R2766

Sub. Code
461201

M.Sc. DEGREE EXAMINATION, APRIL – 2025

Second Semester

Oceanography and Coastal Area Studies

MARINE ECOLOGY AND ZOOGEOGRAPHY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. Planktonic are mostly present in the ———— (CO1, K1)

   (a) Demersal zone (b) Oceanic surface

   (c) Abyssal plains (d) Vent regions

2. Photosynthesis can be performed by (CO1, K1)

   (a) Cyanobacteria (b) Foraminifera

   (c) Sea slugs (d) Sea bream

3. Pyramid of energy is always (CO2, K1)

   (a) Linear (b) Sigmoid

   (c) Inverted (d) Upright

4. Upwelling of water is driven by (CO2, K2)

   (a) Marine organisms (b) Temperature

   (c) Planktons (d) Nektons

5. A population of the same species that live in different habitat patches are called. (CO3, K2)

(a) Dispersed population

(b) Random population

(c) Meta population

(d) Clumped population

6. The Lotka – Volterra equation curve is a ———— model. (CO3, K2)

(a) Bell shaped (b) S - shaped

(c) Linear (d) Sigmoid

7. Hydrarch succession is initiated by (CO4, K2)

(a) Vallisneria (b) Zooplanktons

(c) Phytoplanktons (d) Sedges

8. Inquilinism is a type of (CO4, K2)

(a) Commensalism (b) Parasitism

(c) Predation (d) Ammensalism

9. Water hyacinth is an example for (CO5, K2)

(a) Exotic species (b) Endemic species

(c) Invasive species (d) native species

10. Itai itai disease is caused by (CO5, K2)

(a) Heavy metal pollution

(b) Noise pollution

(c) Thermal pollution

(d) Chemical pollution

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Point out a few nektonic and planktonic organisms with structural adaptations. (CO1, K3)

Or

(b) Elaborate on the various feeding strategies of marine organisms. (CO1, K3)

12. (a) Describe the pyramid of number and pyramid of biomass in the aquatic environment. (CO2, K3)

Or

(b) Give a short note on the structural organization of the marine food chain. (CO2, K3)

13. (a) Explain the Lotka – Volterra model of species relationship. (CO3, K3)

Or

(b) What are the principles of population? (CO3, K3)

14. (a) What is meant by ecological succession? Elaborate on the primary succession. (CO4, K4)

Or

(b) Briefly explain the role of various interactions between animals emphasising Phoresis. (CO4, K4)

15. (a) What are alien species? How does the alien species invasion affect indigenous communities? (CO5, K4)

Or

(b) Define pollution. Briefly explain the ocean heavy metal pollution. (CO5, K4)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Explain in detail the ecological significance of estuaries. (CO3, K3)

Or

(b) Describe the adaptations of benthic organisms for survival. (CO2, K2)

17. (a) Provide a detailed account on evolutionary changes attained by marine organisms. (CO2, K3)

Or

(b) Write an essay on "Nutrient recycling in oceans as a substantial factors for marine life forms". (CO1, K2)

18. (a) Give detailed notes on r selection and k selection species and the survivorship curves of the aquatic environment. (CO3, K3)

Or

(b) What is meant by carrying capacity? How do alterations in environmental parameters affect various populations? (CO1, K2)

19. (a) Elaborate in detail on the zoogeography of the peninsular Indian Ocean. (CO2, K3)

Or

(b) Describe the communities involved in fouling of marine structures. (CO3, K2)

20. (a) Write an essay on "the hazardous exploitation of marine bioresources and ecosystem sustainability for the future". (CO3, K1)

Or

(b) Write an essay on "threats of marine ecosystem and assessment methods for conservation". (CO3, K2)

———————

R2769	Sub. Code
	461204

M.Sc. DEGREE EXAMINATION, APRIL – 2025

Second Semester

Oceanography and Coastal Area Studies

AQUACULTURE

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. The socioeconomic benefits arising from the expansion of aquaculture include (CO1, K2)

