R1909

Sub. Code
461101

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2024

First Semester

Oceanography and Coastal Area Studies

GEOLOGICAL 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. What is the primary cause of the movement of tectonic plates on Earth's surface? (CO1, K2)

   (a) Gravitational pull of the Moon

   (b) Earth's rotation

   (c) Convection currents in the mantle

   (d) Seismic activity

2. Which layer of the Earth is responsible for generating the planet's magnetic field? (CO1, K2)

   (a) Crust

   (b) Mantle

   (c) Outer core

   (d) Inner core

3. Which process is primarily responsible for the formation of sedimentary rocks? (CO2, K3)

(a) Melting and cooling

(b) Heat and pressure

(c) Weathering, erosion and deposition

(d) Crystallization from magma

4. What is the primary force responsible for the movement of glaciers? (CO2, K2)

(a) Wind

(b) Gravity

(c) Earth's rotation

(d) Tectonic activity

5. Which feature is characterized by a steep drop-off at the edge of a continental shelf, leading down to the ocean floor? (CO3, K2)

(a) Continental slope

(b) Continental rise

(c) Submarine canyon

(d) Mid-ocean ridge

6. What type of coastal landform is found along the Gulf of Mannar, known for its rich biodiversity and coral reefs? (CO3, K3)

(a) Barrier islands

(b) Atoll

(c) Delta

(d) Fringing reefs

7. Which of the following best describes an estuary? (CO4, K2)

(a) A tidal mouth of a large river, where the tide meets the stream

(b) A narrow, deep inlet of the sea between high cliffs

(c) A coastal landform where sediment is deposited by a river into a standing body of water

(d) A flat, marshy area of land between the sea and a lagoon

8. In geochronology, which isotope system is commonly used to date the age of the Earth and the oldest rocks? (CO4, K6)

(a) Carbon-14

(b) Uranium-lead

(c) Rubidium-strontium

(d) Potassium-argon

9. Magnetic surveys are often used to detect which of the following geological features? (CO5, K2)

(a) Fault lines

(b) Sedimentary layers

(c) Magnetic anomalies related to mineral deposits

(d) Groundwater aquifers

10. Polymetallic nodules, also known as polymetallic manganese nodules, are found predominantly in which oceanic region? (CO5, K2)

(a) Coastal shelves (b) Continental slopes

(c) Abyssal plains (d) Hydrothermal vent fields

Part B (5 × 5 = 25)

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

11. (a) Explain the concept of paleomagnetism. (CO1, K3)

Or

(b) Describe Convergent and Divergent Boundaries with example. (CO1, K2)

12. (a) Explain the process of chemical weathering and erosion of rock. (CO2, K2)

Or

(b) Write a note on metamorphic rocks. (CO2, K2)

13. (a) Write a note on mid-oceanic ridges with suitable examples. (CO3, K1)

Or

(b) Discuss morphology of near shore environment. (CO3, K2)

14. (a) Discuss the significance of sedimentary structures in understanding past depositional environments. (CO4, K2)

Or

(b) Explain difference between absolute dating and relative dating. (CO4, K2)

15. (a) Give an account on limestone deposits. (CO5, K5)

Or

(b) Explain the gravity method in mineral exploration. (CO5, K2)

Part C (5 × 8 = 40)

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

16. (a) Describe the structure of the Earth's interior, including the crust, mantle, outer core and inner core and explain their characteristics. (CO1, K2)

Or

(b) Give detailed note on plate tectonics. (CO1, K6)

17. (a) Describe the formation and characteristics of metamorphic rocks and the processes involved in their transformation. (CO2, K2)

Or

(b) Describe the main types of rocks found in the Earth's crust and explain their formation processes. (CO2, K2)

18. (a) Describe in detail main types of submarine landforms and explain how they are formed. (CO3, K2)

Or

(b) Discuss the general coastal geomorphology of India. (CO3, K2)

19. (a) Give detailed note on depositional environments and give examples of major coastal deposits and land forms. (CO4, K2)

Or

(b) What is geochronology? Explain the various dating techniques and its types. (CO4, K2)

20. (a) Explain briefly formation process of hydrocarbon resources, role of seismic surveys in hydrocarbon exploration and how they help in locating potential oil and gas reserves. (CO5, K5)

Or

(b) Discuss the principles and techniques of gravity, seismic and magnetic methods in mineral exploration. (CO5, K3)

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R1910

Sub. Code
461102

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2024

First Semester

Oceanography and Coastal Area Studies

PHYSICAL 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. The term "oceanography" was first coined by (CO1, K2)

