

Chattogram Veterinary and Animal Sciences University, Chattogram

Faculty of Fisheries

Department of Marine Bioresource Science

Master of Science in Marine Bioresource Science, January-June Semester Final Examination' 2021

Course No: NMA-501 (Elective), Course Title: Navigation and Maritime Affairs (Theory)

Total Marks: 40, Time: 2 hours

Answer any FOUR questions. Illustrate your answer wherever necessary.

- 1 a) What do you mean by Maritime Navigation? Why studying Maritime Navigation is important for a Marine Bioresource Science student? 3.0
b) Discuss about various equipment necessary for safe navigation. 7.0
2. a) What is Seamanship? Discuss about various administrative and disciplinary rules of seafarer on ship during seamanship. 5.0
b) What do you mean by anchoring and mooring? Discuss how to anchor and docking a boat during navigation. 5.0
- 3 a) Discuss about the various "Rules of the Road" to be followed by ships and other vessels during navigation at sea. 10.0
- 4 a) What do you know about International Code of Signals (ICS)? What are the purposes of ICS? Discuss about the various method of signaling during navigation. 7.0
b) How can GPS help to find navigational position of a ship in the ocean? 3.0
- 5 a) What do you know about nautical charts? 2.0
b) Discuss about various types of nautical charts used in navigation. 8.0
- 6 a) What do you know about coastal navigation aids? 2.0
b) Discuss about various types of aids to navigation system. 8.0

Department of Marine Bioresource Science
Chattogram Veterinary and Animal Sciences University
MS in Marine Bioresource Science Final Examination Jan-Jun' 2021
Course No: MSR-501 (T), Course Title: Marine Survey and Research (Theory)
Total Marks: 40, Time: 2 hours

Answer any 4 (four) questions including 4 & 6. Figures in the right margin indicate full mark.
Upload EXCEL using the link <https://classroom.google.com/c/MjQ4ODQ1OTgwOTM2?cjc=zkpms60>

1. a) What do you mean by research? 2.0
 b) What are the tools for quantitative research? 4.0
 c) Write details on FGD as a qualitative research tool. 4.0
2. a) Write down the general guidelines for authors seen in a journal for article publications? 3.0
 b) How many types of scientific articles are considered for publishing in a journal? 2.0
 c) What should be the contents for an abstract and introduction section of an article. . 4.0
3. a) What are the assumptions of linear regression, t-test and ANOVA? 5.0
 b) In a feeding trial, 10 fishes were supplemented with vitamins. The length (cm) of fish before and after vitamin supplement is given below. Estimate the effect of vitamin supplement. 5.0

Fish no.	1	2	3	4	5	6	7	8	9	10
Before	54	62	58	70	73	80	72	60	68	67
After	68	80	76	85	85	90	80	78	78	70

4. a) What are the main body and contents of an article for publishing in a journal? 4.0
 b) Fish length (cm) and egg diameter (μm) for three populations (1, 2, 3) of a fish species collected from the Bay of Bengal (data is in attached excel- Sheet1 from google classrom) to find whether egg size differ among populations. Now write statistical method, analyse data and report your findings. 6.0
5. a) What are the methods used for bathymetry profiling? 4.0
 b) What is the use of SONAR in marine research?
 c) Using data from attached excel- Sheet2 from google classrom, compare the biomass (g/m^2) of seaweed from three treatments (off-bottom, floating and net) done at Moheshkhali coastal areas. Analyse data and report the results. 6.0
6. a) What is parametric assumption? 2.0
 b) How and what common statistical test are selected for biological data analysis? 4.0
 c) Fish length (cm) and weight (gm) of *Tenualosa toli* from Bay of Bengal are given in attached excel- Sheet3 from google classrom. Now analyze the length-weight relationship and report the result accordingly. 4.0

Chattogram Veterinary and Animal Sciences University
Department of Marine Bioresource Science
Faculty of Fisheries

