

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

Master of Science in Marine Bioresource Science, July-December Semester Final Examination 2019
Course No: **MCM 502 (Compulsory)**, Course Title: **Marine Resource Conservation and Management**
Total Marks: 40, Time: 2 hours

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

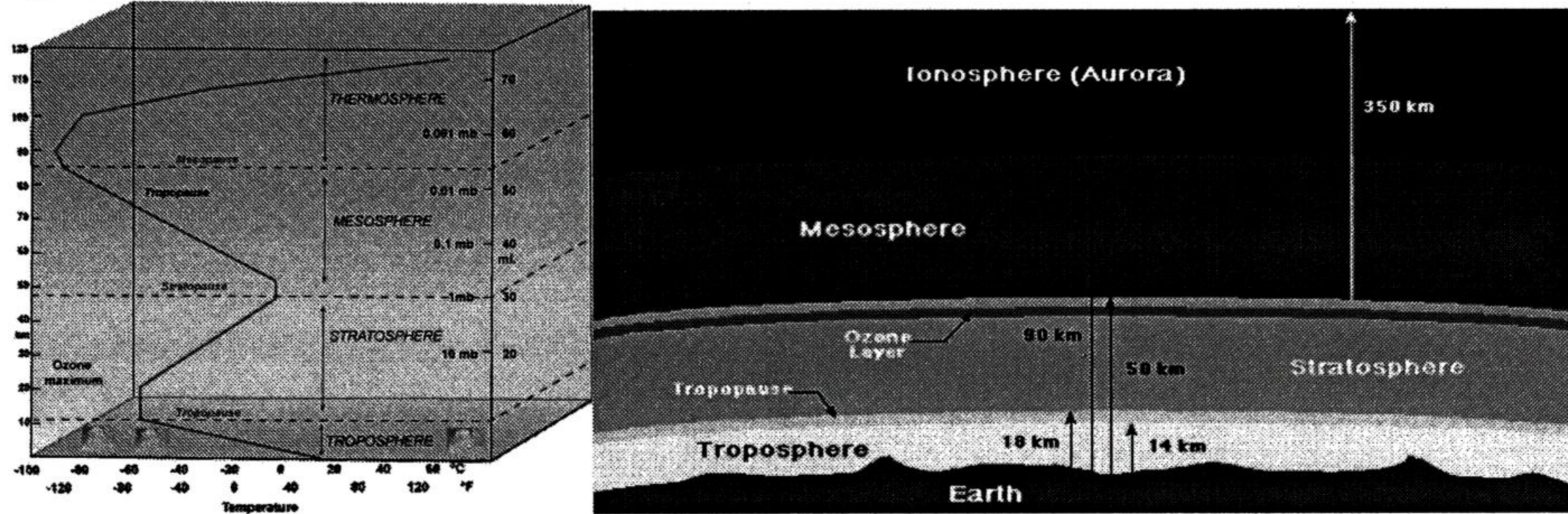
1. a) Discuss the present trend of world marine capture fisheries. 5.0
b) Explain probability sampling techniques used for data collection for marine fisheries management. 5.0
2. a) Interpret the terms with examples- High seas, International waters, Transboundary Waters 3.0
b) How the stocks are assessed by using the tools of VPA and LFDA? 7.0
3. a) What are the major issues and challenges of implementing effort control and catch control of artisanal fisheries of the Bay of Bengal in Bangladesh? 7.0
b) Write down the recent data, i) Total fish production=? ii) Marine Production=? iii) Desirable fish intake per person per day=? iv) Position of BD in Hilsha production=? v) Total coastline of BD=? vi) Marine boundary of BD=? 3.0
4. a) Why ESN and MSN are categorized as destructive fishing gears? 3.0
b) Explain the Management actions of "Marine Fisheries Rules' 1983". 7.0
5. a) Explain compliance and enforcement in the field of maritime management. 3.0
b) Illustrate the framework of EBFM. 7.0
6. a) Discuss the major threats of biodiversity loss of Bay of Bengal and possible mitigation measures. 5.0
b) Describe the major trends of marine fisheries of Bangladesh including fishing techniques, catch species and livelihood of coastal fishermen. 5.0