   (a) Fridtjof Nansen

   (b) Sir John Murray

   (c) Matthew Fontaine Maury

   (d) Carl Ekman

2. Who was the first European to reach India by sea, sailing around the southern tip of Africa? (CO1, K2)

   (a) Christopher Columbus

   (b) Vasco da Gama

   (c) Ferdinand Magellan

   (d) Henry the Navigator

3. Which of the following is a key goal for future oceanographic research? (CO1, K3)

(a) Mapping the remaining unexplored regions of the ocean floor

(b) Developing new naval warfare technologies

(c) Increasing commercial fishing operations

(d) Building underwater cities

4. The Gulf Stream is a powerful ocean current that primarily flows (CO2, K2)

(a) In the Indian Ocean

(b) Along the west coast of Africa

(c) In the Pacific Ocean

(d) Along the east coast of North America

5. What is the primary driving force behind the formation of surface ocean currents? (CO2, K5)

(a) Tidal forces

(b) Eddies

(c) Wind patterns

(d) Seismic activity

6. The ocean's surface temperature is highest in which region? (CO3, K2)

(a) Polar regions

(b) Equatorial regions

(c) Temperate regions

(d) Deep ocean

7. What is the term for the vertical layer in the ocean where there is a rapid change in salinity with depth? (CO3, K3)

(a) Thermocline

(b) Halocline

(c) Pycnocline

(d) Isocline

8. Which region of India experiences the Tropical Wet climate characterized by high humidity and heavy rainfall throughout the year? (CO4, K2)

(a) Western Ghats

(b) Thar Desert

(c) Indo-Gangetic Plain

(d) Himalayan Region

9. The Southern Oscillation is primarily associated with fluctuations in atmospheric pressure over which two locations? (CO5, K6)

(a) Hawaii and Samoa

(b) Tahiti and Darwin

(c) Jakarta and Melbourne

(d) San Francisco and Lima

10. During an El Niño event, what is the typical impact on the Indian monsoon? (CO5, K2)

(a) Enhanced monsoon rainfall

(b) No significant impact

(c) Shorter monsoon season

(d) Weaker and delayed monsoon

Part B (5 × 5 = 25)

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

11. (a) Describe the contributions of the Greeks in oceanography. (CO1, K3)

Or

(b) List out the oceanographic research institutes in India and their contribution. (CO1, K2)

12. (a) Explain the phenomenon of wave refraction and its impact on the shape of coastlines. (CO2, K2)

Or

(b) Describe origin and types of ocean currents. (CO2, K2)

13. (a) Write a note on vertical and horizontal distribution of salinity. (CO3, K1)

Or

(b) Write a note on water masses in the ocean. (CO3, K2)

14. (a) Discuss difference between polar orbiting satellite and geostationary satellite. (CO4, K2)

Or

(b) Explain the southwest monsoon of India. (CO4, K2)

15. (a) Give an account on ozone depletion. (CO5, K5)

Or

(b) Explain the ENSO (El Niño-Southern Oscillation). (CO5, K2)

Part C (5 × 8 = 40)

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

16. (a) Describe in detail about modern and future of oceanographic research. (CO1, K2)

Or

(b) Write an essay on role of the ancient civilizations in the development of oceanographic knowledge. (CO1, K6)

17. (a) Give an account on deep ocean circulation. (CO2, K2)

Or

(b) Describe in detail origin, types and characteristics of oceanic waves and tides. (CO2, K2)

18. (a) Describe in detail vertical distribution of temperature, salinity and density pattern in world ocean. (CO3, K2)

Or

(b) Explain in detail heat budget of earth's atmosphere. (CO3, K2)

19. (a) Discuss the role and types of clouds in the Earth's climate system, including their effects on temperature and weather patterns. (CO4, K2)

Or

(b) What are tropical cyclones and explain its effect on Indian monsoon system. (CO4, K2)

20. (a) Explain briefly global warming and its effect on regional and global sea level changes. (CO5,K5)

Or

(b) Discuss the southern oscillation and its relationship with Indian monsoon. (CO5, K3)

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R1911

Sub. Code
461103

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2024

First Semester

Oceanography and Coastal Area Studies

CHEMICAL 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. The following scientist is the father of chemical oceanography (CO1, K1)

   (a) James jean (b) Wallace

   (c) Robert Boyle (d) Bentham

2. The marine Environment not influence by following one factors (CO1, K2)

   (a) Plate technics

   (b) Sea floor spreading

   (c) Turbidity

   (d) Cycling of organic matter

3. The average salinity of sea water is (CO2, K4)

   (a) 5-25ppt (b) Less than 1 ppt

   (c) 22 ppt (d) 35 ppt

4. Oxygen can enter the water (CO2, K4)
   (a) Through Respiration
   (b) Decomposition
   (c) By production of photo synthesis
   (d) Oxidation of matter.

5. One of the following nutrients is not a biogenic element (CO3, K3)
   (a) Phosphorus (b) Nitrogen
   (c) Carbon (d) Mercury and lead.

