**Chattogram Veterinary and Animal Sciences University**
Department of Marine Bioresource Science
MS in Marine Bioresource Science Final Examination Jan-June' 2021
Course No: MED-501 (T), Course Title: Marine Ecological Dynamics (Theory)
Total Marks: 40, Time: 2 hours

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

1. a) How many types of biota are found in ecosystem? — 3.0
   b) Different types of biological interactions are established in an ecosystem-Explain them. — 7.0

2. a) How can primary production be measured? — 5.0
   b) Describe the process of energy flow through ecosystem. — 5.0

3. a) Give an overview about the organisms of neritic and benthic zone. — 4.0
   b) Which types of ecological interrelations you found between and among communities of an ecosystem? — 6.0

4. a) What is BoBLME? — 2.0
   b) Write a detailed summary about BoBLME. — 8.0

5. a) Draw the vertical zonation of a typical sandy shore. — 4.0
   b) Describe the communities found in coral reefs. — 6.0

6. a) Briefly discuss about the flora and fauna of tropical rocky shore. — 4.0
   b) Describe some of the strategies animals use to increase their survival in the open sea. — 6.0

Chattogram Veterinary and Animal Sciences University
Department of Marine Bioresource Science
MS in Marine Bioresource Science Final Examination Jan-Jun' 2021
Course No: RMF 501 (T), Course Title: Remote Sensing in Marine Fisheries (Theory)
Total Marks: 40, Time: 2 hours
Answer any 4 (four) questions. Figures in the right margin indicate full mark.

1. a) What do you understand by georeferencing?   3.0
    b) Briefly discuss the vectorial and cell-based spatial entity modeling in remote sensing.   3.0
    c) Specify the attributes of remote sensing data from an image of the coastal environment.   4.0

2. a) What are the commonly used mapping approaches in remote sensing?   2.0
    b) How the transformations of coordinate and geospatial reference systems work for building a spatial model or geodataset?   5.0
    c) Write down the fundamentals of image processing and mapping approaches.   3.0

3. a) Categorize the types of distortion when the earth is projected.   3.0
    b) Describe briefly the basic processes and functionality of remote sensing.   4.0
    c) Write down the pros and cons of the Mercator projection.   3.0