   (a) Improved nutrition and health

   (b) Income and employment generation

   (c) Food provision

   (d) All of the above

2. Which of the following practices can help to reduce overfishing? (CO1, K2)

   (a) Increasing fish quotas

   (b) Implementing marine protected areas

   (c) Using explosives for fish capture

   (d) Fishing during breeding seasons

3. What is the typical shape of a raceway used in aquaculture? (CO2, K3)

(a) Circular (b) Triangular

(c) Rectangular (d) Oval

4. What is the primary factor of topography that influences aquaculture site selection? (CO2, K3)

(a) Availability of fishing equipment

(b) Climate zone

(c) Soil type

(d) Proximity to urban areas

5. Why probiotics and prebiotics commonly used in aquaculture? (CO3, K3)

(a) Reducing livestock stress

(b) Enhancing gut health

(c) Controlling predators

(d) Improving water quality

6. What is a common economic challenge faced during the harvesting phase of aquaculture? (CO3, K3)

(a) Rapid growth rates

(b) Seasonal fluctuations in market prices

(c) High feed costs

(d) Excessive water usage

7. Which of the following is the most commonly cultured fin fish worldwide? (CO4, K4)

(a) Salmon (b) Tilapia

(c) Catfish (d) Carp

8. Which factor is most critical when selecting brood stock? (CO4, K4)

(a) Colour of the fish

(b) Size of the aquarium

(c) Genetic quality and health

(d) Cost of feed

9. Which of the following is NOT a common ingredient in aquaculture feed formulations? (CO5, K4)

(a) Fish meal

(b) Corn gluten meal

(c) Coal dust

(d) Soybean meal

10. What is a common focus area for non-governmental agencies working in fisheries development? (CO5, K4)

(a) Profit maximization

(b) Marine conservation

(c) Tax collection

(d) International diplomacy

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Illustrate the socio-economic problems of aquaculture. (CO1, K2)

Or

(b) Explain the present status of coastal aquaculture. (CO1, K2)

12. (a) Interpret the factors of topography and how that influences aquaculture site selection? (CO2, K3)

Or

(b) Simplify the advantages of open sea farming using cages and rafts. (CO2, K3)

13. (a) Generate the water quality management in pond maintenance. (CO3, K3)

Or

(b) Classify the different types of seaweed culture. (CO3, K3)

14. (a) Explain the collection and maintenance of brood stock. (CO4, K4)

Or

(b) Distinguish the hatchery management of molluscans. (CO4, K4)

15. (a) Interpret in detail about the feed formulation technology. (CO5, K4)

Or

(b) Justify the role of fisheries extension. (CO5, K6)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Outline the key benefits of coastal aquaculture, and why is it important for coastal communities? (CO1, K2)

Or

(b) Show how does overfishing in aquaculture affect marine biodiversity and ecosystems? (CO1, K2)

17. (a) Examine the potential for disease outbreaks in open-sea farming compared to land- based aquaculture. (CO2, K3)

Or

(b) Distinguish the common challenges during the construction phase of an aquaculture farm, and how can they be effectively addressed? (CO2, K3)

18. (a) Classify the key steps involved in developing a control of predators and disease management plan for a pond maintenance. (CO3, K3)

Or

(b) Examine the economic and social benefits of seaweed culture. (CO3, K3)

19. (a) Interpret the challenges associated with mass production of finfish seeds. (CO4, K4)

Or

(b) Express the hatchery management of crustaceans and fin fish. (CO4, K4)

20. (a) Explain the role of FFDA and BFFDA in fisheries development. (CO5, K4)

Or

(b) Interpret the key responsibilities of fish fanners in promoting aquaculture. (CO5, K4)

———————

R2768

Sub. Code
461203

M.Sc. DEGREE EXAMINATION, APRIL – 2025

Second Semester

Oceanography and CAS

APPLICATION OF REMOTE SENSING AND GIS IN OCEANOGRAPHY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. Visible region range in EMR spectrum is (CO1, K2)

   (a) 0.4-0.7 µm (b) 0.4-0.7 cm

   (c) 0.1-0.8 µm (d) 0.5-15 µm

2. Atmospheric window is the process of (CO1, K2)

   (a) EMR absorption (b) EMR transmission

   (c) EMR scattering (d) EMR reflection

3. Revisit period is related to _____ resolution (CO2, K3)

   (a) Spectral (b) Spatial

   (c) Radiometric (d) Temporal

4. Along track scanner measures the energy by (CO2, K3)

   (a) Integer value (b) Numerical value

   (c) Pixel by pixel (d) Line by line

5. In forest and vegetation studies hyperspectral are used to determine (CO3, K3)

(a) Density (b) Intensity

(c) Species Variety (d) Health

6. Water surfaces in images record _____ areas in the near infrared channel. (CO3, K3)

(a) Light (b) Dark

(c) Greyish white (d) Bright

7. Satellite sensors LISS – 1, LISS – 2, LISS – 3, and LISS – 4 were on-board (CO5, K2)

(a) Landsat series of satellites

(b) NOAA series of satellites

(c) IRS series of satellites

(d) ERS series of satellites

8. _____ is a commercial high-resolution system which is operated by Geoeye. (CO5, K3)

(a) IKONOS (b) QUICKBIRD

(c) CARTOSAT (d) INSAT

9. The following one is not raster data formats? (CO5, K3)

(a) GeoTIFF (b) JPEG 2000

(c) ESRI Grid (d) FDP

10. The following is not main types of vector data (CO5, K2)

(a) Line (b) Pixel

(c) polygon (d) point

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Draw-electromagnetic spectrum and the wavelength range. (CO1, K2)