6. The concentration of minor elements present in sea water is (CO3, K3)
   (a) 0.05 to 750 mM (b) 0.05 to 500 nm
   (c) 0.05 to 50 μM (d) 0.05 to 500 μm

7. The biological pumb not involved organisms is (CO4, K2)
   (a) Macro organism (b) Marine mammals
   (c) Marine viruses (d) Marine micro-organisms

8. Silica cycle has significant role in the ocean is (CO4, K2)
   (a) Global stabilization
   (b) Creation of tide roles
   (c) Biological processes
   (d) Carbon Sequestration

9. D O C referred to as (CO5, K2)
   (a) Dissolved ocean chemicals
   (b) Distribution of ocean chemicals
   (c) Dissolved oxygenated chemicals
   (d) Dissolved organic carbon.

10. Decomposition of organic matter in marine eco system done by (CO5, K2)
   (a) Phyto plankton (b) Zoo plankton
   (c) Microorganisms (d) Micro Algae

Part B (5 × 5 = 25)

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

11. (a) Discussion on the types of sediment processed. (CO1, K2)

Or

(b) Elaborately discuss about the marine chemistry. (CO1, K2)

12. (a) Compare the characteristics of BOD and COD. (CO2, K4)

Or

(b) Assess the how can atmosphere sea surface explain interact with in it? (CO2, K4)

13. (a) Explain the trace elements interact with the marine organism. (CO3, K3)

Or

(b) Describe the cycling of minor elements in marine environments. (CO3, K3)

14. (a) What is meant by biogenic elements? How they involved primary production? (CO4, K2)

Or

(b) Prove the how can the DMS (Dimethyl sulfoxide) influence the carbon cycle explain its. (CO4, K2)

15. (a) Describe the Marine organic matter. Explain their role in marine Environments. (CO5, K4)

Or

(b) What's is meant petroleum hydro carbons? Explain the suitable examples? (CO5, K4)

Part C (5 × 8 = 40)

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

16. (a) Written essay about the Historical and development of chemical Oceanography. (CO1, K2)

Or

(b) Discussion the international and Indian ocean expedition. (CO1, K2)

17. (a) Asses the chemical properties of sea water. (CO2, K4)

Or

(b) How do you determine the chlorinity and salinity Explain it? (CO2, K4)

18. (a) Prove the Mainor and trace elements involve the development of marine organism Explained it. (CO3, K3)

Or

(b) Evaluate the Manganese nodules is a good nonliving source in ocean justify it. (CO3, K3)

19. (a) Describe the silicon cycle explain the important role in the ocean. (CO4, K2)

Or

(b) Discussion the carbon cycle. And how is carbon major role for climate changes explain it? (CO4, K2)

20. (a) Describe about the deep organic matter. And explain the role of organic matters. (CO5, K4)

Or

(b) Explain the Hydro carbon Distribution and seas oral various of Hydro carbon. (CO5, K4)

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R1912	Sub. Code
	461104

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2024

First Semester

Oceanography and Coastal Area Studies

BIOLOGICAL 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. The common name water fleas is used to represent (CO1, K1)

   (a) Artemia (b) Copepods

   (c) Cladocera (d) Rotifers

2. Bongo net is used for collecting (CO1, K1)

   (a) Demersal fishes

   (b) Phytoplanktons

   (c) Benthic invertebrates

   (d) Cetaceans

3. Algal blooms cause reduced ———— and increased ———— concentration. (CO2, K1)

   (a) Dissolved O_2, Chlorophyll

   (b) Turbidity, Chlorophyll

   (c) Nitrate, Nitrogen

   (d) Chlorophyll and Dissolved O_2

4. Which among the following helps planktons to be buoyant? (CO2, K1)

(a) Slender body (b) Spines on body

(c) Flagella (d) All of these

5. Primary productivity is calculated based on (CO3, K2)

(a) Respiration (b) Energy transfer

(c) Photosynthesis (d) Organisms' interactions

6. Biomass estimation gives information about (CO3, K2)

(a) Primary productivity

(b) Secondary productivity

(c) Mass of an organism

(d) Net productivity

7. Carrageenan is obtained from (CO4, K1)

(a) Seagrass (b) Mangroves

(c) Microalgae (d) Seaweeds

8. Zooxanthellae is an algal association seen with (CO4, K1)

(a) Red mangroves (b) Zooplankton

(c) Seagrass (d) Coral polyps

9. Mudflats are also known as (CO5, K1)

(a) Tidal flats (b) Ridges

(c) Sea flats (d) Gyres

10. *Salicornia* sp. are seen in (CO5, K1)

(a) Rocky shores (b) Deep-sea

(c) Salt marshes (d) Vents

Part B (5 × 5 = 25)

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

11. (a) Elaborate on the methods of phytoplankton collection. (CO1, K1)

Or

(b) Write a short note on the ecological importance of zooplanktons. (CO1, K1)

12. (a) Describe the factors favouring algal blooms. (CO2, K2)

Or

(b) Write about the adaptations of zooplanktons for their survival? (CO2, K2)

13. (a) What is meant by primary productivity? How do we estimate the primary productivity of a region? (CO3, K2)

