

Chittagong Veterinary and Animal Sciences University, Chittagong

Faculty of Fisheries

Department of Marine Bioresources Science

Master of Science in Marine Bioresources Science, January-June Semester Final Examination' 2017

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) Discuss the different component of marine ecosystem. 4
b) Discuss the interaction of multiple factors in marine ecosystem 6
2. a) What are the sources of organic matter in marine ecosystem? 2
b) How the organic matter are decomposed in marine ecosystem? 3
c) Discuss the food web in a coral reef ecosystem. 5
- 3 a) What do you know about ecological succession? 2
b) How you can classify the marine fauna based on their nutrition status? 3
c) Discuss the flora and fauna of rocky shore ecosystem of marine environment. 5
- 4 a) Discuss the diversity of different organisms found in the hadal zone of marine environment. 5
b) Discuss the morphological adaptations observed in different marine organisms. 5
- 5 a) Differentiate between osmoregulators and osmoconformers. 2
b) What do you understand by demersal fish, benthic fish and benthopelagic fish? 3
c) Discuss the physiological adaptations of marine fishes to live in high concentrated saline water. 5
- 6 a) Discuss about trophic level, food chain, food web and ecological pyramid of marine ecosystem? 5
b) Discuss about the interrelationship between and among different communities in marine ecosystem. 5

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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 do you know about chemosynthetic bacteria? Discuss the ecological role of marine bacteria in maintaining the food web of marine environment. 4
- b) How can you classify the radiolarians? 2
- c) Discuss the role of coccolithopores in maintaining the food web of marine ecosystem. 4
2. a) Planktonic crustaceans are very important as larval feeding of most marine fish species— Justify the statement. 2
- b) Why plankton concentration is higher in higher latitude and spring season in marine environment? 3
- c) What do you know about seasonal succession of marine phytoplankton? Discuss the factors responsible for seasonal succession of phytoplankton in marine environment. 5
- 3 a) What do you know about sea urchin, heart urchin and sand dollars? 2
- b) Diagrammatically show the life cycle of sea urchin. 4
- c) Briefly explain how slow-moving animals such as sea cucumber avoid predation. 2
- d) Reproduction of sea cucumber largely uncertain---Justify the statement. 2
- 4 a) Briefly describe the generalized life cycle of marine dinoflagellates 4
- b) What is red tide? List the name of the organisms responsible for the formation of red tide? 3
- c) Discuss the impact of red tide in marine environment and aquatic and terrestrial animal health? 3
- 5 a) What do you know about naked gastropods? 2
- b) Discuss the life cycle of blue swimming crab in hatchery condition. 4
- c) Mortality rates are the main problem in hatchery production of blue swimming crab. Mention when the major mortality occur during larval rearing of blue swimming crabs. What are the main reasons of these mortality? 4
- 6 a) Why Ichthyoplankton survey is important for stock assessment of fisheries? 2
- b) Discuss the physiological mechanism/adaptation of marine fishes to live in high saline water 4
- c) Discuss about the different types of reproductive modes observed in marine fishes. 4

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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) Differentiate between seaweeds and sea grasses. 2
- b) What is pneumatocyst? Briefly explain the biological significance of pneumatocyst of seaweeds. 3
- c) Discuss the opportunities and challenges of seaweed culture of Bangladesh. 5
2. a) Classify the phytoplankton based on their life history and with regard to their environment. 4
- b) Discuss the major groups of phytoplankton in marine environment. 6
- 3 a) What are the different species of seaweeds commonly used as human food in different parts of the world? 2
- b) Seaweeds are categorized as green algae, brown algae and red algae. Compare among these three groups of macro-algae? 3
- c) Discuss about the reproduction and life cycle of red algae. 5
- 4 a) Discuss about the sexual and asexual reproduction of sea grass. 5
- b) Discuss about diversity and global distribution of sea grass communities in marine environment. 5
- 5 a) What do you know about salt-marsh communities? What are the basic requirement for the development of salt-marshes communities in estuarine ecosystem? 3
- b) How the salt-marsh plants can survive in high saline water? 3
- c) Illustrate the zonation of salt-marshes communities in estuarine and marine environment. 4
- 6 a) What are the characteristics features of mangrove plants? 3
- b) What do you know about viviparous and cryptoviviporous germination of mangrove plants 2
- c) Discuss about the global distribution of mangrove forest. 5

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Master of Science in Marine Bioresources Science, January-June Semester Final Examination' 2017