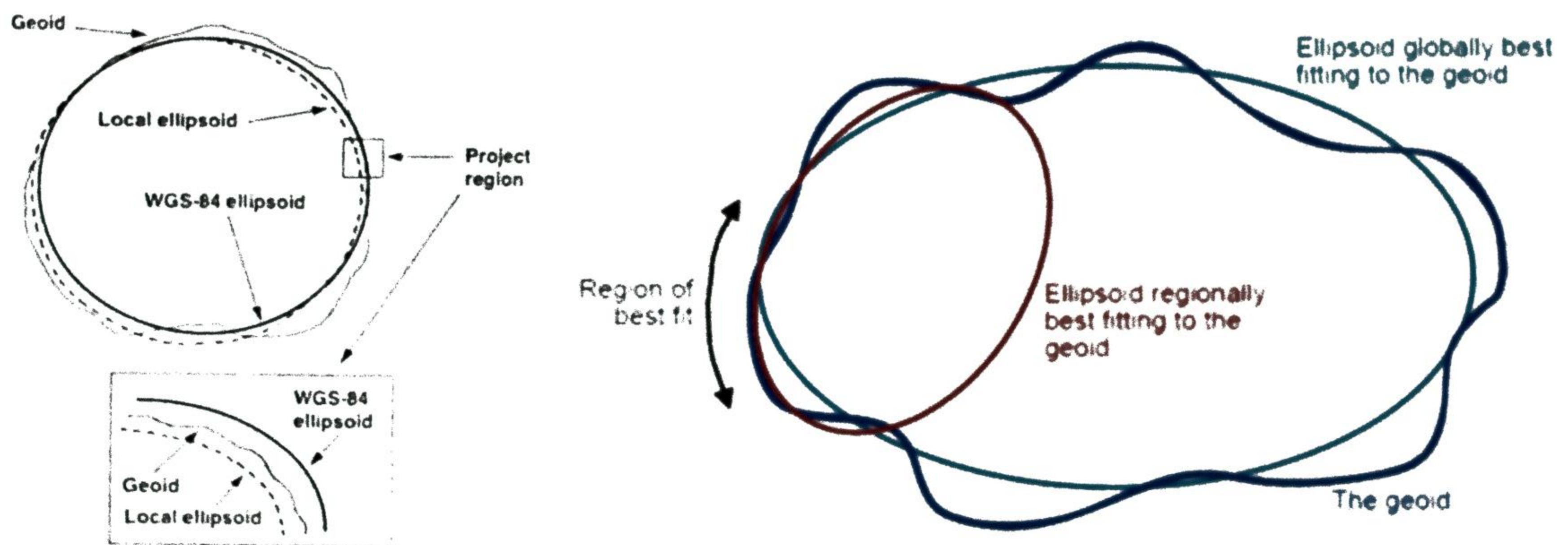
MS in Marine Bioresource Science, January-June Semester Course Final Exam 2021

Course Title: **Remote Sensing in Marine Fisheries**; Course Code: **RMF 501(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) How is GIS technology considered as an information system for decision support? 3.0
 b) Mention the vectorial and cell-based spatial entity modeling used for RS data processing. 3.0
 c) Specify the primary sources of data for building the different geodataset. 4.0
2. a) What are three basic components of geographic data? 2.0
 b) How the transformations of coordinate and geospatial reference system work for building a spatial model or geodataset? 5.0
 c) Write down the applicability of GIS Data in the field of marine fisheries. 3.0
3. a) Categorize the steps involved in a map projection process. 3.0
 b) Explain briefly the basic processes and functionality of remote sensing. 4.0
 c) State the projection categories with its application in the marine fisheries sector. 3.0
4. a) The planet earth is a 3D-body, spherical but abstraction from relief. Discuss briefly why the positioning needs simplification. 4.0
 b) Define geoid and ellipsoid using the following sketch. What's the global and local ellipsoid consider for maritime region along with Bay of Bengal region? 3.0



- c) "The passive sensors measure only radiation emitted by the Sun and reflected or emitted by the Earth, such as the Landsat, Quickbird, WorldView, and MODIS etc."- Justify the statement with specific examples. 3.0
5. a) What are the concepts behind spectral signature and atmospheric windows? 4.0
 b) How can you specify marine habitat in a modeling approach? 2.0
 c) Illustrate how the marine habitats are mapped and integrated using the RS data and GIS technology? 4.0
6. a) What are the basic processes of remote sensing used in the marine fisheries sector? 2.0
 b) Specify active and passive sensors with proper examples. 3.0
 c) How do satellites make measurements using geostationary and polar orbiting satellites? 5.0

Chattogram Veterinary & Animal Sciences University, Chattogram
Department of Marine Bioresource Science

Master of Science in Marine Bioresource Science, January-June Semester, Final Examination, 2021
Course Code. **PCO-501 (Compulsory)**, Course Title: Physical and Chemical Oceanography
Total Marks: 40, Time: 2 hours

Answer any **FOUR (04)** questions. Illustrate your answer wherever necessary.