Or

(b) How does primary productivity affect ecological existence? (CO3, K2)

14. (a) Write a short note on the applications of seaweeds. (CO4, K1)

Or

(b) Briefly describe the brackish water ecosystem. (CO4, K1)

15. (a) What are all the key factors affecting coastal degradation? (CO5, K3)

Or

(b) Describe the conservation strategies for the regeneration of coasts. (CO5, K3)

Part C (5 × 8 = 40)

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

16. (a) Elaborate on phytoplankton classifications. (CO1, K2)

Or

(b) Define standing crop weight. Mention the methods of estimation. (CO1, K2)

17. (a) Define eutrophication. What are the consequences of eutrophication in aquatic fauna? (CO2, K3)

Or

(b) Write an essay on toxic algal blooms with reference to red tides. (CO2, K3)

18. (a) Write an essay on the changes that may affect the ecosystem if primary productivity is drastically affected. (CO3, K2)

Or

(b) What causes regional changes in net productivity in the ocean - Explain. (CO3, K2)

19. (a) What is a coral reef? How do coral reefs support the marine faunal community? (CO4, K2)

Or

(b) Explain in detail about the classifications and adaptations of mangroves against salt tolerance. (CO4, K2)

20. (a) Mention the ecological importance of brackish water ecosystem and conservation measures. (CO5, K2)

Or

(b) How does the degradation of coasts affect the economy-Explain. (CO5, K2)

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R1913	Sub. Code 461503

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2024

First Semester

Oceanography and Coastal area Studies

Elective – MARINE RESOURCES

(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. Which oceanic region is known for the highest potential of manganese nodules? (CO1, K1)

   (a) Abyssal plains (b) Continental shelf

   (c) Coastal regions (d) Oceanic trenches

2. Which type of resource is primarily derived from marine organisms? (CO2, K2)

   (a) Terrigenous (b) Chemogenous

   (c) Biogenous (d) Allogenic

3. What is a common use for manganese nodules? (CO2, K1)

   (a) Fertilizers

   (b) Jewelry

   (c) Batteries

   (d) Construction materials

4. Which method is commonly used to explore deep-sea minerals? (CO2, K1)

(a) Submersibles

(b) Airplanes

(c) Satellites

(d) Underwater photography

5. Which of the following factors has led to the decline in global fish production? (CO3, K1)

(a) Overfishing

(b) Climate change

(c) Pollution

(d) All of the above

6. Which fishery resource is mainly caught using modern fishing methods in India? (CO3, K2)

(a) Sardines (b) Mackerels

(c) Prawns (d) Bombay Duck

7. Which marine organism is a primary source of antibiotic compounds? (CO4, K1)

(a) Seaweed

(b) Coral

(c) Sponges

(d) Mollusks

8. Which toxin is commonly found in marine mollusks? (CO4, K2)

(a) Saxitoxin (b) Tetrodotoxin

(c) Conotoxin (d) Brevetoxin

9. Which renewable marine resource is primarily of biogenous origin? (CO5, K1)

(a) Manganese nodules

(b) Placer minerals

(c) Fish stocks

(d) Marine sulphides

10. Which of the following is a characteristic feature of marine steroids? (CO5, K1)

(a) Derived primarily from terrestrial plants

(b) Exhibits unique structural features

(c) Found exclusively in freshwater organisms

(d) Only used as a food additive

Part B ($5 \times 5 = 25$)

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

11. (a) Describe the different types of oceanic resources found in the Indian Ocean. (CO1, K2)

Or

(b) Explain the importance of integrated resource management in coastal regions. (CO1, K3)

12. (a) Write a note on the methods used in the exploration of seafloor mineral deposits. (CO2, K2)

Or

(b) How do marine phosphorites form and what is their significance? (CO2, K4)

13. (a) How does deep-sea fishery management contribute to the sustainability of marine resources? (CO3, K4)

Or

(b) Discuss the impact of overfishing on the fish resources of the Indian EEZ. (CO3, K2)

14. (a) Describe the importance of marine drugs and their ecological significance. (CO4, K3)

Or

(b) Write a brief note on the sources and types of marine toxins. (CO4, K4)

15. (a) Discuss the differences between renewable and non-renewable marine resources. (CO5, K3)

Or

(b) Explain why the conservation of marine resources is crucial for sustainable development. (CO5, K4)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1,000 words each.