4. a) How the satellites make measurements?   2.0
    b) Elucidate concisely the atmospheric windows and spectral signature from the following sketch.   4.0
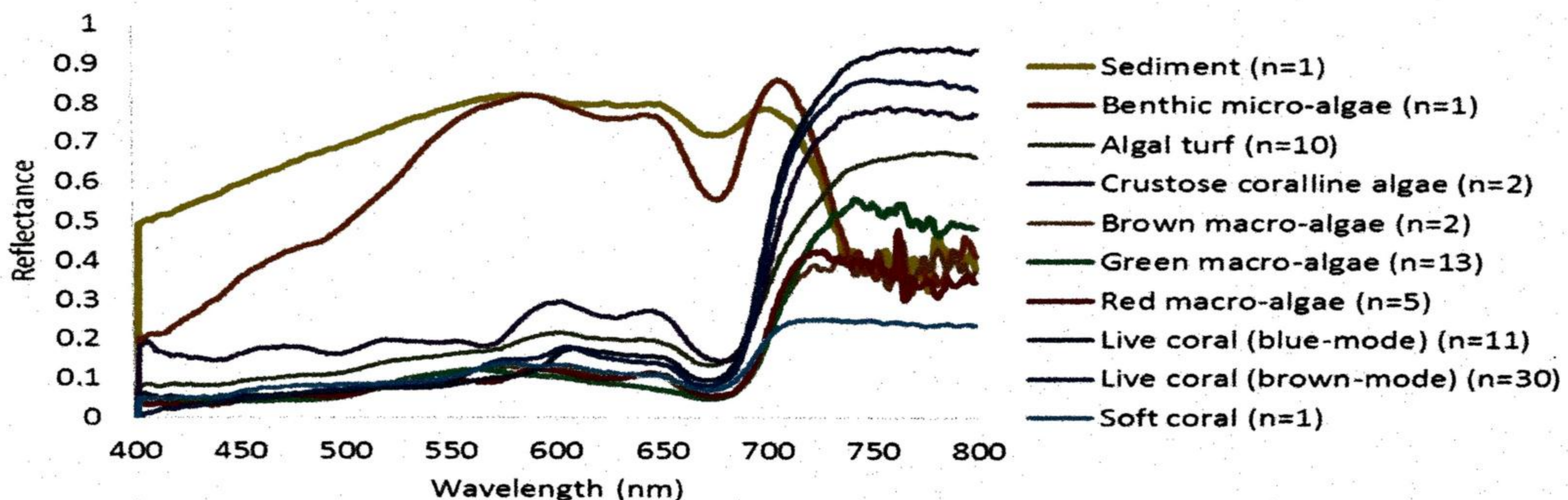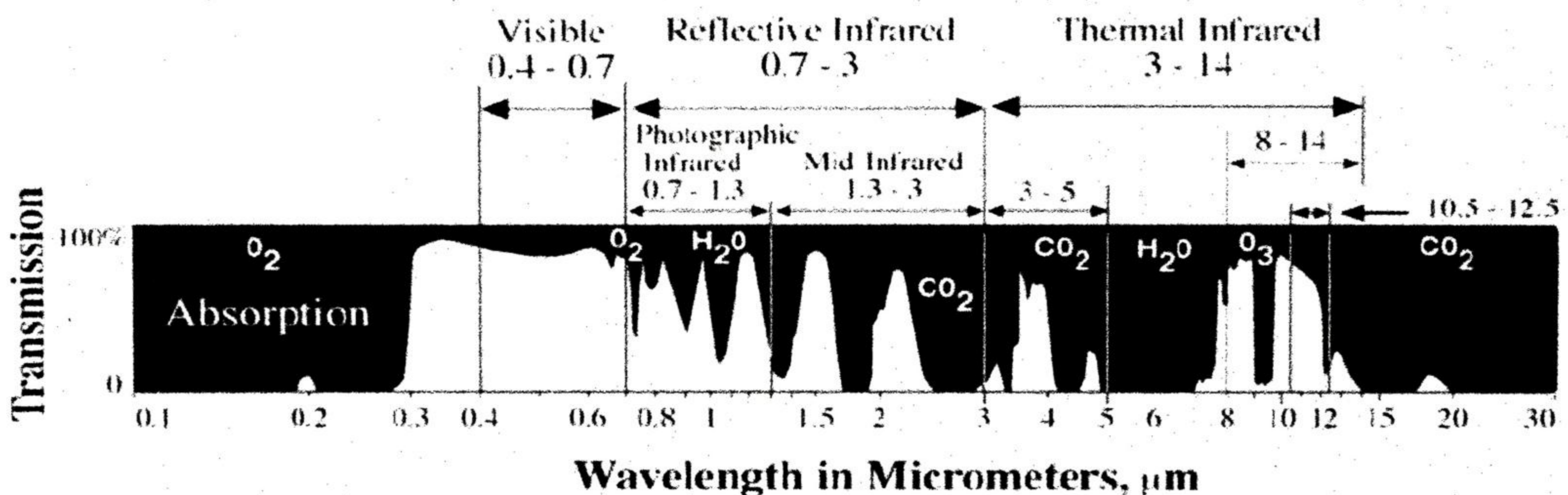
c) Illustrate briefly, how the marine habitats are mapped using different types of satellite with their application.   4.0

5. a) What are different types of tools used in marine habitat mapping?   3.0
    b) How can you specify seagrass communities in a modeling approach?   3.0
    c) Briefly discuss the integration process of marine habitat mapping with ecosystem based management. 4.0

6. a) Specify the significance of ground trothing in remote sensing validation.   2.0
    b) What are the basic differences between land use and land cover types?   3.0
    c) Explain briefly the supervised and unsupervised classification.   5.0

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

Master of Science in Marine Bioresources Science, January-June Semester Final Examination 2022
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) Discuss in brief the red mangrove, white mangrove, black mangrove, buttonwood mangrove, and yellow mangrove   5

   b) Discuss the ecosystem services and economic roles of Sundarban mangroves forest in the context of Bangladesh.   5

2. a) Why and when did UNESCO declare the Sundarbans mangrove forest as "World Heritage"?   2

   b) Sundarbans mangrove forest is a unique ecosystem for fisheries resources of Bangladesh- Justify the statement.   2

   c) Briefly discuss the present status of Sundarban mangrove fisheries of Bangladesh? Formulate your plan for the sustainable management of Sundarban mangrove fisheries.   6

3. a) What are the major causes of Chakaria Sundarban destruction in Bangladesh   3

   b) What do you know about mangrove restoration and regeneration? Mention the present status of mangrove restoration in Bangladesh.   4

   c) Formulate your recommendation for the restoration of Chakaria Sundarbans mangrove forest in Bangladesh.   3

4. a) Why is coral reef important for marine fisheries? How are the different types of coral reefs formed in the marine environment?   4

   b) What do you know about coral bleaching? What are the major causes of coral bleaching in the marine environment?   3

   c) Discuss the various adaptation found in reef habitats   3

5. a) Discuss the reproductive strategies for the coral reef fishes?   4

   b) MPAs promote responsible fishery management and habitat protection in the coral reef ecosystem---Justify the statement.   2

   c) What are the major threats to coral reef fisheries? Discuss your management plan for sustainable utilizations and conservations of coral reef-associated fisheries.   4