1. a) Assemble the major findings of the 'Voyage of HMS Challenger'. 5
b) 'Ocean is basically the combination of terrigenous and biogenous deposits' 6
Justify this statement.
2. a) Compare and contrast in between •strait vs. channel and •gulf vs. bay 4
b) Interpret how nutrient-rich water reach the surface and vicé-versa? Does the 3
ocean floor play any role in this incident?
c) Interlink the Turbidity current, Submarine canyon and Continental rise in ocean 3
bottom topography.
3. a) Diagrammatically appraise the formation of wave and tide in the oceanic water. 4
b) Assess the pathway and driving force of 'The Gulf Stream'. 6
4. a) How can the ocean be stratified in terms of temperature, salinity and density? 5
b) Illustrate the input of salt along with specific sources in ocean water. 5
5. a) Point out the physico-chemical features of the Bay of Bengal. 6
b) Discuss the tools and techniques used in hydrographic and bathymetric studies. 5

Department of Marine Bioresources Science
Chattogram Veterinary & Animal Sciences University, Chattogram
Master of Science in Marine Bioresources Science
January-June Semester Final Exam, 2020

Course Title: Tropical Marine Biology; Course No. TMB – 501 (Compulsory)

Total Marks: 40, Time: 2 hours

(Answer any four)

1. a) Differentiate tropical and temperate marine biology. 3
b) Illustrate the life cycle of following organisms – 5
 i) Krill
 ii) Oyster
c) Explain the distribution pattern of marine plankton. 2
2. a) Briefly describe a typical marine food web including its major features. 3
b) Give a complete overview of marine microbial communities. 4
c) Explain the significance of microbes in marine environment. 3
3. a) Discuss different types of migration patterns followed by various fish species 5
b) Briefly describe different morphological and adaptational changes associated with fish migration. 5
4. a) What is the major limiting factor for primary production in tropical seas? 3
 How do mangroves, seagrasses, and coral reefs alleviate this problem?
b) “World coral reef habitat is in danger”- explain the statement. 2
c) Give a complete outline on the adaptation processes of mangrove. 5
5. Short note (any two): 5 x 2
 a) Marine province and communities
 b) Marine plankton
 c) Salt marsh community

Chattogram Veterinary and Animal Sciences University, Chattogram
Department of Marine Bioresource Science
Master of Science in Marine Bioresource Science, January-June Semester Final Examination' 2021
Course No: **MED-501(Compulsory)**, Course Title: **Marine Ecological Dynamics**
Total Marks: 40, Time: 2 hours

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

- | | | | |
|----|----|--|-----|
| 1. | a) | Differentiate between a community and an ecosystem. | 3.0 |
| | b) | What are the abiotic factors that affect the distribution of organisms in an ecosystem? | 7.0 |
| 2. | a) | How can primary production be measured? | 5.0 |
| | b) | What characteristics do you associate as an organism's environmental role? | 5.0 |
| 3. | a) | Draw and describe the vertical zonation of a sandy beach. | 4.0 |
| | b) | Describe some of the adaptations exhibited by organisms inhabiting rocky coasts. | 6.0 |
| 4. | a) | Give an overview about the organisms of marine benthic zone. | 3.0 |
| | b) | Which types of ecological interrelations you found between and among communities of an ecosystem? | 7.0 |
| 5. | a) | Discuss about the flora and fauna of tropical rocky shore. | 5.0 |
| | b) | Suppose, deep water fish could survive the physical environment of surface waters, do you think that they would be able to compete effectively with fish already adapted to that environment? Explain. | 5.0 |
| 6. | a) | Describe a detritus-based food chain. | 4.0 |
| | b) | Briefly explain the ecology of BoBLME. | 6.0 |