Or

(b) Write short notes on EMR interaction with atmosphere. (CO1, K2)

12. (a) What are the instruments used for aerial platform? (CO2, K2)

Or

(b) Differentiate active and passive sensor. (CO2, K2)

13. (a) How remote sensing use for water resource studies? Give five points. (CO3, K2)

Or

(b) Write notes on advantages of microwave remote sensing. (CO3, K2)

14. (a) Name any five sensors in IRS satellite. (CO4, K2)

Or

(b) Short notes on IKONOS. (CO4, K2)

15. (a) Pivot components of GIS. (CO4, K3)

Or

(b) Illustrate for DEM and write its advantages. (CO5, K2)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Explain about EMR importance in remote sensing. (CO1, K2)

Or

(b) Describe the spectral signature of vegetation, soil and water with neat sketch. (CO1, K2)

17. (a) Criticise how different platform response in remote sensing. (CO2, K2)

Or

(b) What you understand photogrammetry and explain its importance in remote sensing. (CO3, K3)

18. (a) Describe remote sensing and GIS application in wetland mapping. (CO4, K2)

Or

(b) Differentiate microwave and multispectral sensing system and explain all sensing. (CO5, K3)

19. (a) Write about different spatial resolutions and importance in remote sensing. (CO5, K2)

Or

(b) Name any five satellite and explain how Landsat travel in history. (CO4, K3)

20. (a) Describe GIS application in natural resource management. (CO4, K2)

Or

(b) Give importance of vector and raster data and explain them. (CO4, K3)

R2767

Sub. Code
461202

M.Sc. DEGREE EXAMINATION, APRIL – 2025

Second Semester

Oceanography and Coastal Area Studies

MARINE POLLUTION, ENVIRONMENT AND HEALTH

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. Which is the most input of waste causing marine pollution? (CO1, K2)
   (a) Death of aquatic organisms
   (b) Pesticides
   (c) Pipes directly discharge waste into the sea
   (d) None of the above

2. What does COD indicates? (CO1, K2)
   (a) Age of the sewage
   (b) Strength of the sewage
   (c) Weakness of the sewage
   (d) None of the above

3. Which one of the following can cause thermal pollution? (CO2, K3)
   (a) Oil spill (b) Residential houses
   (c) Algal blooms (d) Power plants

4. Identify one of the following methods is not for oil spill cleanup. (CO2, K3)

(a) Dispersants (b) Skimming

(c) Tarballing (d) Deploying booms

5. Which of the following is an example for natural pesticide? (CO3, K3)

(a) Rotenone (b) DDT

(c) Heptachlor (d) Chlordane

6. Which of the following is an example of bioaccumulation? (CO3, K3)

(a) Glucose building up in humans

(b) Mercury building up in fish

(c) Cellulose building up in trees

(d) Proteins building up in cows

7. Identify one of the following metals which is potent carcinogen. (CO4, K4)

(a) Copper (b) Mercury

(c) Lead (d) Arsenic

8. Find the following one which causes a very high rate of mutation? (CO4, K4)

(a) Oil spill (b) Radiation

(c) Sun light (d) Eutrophication

9. Which of the following is not a greenhouse gas contributing to global warming? (CO5, K4)

(a) Methane (b) Carbon Dioxide

(c) Nitrous Oxide (d) Nitrogen

10. ———— is the functional process in removing the carbon dioxide from the atmosphere. (CO5, K4)

(a) Lightning

(b) Photosynthesis

(c) Burning of fossil fuels

(d) Deforestation

Part B (5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Outline the various persistent marine pollutants and its sources. (CO1, K2)

Or

(b) Examine the origin of organic pollutants and their discharges into Ocean. (CO1, K2)

12. (a) Explain about thermal pollution and its impact on marine resources. (CO2, K3)

Or

(b) How do you categories the different types of sewage pollution? (CO2, K3)

13. (a) Examine the major sources of oil pollution in Ocean. (CO3, K3)

Or

(b) Outline the impact of pesticide pollution on the marine environment. (CO3, K3)

14. (a) Illustrate the major diseases caused by metal pollution. (CO4, K4)

Or

(b) Explain about the various disposal methods of radioactive waste. (CO4, K4)

15. (a) Explain about red tide phenomenon. (CO5, K4)

Or

(b) Write a brief account on global warming and its impact on Ocean. (CO5, K6)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Summarize the classification of marine pollution with examples. CO1, K2)

Or

(b) Explain the major impacts of various marine pollutants on marine resources. (CO1, K2)

17. (a) Outline the various treatment process of sewage pollution. (CO2, K3)

Or

(b) Write a detailed account on status of thermal pollution in Indian Ocean. (CO2, K3)

18. (a) Describe the various factors affecting bioaccumulation pesticides. (CO3, K3)

Or

(b) Explain the various treatment methods of oil pollution. (CO3, K3)