16. (a) Write an essay on the distribution and potential of non-living resources in the Indian Ocean. (CO1, K4)

Or

(b) Write a detailed note on coastal aquifers, focusing on their nature, form, and migration. (CO1, K4)

17. (a) Discuss the potential of marine minerals on the east and west coasts of India. (CO2, K4)

Or

(b) Write a detailed note on the exploration methods for manganese nodules and polymetallic sulfides. (CO2, K4)

18. (a) Provide an elaborate discussion on the resource potential and management of fishery resources in India's EEZ. (CO3, K4)

Or

(b) Write a detailed note on the principal methods of exploitation of sea fishes and the role of modern crafts and gears. (CO3, K4)

19. (a) Explain the importance of bioactive compounds derived from marine organisms and their role in drug development. (CO4, K4)

Or

(b) Write a detailed note on marine drugs, focusing on their importance, sources, and carbohydrates and their derivatives. (CO4, K3)

20. (a) Describe the different types of toxins produced by marine animals and explain their functions. (CO5, K3)

Or

(b) Discuss the pharmacological effects and toxic risks of marine venoms. (CO5, K4)

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R1914

Sub. Code
461301

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2024

Third Semester

Oceanography and Coastal Area Studies

FISH AND FISHERIES

(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. The EEZ (Exclusive Economic Zone) of India is up to (CO1, K2)

   (a) 140 km (b) 12 miles

   (c) 200 nautical miles (d) None of these

2. Name the organism responsible for producing most of the earth's oxygen. (CO1, K2)

   (a) Seagrass (b) Phytoplankton

   (c) Macroalgae (d) Corals

3. In sharks the pairs of gill filaments are separated by (CO2, K3)

   (a) Fleshy septum (b) Lamellar membranes

   (c) Epithelial cells (d) Arches

4. Fish living in warmer water have ———————— oxygen consumption rate than in cooler water. (CO2, K3)

(a) Lower (b) Higher

(c) Minimum (d) Very low

5. ———————— organ in fishes acts as a storage organ for fats and carbohydrates. (CO3, K3)

(a) Liver (b) Gall bladder

(c) Spleen (d) Kidney

6. Nictitating membrane is present in eyes of ———————— fish. (CO3, K3)

(a) Flatfish (b) Sawfish

(c) Ray fish (d) Shark

7. ———————— is the example for passive fishing gear. (CO4, K4)

(a) Purse seine (b) Trawl net

(c) Gill net (d) Beach seine

8. The craft material generally used in commercial and pleasure crafts are (CO4, K4)

(a) Aluminium (b) FRP

(c) Wood (d) All of the above

9. Which of the following county is the first largest fish producer in the world? (CO5, K4)

(a) China (b) Russia

(c) India (d) USA

10. The Gulf of Mannar is known for its (CO5, K4)

(a) Shipbuilding yard

(b) Port and Harbour

(c) Oil and mineral resources

(d) Coral reef and marine biodiversity

Part B (5 × 5 = 25)

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

11. (a) Write a short note in-situ and ex-situ conservation. (CO1, K2)

Or

(b) Explain about target and non-target fisheries resources. (CO1, K2)

12. (a) Explain about Catch Per Unit Effort and its importance in conservation. (CO2, K3)

Or

(b) How do you study the food and feeding habits of fish? (CO2, K3)

13. (a) Explain about FAO code of conduct for responsible fisheries. (CO3, K3)

Or

(b) Outline the importance of maintaining mesh size regulations. (CO3, K3)

14. (a) Illustrate the by-catch reduction devices in trawls. (CO4, K4)

Or

(b) Explain about the modern techniques for fish finding and capturing. (CO4, K4)

15. (a) Explain the role of extension in fisheries. (CO5, K4)

Or

(b) Write a brief account on biodiversity bill. (CO5, K6)

Part C (5 × 8 = 40)

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

16. (a) Write an essay on the major fisheries resources of the world. (CO1, K2)

Or

(b) Explain the major exploited fisheries resources in territorial waters. (CO1, K2)

17. (a) Outline the concept of maximum sustainable yield and maximum economic yield. (CO2, K3)

Or

(b) Write a detail account on the reproductive biology of fish. (CO2, K3)

18. (a) Describe the concept and principles of fisheries management. (CO3, K3)

Or

(b) Explain the international fisheries regulations and treaties. (CO3, K3)

19. (a) Write an essay on different types of fishing gears and crafts. (CO4, K4)

Or

(b) Give detailed account on turtle excluder devices. (CO4, K4)

20. (a) Explain the alternative livelihood options for fisher communities. (CO5, K4)

Or

(b) Discuss in detail – Role of marine protected areas for biodiversity conservation. (CO5, K4)

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R1915

Sub. Code
461302

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2024

Third Semester

Oceanography and Coastal Area Studies

POST – HARVEST TECHNOLOGY

(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. The dry and subcooled small ice in fiat pieces with an irregular shape is (CO1, K1)