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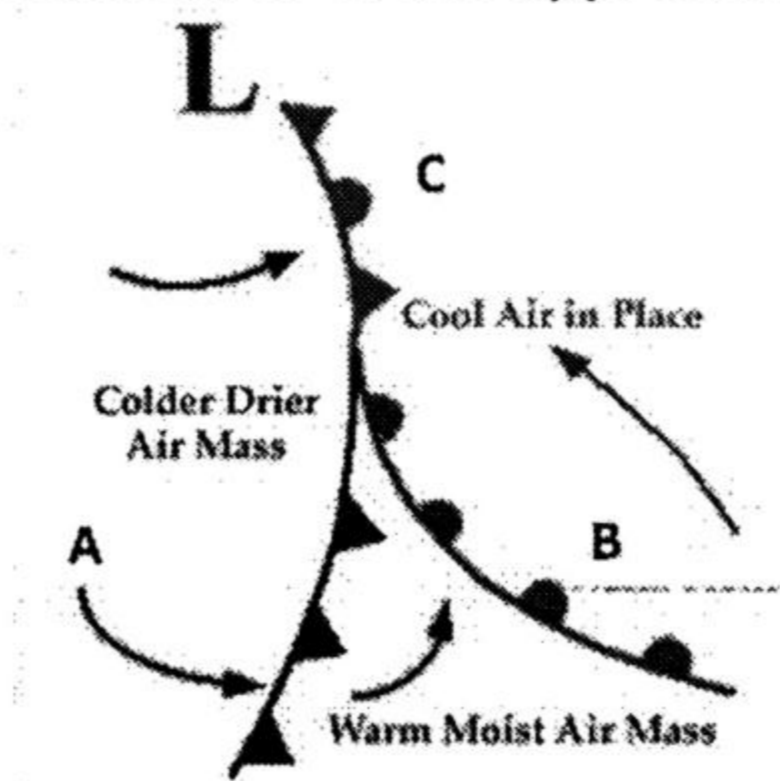
MS in Marine Bioresource Science, July to December Semester Final Examination 2019
 Course Title: **Climate Science and Meteorology**; Course Code: **CSM 502 (T)** [Compulsory]
 Total Marks **40**, Time: **2 hours**

*Answer any **FOUR (04)** questions, Illustrate your answer wherever necessary. Figures in the right margin indicate full mark.*

1. a) What do you understand by modern atmosphere? State the modern atmosphere with its evolutionary history. 4.0
- b) Briefly specify the vertical structure of the earth's atmosphere according to the following figures. 6.0



2. a) Differentiate between homosphere and heterosphere? 2.0
- b) Write down the special features of permafrost climate with proper examples? 3.0
- c) What's the relative humidity? If the air temperature was 95 F with dewpoint of 70 F, would the air's relative humidity be higher or lower than if the air temperature was 70 F with dewpoint of 55 F. Which air mass would feel more uncomfortable to you? 5.0
3. a) What do you mean by pressure gradient? 2.0
- b) Why pressure gradient varies with height, place and time? 3.0
- c) Illustrate briefly the air pressure experienced in January and July in the Bay of Bengal. 5.0
4. a) What is the basic difference between climate and weather? 3.0
- b) How a tsunami forms with its different involving development and approaching phases? 3.0
- c) The Pacific has experienced in seasonal El Nino and La Nina conditions. What will be the possible conditions for the Indian Ocean context with positive and negative phases. 4.0
5. a) Why earth has seasons? 2.0
- b) How does the rain forms? 3.0
- c) Classify the clouds on the basis of their height groups from the surface base. 5.0
6. a) Differentiate between anabatic and katabatic wind pattern. 2.0
- b) Categorize the following figure with features of the approaching fronts. 3.0



- c) Enlist the different stages of cyclogenesis with the characteristics of a Mid Latitude Cyclone. 5.0

