Department of Marine Bioresource Science
Chattogram Veterinary and Animal Sciences University
MS in Marine Bioresource Science Final Examination Jul-Dec' 2023
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 marine stock enhancement? 3.0
   b) What are the potentials and problems in marine stock enhancement? 3.0
   c) What important guidelines should be considered for marine stock enhancement? 4.0

2. a) Enlist and describe the species, place, reason and approaches related to successful marine enhancement programs in the world. 3.0
   b) Write a note on EBFM. 7.0

3. a) Explain the typical mechanisms that regulate the reproduction in fish. 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) What is the use of GSI in reproductive biology? 2.0
   b) Which marine invertebrates are potential for artificial/controlled breeding in Bangladesh? 3.0
   c) Describe the environmental control, stimulants and breeding processes of three commercially important marine invertebrates. 5.0

5. a) What is fish sanctuary, MPA, ECA, Reserved area? 4.0
   b) How MPA's are established? Give a status of the MPA in the maritime boundary of Bangladesh. 6.0

6. a) Describe migratory pattern in fishes. 4.0
   b) Write short notes on any two (02): 6.0
   i. Genetic conservation;
   ii. Hermaphroditism;
   iii. Fishing bans as stock enhancement approach;

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MS in Marine Bioresource Science Final Examination, Jul-Dec' 2023

Course No: BOC-502 (T), Course Title: Biological Oceanography (Theory)

Total Marks: 40, Time: 2 hours

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

1	a)	Compose the criteria required for declaring a sanctuary along with proper examples in BoB.	4.0
	b)	Outline the overall concerns of eutrophication in a coastal water body like Bay of Bengal.	6.0
2	a)	Analyze the coral bleaching incidents in our coasts and formulate a method for bioremediation.	6.0
	b)	Explain how burrowing organisms help to enrich the biodiversity in different benthic regions.	4.0
3	a)	'Remote sensing has prevalent uses not only in our personal lives but also in fisheries.' Justify.	4.0
	b)	Explore why bioluminescence and biofluorescence are used by different organisms in the ocean.	6.0
4	a)	Rough a draft on the consequences of ocean acidification in the marine organisms. Indicate how this process impacts on mussel beds and coral beds.	5.0
	b)	Appraise the principles and mechanisms of the survey methods used for measuring the primary productivity .	5.0
5	a)	Discuss the formation of marine snow and ooze in ocean. Are these the same thing? How can they facilitate the ecosystem of the ocean.	4.0
	b)	Summarize how the major nutrient cycling processes regulate the oceanic system.	6.0

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Course No: ECD-502 (T), Course Title: Eco-engineering and Coastal Defense (Theory)
Total Marks: 40, Time: 2 hours

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

1.	a)	Briefly describe the multiple uses of coastal zones and their impact on coastal habitat	5.0
	b)	Discuss the contribution of eco-engineering to achieving environmental sustainability	5.0
2.	a)	Explore the ecological significance of coastal zonation. How do different zones contribute to biodiversity, and what role do they play in supporting marine and terrestrial life?	5.0
	b)	Investigate the significance of coastal boundaries in terms of ecological and geological perspectives and provide examples of how these boundaries impact both terrestrial and marine environments.	5.0
3.	a)	Explain the filter-feeding mechanism of oysters and mussels. Discuss their role in maintaining water quality and how this contributes to the overall health of coastal ecosystems.	5.0
	b)	Analyze the threats to eco-engineers in coastal ecosystems, such as pollution and habitat destruction, and discuss conservation strategies that protect and restore these crucial components of coastal defense.	5.0
4.	a)	Discuss the importance of Integrated Coastal Zone Management in the context of coastal protection. How does it promote sustainable development and resilience?	5.0
	b)	Provide examples of eco-engineering techniques used for coastal protection, emphasizing their ecological benefits and potential drawbacks	5.0
5.	a)	Assess the environmental issues faced by Bangladesh and explain how Eco-engineering can be applied to address these challenges. Provide specific examples related to water management, biodiversity conservation, or disaster risk reduction.	5.0
	b)	Discuss the challenges and opportunities associated with implementing Eco-engineering solutions on a global scale.	5.0
6.	a)	Discuss the role of salt marshes in coastal defense, and explain their eco-engineering strategies	4.0
	b)	Explain the concept of coastal erosion and its ecological implications. How can it be mitigated to preserve natural resources?	6.0