   (a) Flaked ice (b) Shell ice

   (c) Slush ice (d) Ice block

2. Insulated containers for fish transport are made of (CO1, K1)

   (a) Wood (b) Aluminium

   (c) Polymers (d) Stainless steel

3. The group of bacteria interfering with fish products are (CO2, K1)

   (a) Bacillus (b) Coliforms

   (c) Trichoderma (d) Molds

4. Which reaction causes fish meat to deteriorate and cause a fishy odour? (CO2, K1)

   (a) Hydrolysis (b) Acidification

   (c) Carbonation (d) Oxygenation

5. Cryoprotectants prevent (CO3, K2)

(a) Bacterial contamination

(b) Ice formation

(c) pH change

(d) Oxygenation

6. Which among the processing is involved in cephalopod preservation? (CO3, K2)

(a) Gutting (b) Skinning

(c) Shucking (d) All of these

7. Packaging sheets or laminates are mainly manufactured using (CO4, K1)

(a) Nylon (b) Polypropylene

(c) Polyurethane (d) All of these

8. The container in which fish should be packaged as per standards (CO4, K1)

(a) Foam box (b) Wooden box

(c) Metal box (d) Covered in polyethylene

9. The presence of ammonia in fish products is considered (CO5, K1)

(a) Good quality (b) Standard quality

(c) Deteriorated (d) Does not effect quality

10. ISO 12875:2011 is for (CO5, K1)

(a) Finfishes (b) Frozen surini

(c) Shell fishes (d) Molluscs

Part B (5 × 5 = 25)

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

11. (a) What are all the challenges faced while fresh fish transportation? (CO1, K1)

Or

(b) Write down the methods for fish preservation. (CO1, K1)

12. (a) Elaborate on the factors favoring fish meat deterioration. (CO2, K2)

Or

(b) Describe the physical methods of post-harvest. (CO2, K2)

13. (a) What are cryoprotectants? Mention a few of them and their mechanism of action. (CO3, K2)

Or

(b) What are the main points to be noted in a processing plant for sanitation? (CO3, K2)

14. (a) Mention the methods of packing meat for transportation. (CO4, K1)

Or

(b) Elaborate on major quality control parameters. (CO4, K1)

15. (a) Elaborate on international standards of seafood products. (CO5, K3)

Or

(b) Elaborate on the official procedures to be taken care of for fish meat exports. (CO5, K3)

Part C (5 × 8 = 40)

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

16. (a) Write an essay on "aquaculture for sustainable development". (CO1, K4)

Or

(b) Write an essay on "the role of fisheries technology in the economy". (CO1, K4)

17. (a) Explain in brief the post-mortem changes and methods of preservation of seafood. (CO2, K3)

Or

(b) Write a detailed note on chemical changes in proteins and lipids of fish meat. (CO2, K3)

18. (a) Describe the processing methods of invertebrates. (CO3, K2)

Or

(b) What are fish value-added products? How to maintain their shelf life? (CO3, K2)

19. (a) Write an essay on packaging materials and their storage efficiency. (CO4, K2)

Or

(b) Give a detailed account of the governing bodies for quality control. (CO4, K2)

20. (a) What is the role of quality standards in the seafood industry – Explain. (CO5, K3)

Or

(b) Elaborate on the ISO standards governing fisheries products. (CO5, K3)

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R1916

Sub. Code
461303

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2024

Third Semester

Oceanography and Coastal Area Studies

OCEAN 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 answer

1. CRZ was first started in (CO1, K2)

   (a) 1986 (b) 1975

   (c) 1995 (d) 1991

2. Coastal zone is important because it provide. (CO1, K2)

   (a) Defense against natural calamities

   (b) Nursery habitats for fishes

   (c) Transportation facilities

   (d) All the above

3. UNCLOS stands for (CO2, K3)

   (a) United Nations Convention on the Law of the Sea

   (b) Union of Nations for Convention on the Law of the Sea

   (c) United Nations Conservation of the Law of the Sea

   (d) United Nations for Law of the Sea Convention

4. Who declares CRZ? CO2, K3)

(a) Ministry of Environment, Forest and Climate change

(b) Ministry of Earth Sciences

(c) Ministry of Fisheries

(d) Ministry of Science and Technology

5. Maximum coastal erosion is caused by (CO3, K4)

(a) Currents (b) Waves

(c) Tides (d) Tsunami waves

6. ———— is an example of an ex-situ conservation (CO3, K3)

(a) National Park (b) Wildlife sanctuary

(c) Seed bank (d) All of the above

7. Which among the following is most found Coral Reef? (CO4, K2)

(a) Atoll (b) Fringing reef

(c) Barrier reef (d) All of the above

8. Which of the following areas provide the best fishing grounds of the world? (CO4, K2)

(a) Cold current areas

(b) Warm current areas

(c) Areas where warm and cold currents meet

(d) All of the above

9. National Center for Polar and Ocean Research is located in (CO5, K4)

(a) Chennai (b) Kochi

(c) Goa (d) Mumbai

10. ———————— is the feeding, breeding and sheltering ground for marine fishes. (CO5, K4)

(a) Mangroves (b) Corals

(c) Lagoons (d) All of the above

Part B (5 × 5 = 25)

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

11. (a) Write a short note on coastal zone and its importance. (CO1, K2)

Or

(b) Give a account on coastal tourism and its impacts. (CO1, K2)

12. (a) Explain about land sea interactions. (CO2, K3)