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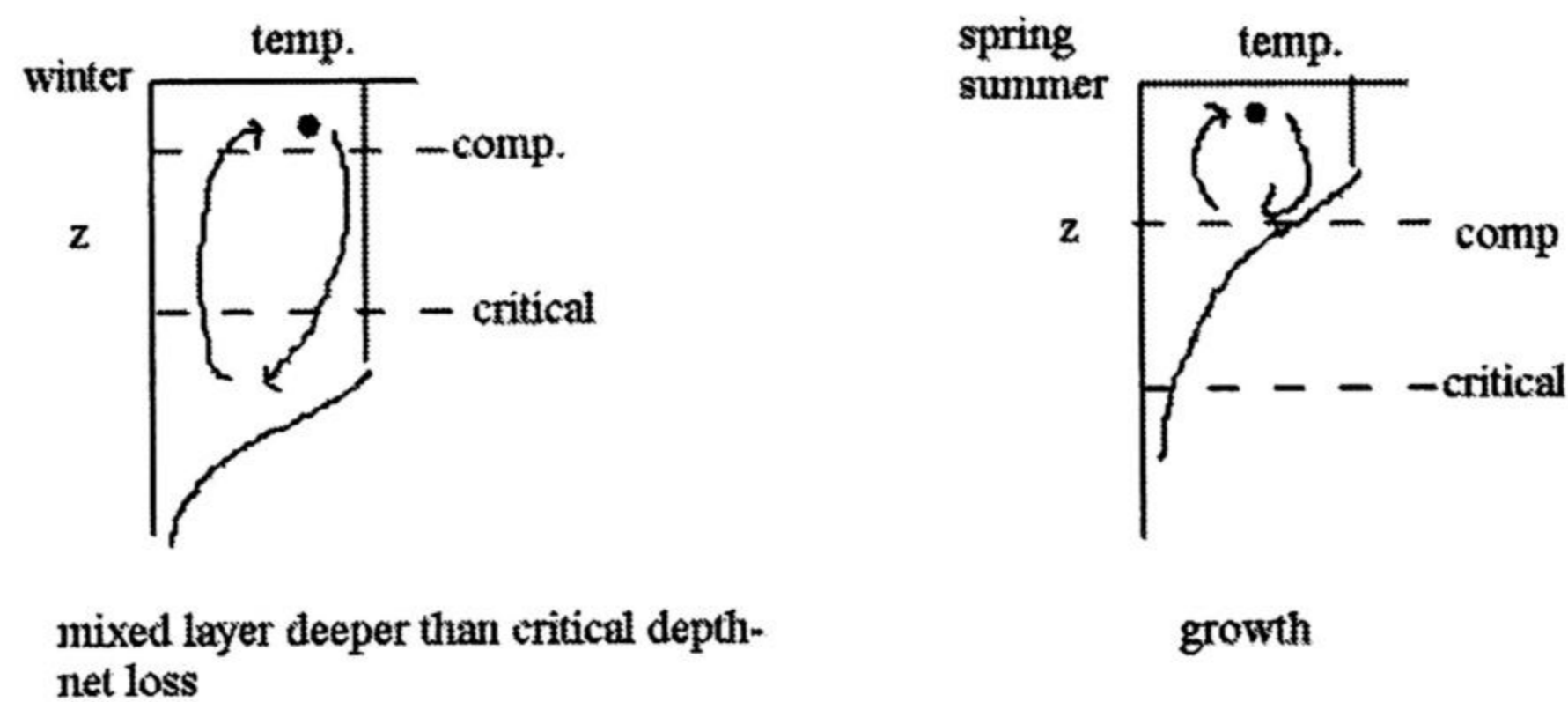
MS in Marine Bioresource Science, July-December Semester Final Examination 2019

Course Title: **Marine Biogeochemistry**; Course Code: **MBC 502 (T)** [Compulsory]