19. (a) Write an essay on heavy metal pollution and its major sources. (CO4, K4)

Or

(b) Give detailed account on Eutrophication and its ecological significance. (CO4, K4)

20. (a) Summarize the various criteria for pollution indicator organisms. (CO5, K4)

Or

(b) Discuss in detail – Monitoring strategies for marine pollution. (CO5, K4)

———————

R2770

Sub. Code
461502

M.Sc. DEGREE EXAMINATION, APRIL – 2025

Second Semester

Oceanography and CAS

Elective: COASTAL ZONE MANAGEMENT

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. Which international organization promotes coastal management and marine conservation? (CO1, K2)

   (a) FIFA (b) UNESCO

   (c) WHO (d) WTO

2. What you mean by Coastal Zone Management (CZM)? (CO1, K2)

   (a) The process of constructing buildings along the coast

   (b) The sustainable management of coastal resources and ecosystems

   (c) The removal of coastal vegetation for urban expansion

   (d) The extraction of marine resources without regulation

3. What is a "no-take zone" in an MPA? (CO2, K3)

(a) An area where only recreational fishing is allowed

(b) A zone where no marine life exists

(c) A protected area where all forms of extraction, including fishing, are prohibited

(d) A region where only indigenous communities can fish

4. Which of the following is NOT a type of Marine Protected Area? (CO2, K3)

(a) Marine National Parks

(b) Marine Reserves

(c) Exclusive Economic Zones (EEZs)

(d) Biosphere Reserves

5. In which direction do cyclones rotate in the Northern Hemisphere? (CO3, K3)

(a) Clockwise

(b) Counterclockwise

(c) Random direction

(d) No rotation

6. What is the highest level of tide called? (CO3, K3)

(a) Low tide

(b) Neap tide

(c) Lowest tide

(d) Spring tide

7. Which of the following is an example of a hard coastal protection structure? (CO5, K2)

(a) Mangroves

(b) Seawalls

(c) Beach nourishment

(d) Coral reefs

8. Which structure is built parallel to the shore to protect land from wave action? (CO5, K3)

(a) Groynes

(b) Breakwaters

(c) Jetties

(d) Artificial reefs

9. Which United Nations (UN) agency is responsible for environmental protection, including coastal management? (CO5, K3)

(a) UNDP (United Nations Development Programme)

(b) UNEP (United Nations Environment Programme)

(c) UNICEF (United Nations International Children's Emergency Fund)

(d) WTO (World Trade Organization)

10. Which international convention focuses on the protection of wetlands, which are crucial for coastal management? (CO5, K2)

(a) Ramsar Convention

(b) Kyoto Protocol

(c) Stockholm Convention

(d) Basel Convention

Part B (5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) What is Coastal Zone Management (CZM), and why is it necessary? (CO1, K2)

Or

(b) How does CZM help in balancing development and environmental conservation? (CO1, K2)

12. (a) How does eco-tourism contribute to the success of MPAs? (CO2, K2)

Or

(b) What is the role of MPAs in preserving endangered marine species? (CO2, K2)

13. (a) Give short notes on climate change and sea level rise. (CO3, K2)

Or

(b) Differentiate spring and neap tide. (CO3, K2)

14. (a) What are coastal protection structures, and why are they necessary? (CO4, K2)

Or

(b) How do artificial reefs contribute to coastal protection and marine biodiversity? (CO4, K2)

15. (a) What is the role of the Central Pollution Control Board (CPCB) in managing pollution along coastal regions? (CO4, K3)

Or

(b) Short notes on the role of the Ministry of Environment, Forest and Climate Change (MoEFCC) in India's coastal protection and management. (CO5, K2)

Part C ($5 \times 8 = 40$)

Answer **all** the questions not more 1000 words each.

16. (a) Explain about key challenges faced in coastal zone management. (CO1, K2)

Or

(b) What are the major goals of Integrated Coastal Zone Management (ICZM)? Explain. (CO1, K2)

17. (a) Discuss the impact of MPAs on fish population recovery and sustainable fisheries. (CO2, K2)

Or

(b) How do coral reefs benefit from Marine Protected Areas? Explain. (CO3, K3)

18. (a) Explain about cyclone formation and their intensity. (CO4, K2)

Or

(b) Climate change impact on ocean environment explains. (CO5, K3)

19. (a) Name four hard structures and explain the functions of the cyclone hard engineering structure. (CO5, K2)

Or

(b) Discuss the role of soft engineering approaches such as beach nourishment and dune restoration in coastal protection. (CO4, K3)

20. (a) Explain the role of the United Nations Environment Programme (UNEP) in global coastal and marine conservation efforts. (CO4, K2)

Or

(b) Discuss the relevance of the MARPOL Convention in preventing marine pollution from ships. (CO4, K3)

———————