Or

(b) Outline marine fisheries management policies. (CO2, K3)

13. (a) Explain about UNCLOS-I. (CO3, K3)

Or

(b) Examine the status of marine biodiversity in India. (CO3, K4)

14. (a) Outline the importance of sand dunes. (CO4, K2)

Or

(b) Illustrate the multiple uses of coastal zone. (CO4, K2)

15. (a) Summaries the role of national agencies for ocean management. (CO5 K4)

Or

(b) Examine the importance of monitoring the estuarine ecosystem. (CO5, K4)

Part C (5 × 8 = 40)

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

16. (a) Write a detailed account on sea level rise and its impacts on coastal zone. (CO1, K2)

Or

(b) Explain about coastal developmental activities and its impacts on coastal ecosystem. (CO1, K2)

17. (a) Summaries various coastal management issues. (CO2, K3)

Or

(b) Compare the coastal zone management issues in tropical and temperate countries. (CO2, K3)

18. (a) Explain about various international agencies for ocean management. (CO3, K3)

Or

(b) Write an account on marine protected areas and their importance. (CO3, K3)

19. (a) Write an essay on coastal vulnerability with special focus on coral reefs. (CO4, K2)

Or

(b) Give detailed account of human impacts on coastal zone. (CO4, K2)

20. (a) Outline the methods used for coastal ecosystem monitoring. (CO5, K4)

Or

(b) Summaries the effect of port activities on mangroves. (CO5, K4)

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R1917

Sub. Code
461304

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2024

Third Semester

Oceanography and Coastal Area Studies

RESEARCH METHODOLOGY

(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. Marine productivity Refers to the Primary production of single celled called as (CO1, K2)

   (a) Zooplankton (b) Copepods

   (c) Phytoplankton (d) Fungi

2. Choose the Following one Meristic characteristic not present in fin fishes. (CO1, K3)

   (a) Fin spines and rays

   (b) Gill Rakers

   (c) Lateral line scales

   (d) Skin Respiration

3. The Phase contrast Microscope used for reviewing of (CO2, K3)

(a) Stained living cell

(b) Unstained living cell

(c) Stained nonliving cell

(d) Unstained non-living cells

4. Choose the following Fluids used in histochemical techniques (CO2, K3)

(a) Benedict's Fluids (b) Bouin's Fluid

(c) Iodine Fluid (d) Methylene fluid

5. The Electrophoresis is techniques for the separation and Identification of (CO3, K4)

(a) Charged molecules

(b) Only negative charges particles

(c) Only positive charged particles

(d) Chemical particles

6. The Differential centrifugation is commonly used for (CO3, K4)

(a) Separate the cells from organs

(b) Organ separation

(c) Organelle's separation

(d) Enzyme separation

7. The student's t-test developed by (CO4, K3)

(a) W.S. Gosett (b) Bhujel

(c) Karl Pearson (d) Wilcoxon

8. Mode refined as the (CO4, K3)

(a) The values most frequently appeared

(b) The values most not frequently appeared

(c) Average of the value

(d) Central values in the number serious

9. A table information is an arrangement of (CO5, K4)

(a) Statement (b) Floating Books

(c) Data (d) Record

10. E. journals are periodicals Newspapers which are published in (CO5, K4)

(a) Off line mode

(b) Hybrid mode

(c) Online mode

(d) e mode present in certain articles

Part B ($5 \times 5 = 25$)

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

11. (a) List out the various site selection criteria for the sea weed cultivation explain it? (CO1, K3)

Or

(b) What are the morphometric characters methods for Quantification of culture fishes - Describe it? (CO1, K2)

12. (a) List out difference between the SEM and TEM. (CO2, K3)

Or

(b) Arrange the Different methods of Histology and explain examination of cells. (CO2, K3)

13. (a) Briefly explain the principles and methods of Ph meter. (CO3, K4)

Or

(b) Recall the methods and Application of flame photometer. (CO3, K4)

14. (a) Labelled and list out the various characteristic Binomial and poison dismutation? (CO4, K3)

Or

(b) Differenceate the Correlation and Regression? (CO4, K3)

15. (a) Measure the role Internet sources CN research Justify it? (CO5, K4)

Or

(b) What is the meaning of Abstracts and Asses the Different types abstracts with suitable examples. (CO5, K4)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1,000 words each.