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) Why UNESCO declared the Sundarban mangrove forest as "World Heritage" in 1999? 2
b) Sundarban mangrove forests act as a natural barrier to protect the South-Western coastal areas of Bangladesh-Justify the statement. 3
c) On the Bay of Bengal along the Sundarbans the occurrences of cyclones increased by 30% in last decades. Discuss the impacts of increasing level of cyclones on the Sundarban mangrove ecosystem of Bangladesh. 5
2. a) Sundarban mangrove forest is an unique ecosystem for fisheries resources of Bangladesh--Justify the statement 2
b) Briefly discuss the present issues of Sundarban mangrove fisheries of Bangladesh 4
c) Formulate your own recommendation to address the present issues of Sundarban mangrove fisheries of Bangladesh 4
- 3 a) Indiscriminate expansion of shrimp farming is the major cause of Chakaria Sundarban destruction of Bangladesh –Justify the statement. 3
b) Why Chakaria Sundarban mangrove restoration and regeneration is important for Bangladesh? 3
c) Formulate your own plan and recommendation for restoration of Chakaria Sundarban mangrove forest of Bangladesh. 4
- 4 a) What do you know about Sundarban Reserve Forest (SRF) management of Bangladesh? 2
b) Active people participation is very important for SRF management of Bangladesh. Why active people participation is necessary for SRF management? 3
c) Develop your own plan and recommendation for sustainable management of Sundarban Mangrove forest. 5
- 5 a) How the coral reef are formed in marine environment? 3
b) Why are coral reef important in marine ecology? 2
c) What are the threats to coral reef communities? Discuss how human activities are destructing the health of coral reef communities. 5
- 6 a) Coral reef fisheries are of great importance both economically and for food security-Justify the statement. 2
b) What do you mean by ecosystem-based coral reef fisheries management? 3
c) Discuss the major challenges of managing the reef fisheries. 5

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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 do you know about the sampling? Discuss about the different probability and non-probability sampling techniques in marine bioresources science. 10
2. Discuss about the working principles and application of Echo-sounder/SONAR, Fish Finder and ADCP. 10
- 3 Discuss about the tools and techniques of bathymetric survey of Bay of Bengal. 10
- 4 Discuss about the sampling strategies and methodologies of plankton and benthos samples from the marine environment. 10
- 5 Suppose your master thesis research title is "Seasonal variation of plankton communities in Maheshkhali Channel, Cox's Bazar". Develop a sample research proposal on the above topic. 10
- 6 Suppose you discovered the role of tides on breeding success of a grouper fish species. Discuss in detail how you can disseminate your findings to the broader scientific communities and other target peoples in the world. 10

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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) Compare among the terms Gulf and Bay. 2
b) Turbidity currents, submarine canyons and continental rise are very much interrelated terms in ocean bottom topography. Describe how they are interrelated. 3
c) What do you mean by ocean floor? Briefly describe the configuration of ocean floor topography. 5
2. a) Terrigenous and biogenous sediments are the major contributors of the oceanic sediment. Justify the statement. 2
b) What do you mean by the term Ooze? Describe briefly the different types of oozes found in the ocean sediments. 3
c) Discuss the factors affects marine sedimentation. 5
- 3 a) In many oceans, water colors looks very attractive blue. Why some ocean colors appears blue in our eyes? 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) What do you know about flood tide and ebb tide? 2
b) Show diagrammatically how gravitational and centrifugal forces produces tides. 3
c) Describe the role of tide on marine life. 5
- 5 a) Differentiate between deep and shallow water waves. 2
b) Briefly discuss the factors responsible for wave formation. 3
c) Discuss diagrammatically the mechanism of formation of wave. 5
- 6 a) Nitrogen is the most abundant gas dissolved in seawater. Why is nitrogen still the limiting factor for growth of phytoplankton in the sea? 2
b) The Ratio of Dissolved Solids in the Ocean Is Constant-Justify the statement. 2
c) Seawater heat capacity is less than pure water. Justify the statement. 2
d) Briefly discuss the carbonate system in seawater. 4

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Department of Fisheries Resources Management

Master of Science in Fisheries Resource Management, January-June Semester Final Examination'
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Course No: **RCD-501 (Compulsory)**, Course Title: Research Methods, Concept and Design

Total Marks: 40, Time: 2 hours

Answer any **FOUR** questions. Illustrate your answer wherever necessary. Figure in the right margin indicates full marks.

1. a) How do you formulate objectives in a fisheries research? **2.0**
b) Which one is more important in a research process between 'execution' and 'planning'? – **3.0**
Explain.
c) Write down the scopes of field research in Chittagong region of Bangladesh. **5.0**
2. a) How many samples are suitable for an authentic research? Explain with an example. **2.0**
b) Why do you calculate 'standard error' while collecting samples for a research? **2.0**
c) Give a detail outline on Student's t-test in the data analysis of a research. **6.0**
3. a) How do you graphically represent your obtained results? **3.0**
b) Provide a detail on appropriate reference write-up in a thesis. **7.0**
4. a) Why reconnaissance survey is important in socio-economic assessment? **3.0**
b) Why conducting 'census' is impractical in research process? **2.0**
c) Obtain a large sample confidence interval that suits the parametric nature of a population. **5.0**
5. a) What are the fundamental parts of a research proposal? **3.0**
b) Mention the significance of 'Budgeting' in conducting a sophisticated research. **4.0**
c) How can you orient your readers by a catchy and attractive title? **3.0**
6. a) Compare the 'primary' and 'secondary' sources of data in a research process. **3.0**
b) When do data analysis become successful? **3.0**
c) How can you overcome the weakness in participation? **4.0**