6. a) What do you mean by ecosystem-based coral reef fisheries management?   2

   b) Discuss the present status, major issues, management approaches, and policies for coral reef fisheries of St. Martin Island of Bangladesh?   8

*Answer any **4 (four)** questions including 3 & 5. Figures in the right margin indicate full mark.*
Download EXCEL using the link https://classroom.google.com/c/MjQ4ODQ1OTgwOTM2?cjc=zkpms6o

1.	a)	What is research?	2.0
	b)	Differentiate between quantitative and qualitative research?	4.0
	c)	What are the components and contents of a research proposal?	4.0

2.	a)	What are the main characteristics of a scientific research?	3.0
	b)	What do you know about seminar, conference, and workshop?	3.0
	c)	What are the main body and contents of an article for publishing in a journal?	4.0

3.
a) What is the use of p value in statistics? — 2.0
b) How and what common statistical test are selected for biological data analysis? — 4.0
c) Gonad size (µm) and total diameter (µm) of offspring of a sea star *Cryptasterina hystera* is given **(data is in attached excell- Sheet4).** Prepare your hypothesis, write statistical method, analyse data and report your findings based on their relation. — 4.0

4.
a) Differentiate among linear regression, t-test and ANOVA used for statistical test? — 4.0
b) What do you mean by normality of data? — 2.0
c) Parent size (µm) and offspring size (µm) of two sea star species is given in **attached excell- Sheet5.** How offspring size vary between these species? — 4.0

5.
a) What do you mean by control and replication? — 4.0
b) What are the types of error occur in statistical data analysis? — 2.0
c) Fish length (cm) and egg diameter (µm) for three populations (1, 2, 3) of a fish species collected from Bay of Bengal **(data is in attached excell- Sheet1).** Now write hypothesis, statistical method, analyse data and report your findings based on given data. — 6.0

6.
a) How plankton and benthos samples can be collected from marine environment? — 3.0
b) What is RADAR in marine research? — 2.0
c) Using data from **attached excell- Sheet1,** Compare the parent size among the populations and compare the egg size between populations 1 and 2. Analyze data and report the results. — 5.0

Chattogram Veterinary and Animal Sciences University

Department of Marine Bioresource Science

MS in Marine Bioresource Science Final Examination January-June' 2022

Course No: PCO-501 (T), Course Title: Physical and Chemical Oceanography (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 nitrogen and phosphorus cycling.   4.0

    b) As a marine scientist, discuss the equipment and mechanism for hydrography and bathymetry.   6.0

2. a) Summarize the attributes of Indian ocean in context of Indian Ocean Gyre.   5.0

    b) Discuss how biological and physical pumping of CO_2 leads to ocean acidification.   5.0

3. a) Compose a scenario regarding the origin of the earth and ocean.   5.0

    b) Interpret how sediment deposition led to the creation of oceanic topographical features.   5.0

4. a) Outline the aftermath of plate tectonics in continental drift; from ancient times to recent one.   5.0

    b) Assess the different types of sea waves   5.0

5. a) Comply the formation of ooze in ocean and how they facilitate the ecosystem.   4.0

    b) Compile the types of sediments and where they're found.   6.0

Department of Marine Bioresources Science
Chattogram Veterinary & Animal Sciences University, Chattogram
Master of Science in Marine Bioresource Science
January-June Semester Final Exam, 2022
Corse Title: Tropical Marine Biology; Course No. TMB – 501 (Compulsory)
Total Marks: 40, Time: 2 hours

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

1. a) Give a comprehensive scenario about tropical and temperate marine biology. 5

    c) "Bay of Bengal is a huge reservoir of fisheries resources" – Justify the 5
    statement

2. a) Discuss about the abundance and distribution of marine flora found in the 5
    coastal habitat of Bangladesh

    b) Mangrove species can survive in high saline water and soil as well as 5
    extreme tides and waves due to their different anatomical and physiological
    adaptation. Now describe the different physiological and anatomical adaptation
    of mangrove species

3. a) Explain benthic community. Briefly discuss about the distribution of benthos 5
    in marine environment

    b) Discuss the role of benthic community in marine ecosystem 5

4. a) Classify the marine microbes. Discus about the distribution and significance 5
    of marine microbes in marine ecosystem.

    b) Briefly discus about the adaptation process of marine fishes 5

5. a) "Phytoplankton is the base of marine food chain"- explain the statement 3

    b) Classify the marine phytoplankton and discus about the distribution pattern 3
    of marine phytoplankton

    c) Briefly describe the major factors affecting the growth and distribution of 4
    phytoplankton in oceans

6. Short Notes (Answer any two) 5×2=10

    a) Seaweed in Bangladesh b) Marine Icthyoplankton , c) Migration of marine
    fishes