16. (a) Explain the Different methods for measurement of primary productivity finally in aquatic system. (CO1, K2)

Or

(b) Explain the various sustainable methods for shell fish aquae culture. (CO1, K3)

17. (a) Elaborating explain the principle, methods and application of Electron microscope. (CO2, K3)

Or

(b) Recall the following sentences (i) Fixing (ii) Embedding (iii) sectioning (iv) Staining. (CO2, K3)

18. (a) Define the PCR. How they are working and explain the principle and Applications PCR? (CO3, K4)

Or

(b) How is Ion Exchange chromatography worked and Discuses about principles and application of Ion exchange chromatography? (CO3, K4)

19. (a) Write an Essay about the world wide web (WWW). (CO4, K3)

Or

(b) Describe about the student 't' test and ANOVA. (CO4, K3)

20. (a) Justify the how to prepare the good manuscript and organize the paper. (CO5, K4)

Or

(b) How do you prepare the slide preparation and data presentation clearly explain it? (CO5, K4)

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R1918

Sub. Code
461505

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2024

Third Semester

Oceanography and Coastal Area Studies

Elective – MARINE BIOFOULING, PREVENTION AND 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 type of corrosion occurs in the presence of two dissimilar metals? (CO1, K1)

   (a) Pitting Corrosion

   (b) Galvanic Corrosion

   (c) Uniform Corrosion

   (d) Crevice Corrosion

2. What is the main factor that accelerates the corrosion process in metals? (CO1, K2)

   (a) High humidity (b) Metal thickness

   (c) UV radiation (d) Metal color

3. Which organism is typically involved in micro-fouling? (CO2, K1)

   (a) Barnacles (b) Algae

   (c) Bacteria (d) Mussels

4. What condition is most likely to enhance biofilm formation on marine surfaces? (CO2, K2)

(a) High salinity

(b) Cold temperature

(c) Rapid water currents

(d) Shallow water

5. Which bacteria group is known for reducing sulfates and contributing to biocorrosion? (CO3, K1)

(a) Acid-Producing Bacteria (APB)

(b) Metal-Depositing Bacteria (MDB)

(c) Sulfate-Reducing Bacteria (SRB)

(d) Metal-Reducing Bacteria (MRB)

6. What type of biofouling community includes parasites and pathogens? (CO3, K2)

(a) Biofilm

(b) Attached macro-fouling

(c) Mobile communities

(d) Commensals

7. What is a primary pathway for biofouling in the marine industry? (CO4, K1)

(a) Wind erosion

(b) Hull fouling

(c) Chemical pollution

(d) Sunlight exposure

8. Which activity is most likely to spread biofouling organisms? (CO4, K2)

(a) Docking ships in different ports

(b) Freshwater fishing

(c) Coastal tourism

(d) Sand mining

9. Which of the following is a common method for managing biofouling on ship hulls? (CO5, K1)

(a) Using copper-based coatings

(b) Applying wax

(c) Painting with acrylics

(d) Increasing speed

10. What is the main purpose of anti-fouling strategies in the shipping industry? (CO5, K2)

(a) Enhance ship aesthetics

(b) Reduce fuel consumption

(c) Increase ship weight

(d) Improve cargo capacity

Part B ($5 \times 5 = 25$)

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

11. (a) Describe types of corrosion in marine environments. (CO1, K2)

Or

(b) Explain how electrochemical corrosion occurs and list some common methods used to monitor it. (CO1, K3)

12. (a) Write a note on biofilm formation in marine ecosystems. (CO2, K2)

Or

(b) How does the geographical location influence the growth of biofouling organisms? (CO2, K4)

13. (a) How do parasites and pathogens in marine biofouling contribute to biocorrosion? (CO3, K4)

Or

(b) What roles do Sulfate-Reducing Bacteria (SRB) play in marine biocorrosion? (CO3, K2)

14. (a) How does biofouling lead to economic losses in the shipping industry? (CO4, K3)

Or

(b) Briefly describe how marine debris contributes to biofouling. (CO4, K4)

15. (a) What are some common strategies used to prevent biofouling on ships? (CO5, K3)

Or

(b) Why are natural and non-toxic antifoulants important in managing biofouling? (CO5, K4)

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

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

16. (a) Write a brief essay on the common strategies used to prevent biofouling on ships and evaluate their effectiveness. (CO1, K4)

Or

(b) Explain the importance of corrosion testing and monitoring in the marine industry. (CO1, K2)

17. (a) What role do micro-fouling organisms play in the formation of biofilms? How does this lead to macro-fouling in marine environments? (CO2, K4)

Or

(b) Write a detailed note on how seasonal changes affect the growth of marine biofouling organisms. (CO2, K4)

18. (a) Write a detailed note on how biofouling communities interact with their marine environment and discuss the impact on marine biodiversity. (CO3, K4)

Or

(b) Provide an elaborate note on the role of Acid-Producing Bacteria (APB) and Slime- Producing Bacteria in biocorrosion. (CO3, K2)

19. (a) Discuss primary and secondary pathways for the spread of hull fouling in ports and harbours and explain in detail (CO4, K2)

Or

(b) Examine the difficulties in managing biofouling in ports and harbours and write a detailed note. (CO4, K4)

20. (a) Explain how education and training can play a role in improving biofouling management practices in shipping and aquaculture. (CO5, K5)

Or

(b) Compare the advantages and disadvantages of traditional cleaning methods in the shipping industry with recent biofouling management technologies. (CO5, K5)

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