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MS in Marine Bioresource Science Final Examination Jul-Dec' 2023

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)	Trace all kinds of pollutions associated with shipping, shipyard and port activity in the coastal region of Bangladesh. Synthesize a plan for remediating oil spill in the coast.	6.0
	b)	Formulate a plan to remediate the effects of mariculture in the Chokoria Sunderban.	4.0
2.	a)	Interpret the appropriate legislation required for conserving an endangered species.	4.0
	b)	Generate a proper waste management scheme in the popular tourist spots of Cox's bazar along with a defined monitoring system.	6.0
3.	a)	Outline the aftermath of oil spillage in Sunderban Mangrove Forest during 2014 tanker blast.	4.0
	b)	Describe the physiological effects of water pollution on aquatic biota.	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

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MS in Marine Bioresource Science Final Examination Jul-Dec' 2023
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?	2.0
	b)	Discuss the various applications of biotechnology in the field of marine biology.	8.0
2.	a)	What do you mean by marine bioactive compounds? What is the significance of marine bioactive compounds?	3.0
	b)	How can you isolate and identify marine bioactive compounds?	5.0
	c)	List down the names of some marine organisms that can be used to isolate marine bioactive compounds.	2.0
3	a)	Discuss the production process of chitin and chitosan from the crustaceans' shell wastes	6.0
	b)	Discuss the applications of chitin and chitosan in various fields.	4.0
4	a)	What is carrageenan? Discuss the extraction process of carrageenan from seaweeds.	6.0
	b)	Discuss the industrial, pharmaceutical, and biotechnological applications of carrageenan.	4.0
5	a)	Enlists the ten common seaweed species of Bangladesh with their uses and bioactive compounds.	4.0
	b)	Discuss the extraction process of sodium alginates/fucoidan from the seaweeds.	6.0
6	a)	What do you know about gynogenesis and androgenesis?	2.0
	b)	Discuss the induction process of triploidy for marine fishes.	4.0
	c)	What is cryopreservation? Briefly discuss the process of cryopreservation for marine fish gametes.	4.0

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Course No: MCM-502 (T), Course Title: Marine Resource Conservation and Management (Theory)

Total Marks: 40, Time: 2 hours

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

1	a)	Compare and contrast artisanal fishing and industrial fishing.	3
	b)	Discuss the issues and challenges of artisanal fishing in Bangladesh. Formulate your recommendation to minimize such issues and challenges.	7
2	a)	What do you know about the Marine Protected Area (MPA)?	2
	b)	Discuss different MPAs of Bangladesh by mentioning their area and main features from an ecological sensitivity and biodiversity point of view.	5
	c)	What do you know about the Aichi Biodiversity Target (ABT)? Mention the MPA status of Bangladesh about the ABT target of 2020.	3
3.	a)	What do you know about ghost fishing? Why are the fishing gears abandoned, lost, or otherwise discarded during fishing?	3
	b)	Discuss the impacts of ghost fishing on marine biodiversity and fisheries.	4
	c)	Discuss the possible ways to minimize the impacts of ghost fishing on marine biodiversity and fisheries	3
4.	a)	Properly mention the name, area boundary and ban periods of five nursery grounds of hilsa in Bangladesh.	4
	b)	Why is economic incentive necessary for the hilsa fisheries management of Bangladesh?	2
	c)	Discuss the incentive-based hilsa fisheries management of Bangladesh.	4
5.	a)	What do you mean by IUU fishing? Briefly discuss various IUU fishing activities that exist in marine fisheries in the Bay of Bengal.	4
	b)	Discuss the impact of IUU fishing on marine fisheries management. What are the measures you can take to combat IUU fishing?	6
6.	a)	Discuss various input and output control strategies that are commonly applied to marine fisheries management.	6
	b)	Mention the issues and challenges of implementing various strategies for marine fisheries management in Bangladesh	4