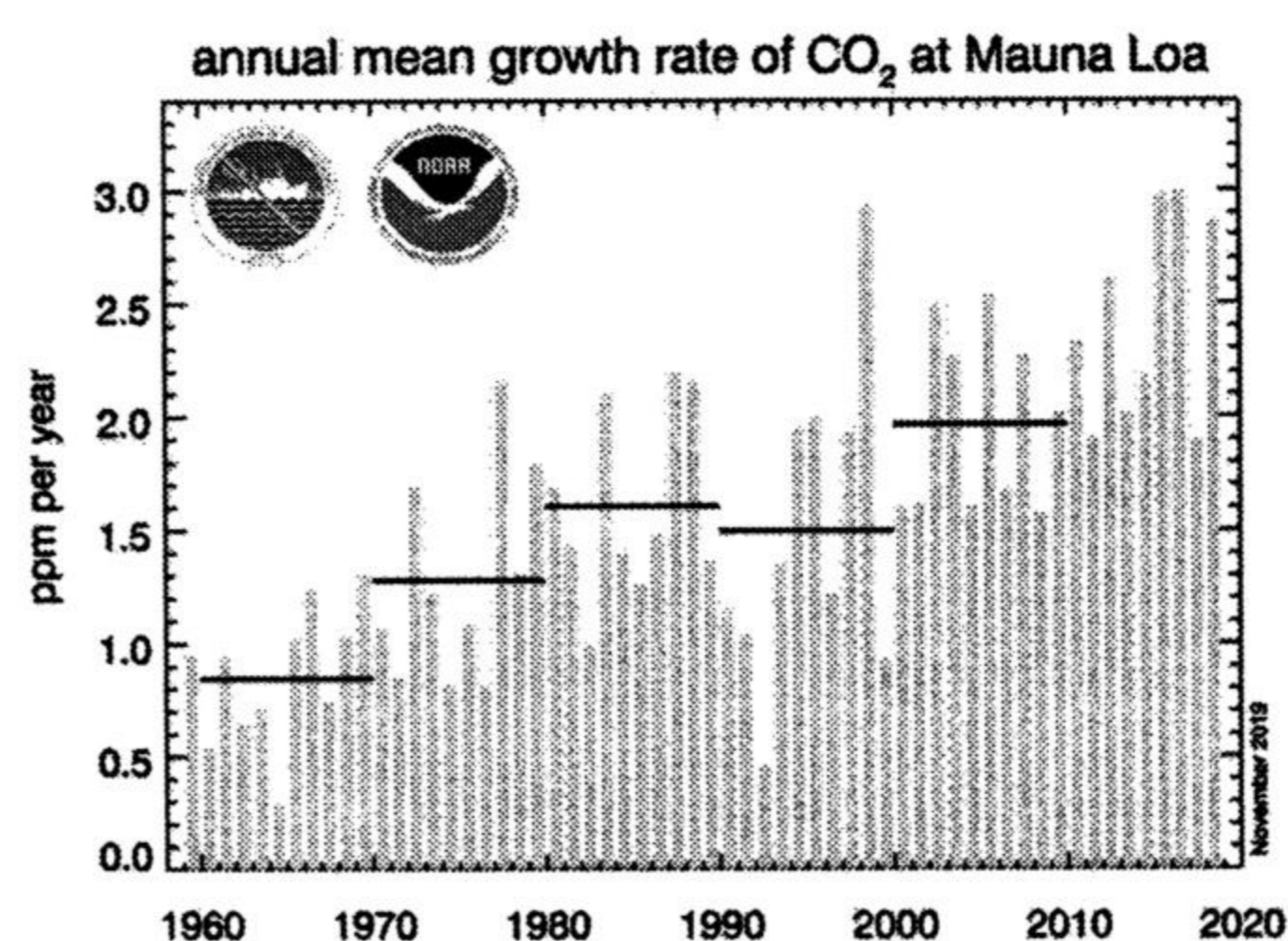
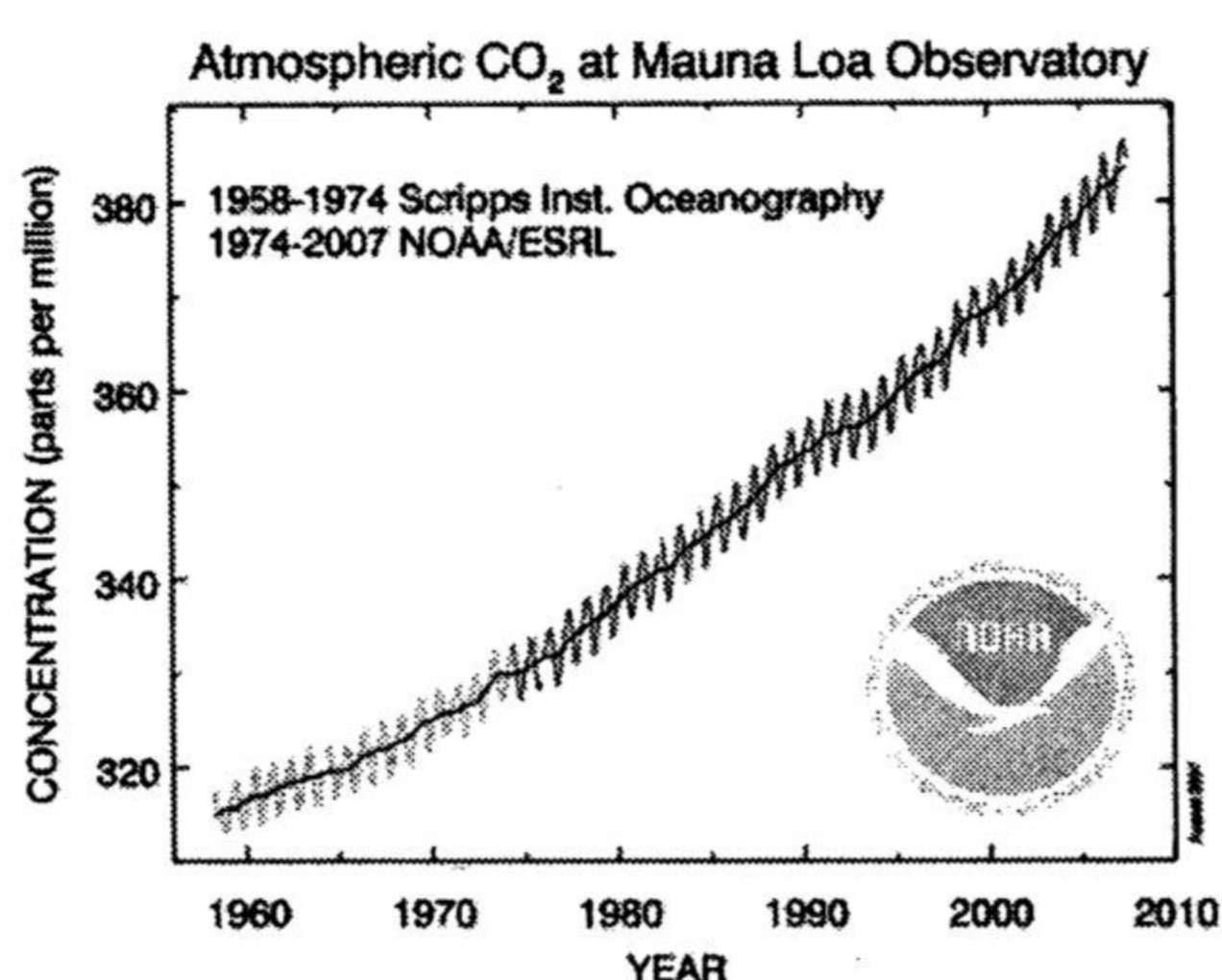
Total Marks 40, Time: 2 hours

