal and subtidal zones. Discuss about the various plant communities found in
these zones of coastal ecosystem.
2. a) Write down the names of different classes of phytoplankton found in the ocean. 3
b) What do you mean by HNLC? Discuss about two popular explanation for the 4
existence of HNLC regions in different oceans.
c) Briefly discuss how phytoplankton abundance differ from place to place in the 3
oceans.
- 3 a) Discuss about the reproduction of green algae commonly found in the marine 5
environment.
b) Discuss about the ecological roles and uses of marine algae? 5
- 4 a) Differentiate between seaweed and seagrass. 2
b) Discuss about the prospects and constraints of seaweeds culture in St. Martin island 8
of Bangladesh.
- 5 a) What do you know about tidal salt-marsh and non-tidal salt marsh? 2
b) Briefly discuss about the adaptation of salt-marshes to live in an intertidal 3
ecosystem?
c) Discuss about the ecological roles, importance and uses of salt-marsh plants. 5
- 6 a) What are the adaptation founds in mangrove plants to live in saline waters? 2
b) Discuss about the present status of Sundarban mangrove forests of Bangladesh. 5
c) Briefly discuss about the ecological roles of mangrove forest. 3

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Master of Science in Marine Bioresources Science, January-June Semester Final Examination' 2018
Course No: **MSR-501 (Compulsory)**, Course Title: Marine Survey and Research
Total Marks: 40, Time: 2 hours

Answer any **FOUR** questions. Illustrate your answer wherever necessary.

- 1 What is Acoustical Oceanography? Discuss about various tools and techniques that are useful in doing acoustical oceanography research. 10
2. Discuss about the tools and techniques used for the hydrological and benthic sampling in marine environment. 10
- 3 Discuss about the tools and techniques of bathymetric survey of Bay of Bengal. 10
- 4 What do you mean by probability and non-probability sampling? Discuss about various probability and non-probability sampling techniques that can be applied in Marine Bioresource Science. 10
- 5 In order to obtain you Master's degree in Marine Bioresource Science, you must need to conduct your thesis research. Before doing a research, you must need to develop a research plan and proposal. What are the essential parts of a research proposal? Develop a sample research proposal in the field of Marine Bioresource Science. 10
- 6 Why dissemination of research findings is important. Discuss in detail how you can disseminate your master research findings to the broader scientific communities and other target peoples in the world. 10