*Answer any **FOUR (04)** questions, Illustrate your answer wherever necessary. Figures in the right margin indicate full mark.*

1. a) What controls the air sea CO₂ fluxes in the present climate? 3.0
- b) How does marine biogeochemistry impacts on climate? 3.0
- c) Briefly analyze the critical depth and ocean mixing processes from the following illustration 4.0



2. a) What are the controllers on export production in marine environment? 2.0
- b) Does the Iron (Fe) necessary nutrient for marine phytoplankton? Why the Iron limited in the Southern Ocean? 4.0
- c) Concisely illustrate the long term evolution of Fe biogeochemical cycles with different steps. 4.0
3. a) What is the explanation for the Redfield Ratio? 3.0
- b) Specify the controls on primary productivity? 3.0
- c) Describe in brief the oceanic ecosystem based on Nitrogen exchange. 4.0
4. a) What do you understand by marine carbon cycling? 2.0
- b) Enlist the chemical factors that control the chemical weathering process in ocean. 3.0
- c) Briefly illustrate the major steps involved in oceanic carbon biological pump. 5.0
5. a) Why should we care about ocean acidification on coast? 2.0
- b) Explain the conditions of atmospheric CO₂ recorded by the Mauna Loa Observatory on the basis of geological time scale which mentioned below. 4.0



- c) Briefly confer the effects on ocean acidification on the marine food web. 4.0
6. a) What is the importance of bioturbation in benthic processes of biogeochemical cycles? 2.0
- b) How the burrowing organisms influence carbon processing on the global scale? 3.0
- c) Discuss briefly the interaction process of oceanic sediment with the nutrient flux 5.0

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Master of Science in Marine Bioresource Science, July-December Semester Final Examination 2019

Course No: **BOC 502 (Compulsory)**, Course Title: **Biological Oceanography**

Total Marks: 40, Time: 2 hours

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

1. a) Enlist the major upwelling systems of world ocean. 2.0
b) "Upwelling is one of the major contributing factors in marine fish production"- Justify the statement. 8.0
2. a) Enlist five techniques of modern fishing. What are the roles of remote sensing in ocean fishing? 5.0
b) How you will detect a new fishing ground? 5.0
3. a) Differentiate between straddling stock and migratory fish stock. 3.0
b) Describe the world's major fishing grounds with locating them in map. 7.0
4. a) What do you understand by ballast water? 2.0
b) What are the factors that affect the growth and abundance of phytoplankton and zooplankton in the coastal and open water? 8.0
5. a) "Ocean acidification has great impact on marine producers"- Explain the statement. 5.0
b) Describe the food web of seagrass bed and mangrove ecosystem. 5.0
6. a) What are the roles of tide on marine fish abundance and distribution? 5.0
b) Discuss the techniques of productivity measurement of marine phytoplankton. 5.0

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Course Code: **CMP 502 (Compulsory)**, Course Title: **Coastal and Marine Pollution**

Total Marks: 40, Time: 2 hours

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

1. a) Can you characterize pollution? Compile the various types of pollution in a single diagram for the ease of understanding. 4
b) Estimate the existing impacts of shipbreaking activities along with their appropriate examples. 6
2. a) Compare and contrast between coastal and marine pollution along with their examples. 4
b) Summarize the roles of heavy metal as a marine pollutant. 6
3. a) Propose a concept on 'Turning trash into treasure'. 4
b) Criticize the activities of bio-indicators and bio-markers. Construct a list of critical selection criteria for these elements accompanied by a specific case study. 6
4. a) Compare and contrast in between sewage and sludge along with their treatment processes. 5
b) Prepare a diagrammatic formation of Environmental Impact Assessment process together with an appropriate real-time example. 5
5. a) Construct a framework on the steps Environmental Risk Assessment. Can hazard be counted as risk? Justify your answer. 6
b) Discuss the prevention and control methods of oil spill with examples. 4

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Course Code: **MBT 502 (Compulsory)**, Course Title: **Marine Biotechnology**

Total Marks: 40, Time: 2 hours

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

1. a) Evaluate the role of biotechnology for the controlling of biofouling agents. 4
b) Predict the quality of sperm after cryopreservation. Appraise the possibility of in-vitro fertilization with cryopreserved sperm. 6
2. a) Diagrammatically explain antibiotic resistance and discuss the aftermaths of this process. 6
b) Compare and contrast in between the activities of anesthetics and analgesics with their examples. 4
3. a) Outline the components derived from marine algae along with their suitable uses. 4
b) Differentiate in between shore and beach. Devise the illustration of the beach types along with their mechanism. 6
4. a) Compare the mechanism of DNA and Protein sequencing. 3
b) Compose the types of vaccines available. Can vaccines be incorporated into organisms? Explain concisely. 4+3=
7
5. a) Compare and contrast among the mechanisms of inbreed, crossbreed and hybrid fishes along with their current examples. 6
b) Discuss the ethical issues regarding the marine organisms. What is the health risks associated with GM foods? 2+2=
4