R0342	Sub. Code 465101

P.G. DIPLOMA EXAMINATION, NOVEMBER – 2023

First Semester

Scuba Diving

MARINE BIODIVERSITY

(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. One of the primary threats to the biodiversity of the Gulf of Mannar is: (CO1, K2)

   (a) Terrestrial animal intrusion

   (b) Over-exploitation of marine resources

   (c) Expansion of desert areas

   (d) Freshwater flooding

2. The Gulf of Mannar is particularly important for the conservation of which marine creature? (CO1, K1)

   (a) Dolphins (b) Dugongs

   (c) Sharks (d) Penguins

3. An IUCN Red List species classified as “CR” stands for: (CO2, K2)

(a) Critically Rare

(b) Completely Resilient

(c) Critically Reduced

(d) Critically Endangered

4. Which international convention focuses on trade in endangered species? (CO2, K2)

(a) Montreal Protocol

(b) Ramsar Convention

(c) CITES

(d) Kyoto Protocol

5. Which marine invertebrates are known for their eight arms and a soft body, and include octopuses? (CO3, K2)

(a) Cephalopods (b) Gastropods

(c) Bivalves (d) Polychaetes

6. Which group of marine vertebrates are endothermic? (CO3, K2)

(a) Bony fishes (b) Marine reptiles

(c) Marine birds (d) Marine mammals

7. Which of the following best describes species richness? (CO4, K2)

(a) The number of species in a given area

(b) The even distribution of species

(c) The genetic variation within a species

(d) The interaction between species

8. Which of the following species would be most at risk of extinction? (CO4, K1)

(a) Dominant species

(b) Vulnerable species

(c) Keystone species

(d) Invasive species

9. Which ecosystem provides significant coastal protection by reducing wave energy? (CO5, K1)

(a) Mountain ecosystem

(b) Seagrass ecosystem

(c) Mangrove ecosystem

(d) Island ecosystem

10. Which type of coral reef forms as a ring, often around a lagoon without a central island? (CO5, K2)

(a) Fringing reef (b) Patch reef

(c) Atoll (d) Barrier reef

Part B (5 × 5 = 25)

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

11. (a) Assess the potential impacts of untreated urban sewage on the Gulf of Mannarmarine ecosystem. (CO1, K5)

Or

(b) Evaluate the importance of Marine biodiversity. (CO1, K2)

12. (a) Explain the significance of Marine Protected Areas (MPAs) and their role in conserving marine biodiversity. (CO2, K2)

Or

(b) Justify the importance of marine policies in protecting the marine resources. (CO2, K3)

13. (a) Evaluate the unique features and adaptations of marine mammals, emphasizing their role in marine ecosystems. (CO3, K2)

Or

(b) Interpret the significance of invertebrates and their adaptations for a predatory lifestyle. (CO3, K2)

14. (a) Investigate the importance of genetic diversity within a species, especially in the context of changing environmental conditions. (CO4, K2)

Or

(b) Distinguish the concept of species evenness and its significance. (CO4, K2)

15. (a) Outline the major threats of seagrass ecosystem. (CO5, K2)

Or

(b) Evaluate the strategies and practices adopted in coastal ecosystem management. (CO5, K6)

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

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

16. (a) Justify why the Gulf of Mannar is considered as a biosphere reserve. (CO1, K2)

Or

(b) Explain the major threats to Marine Biodiversity. (CO2, K3)

17. (a) Evaluate the implications of the IUCN Red List classifications for wildlife conservation strategies. (CO2, K3)

Or

(b) Assess the potential causes and consequences of human-wildlife conflicts in Protected Areas. (CO2, K3)

18. (a) Determine the behavioural and physiological adaptations of reptiles that facilitate their marine lifestyle. (CO3, K2)

Or

(b) Evaluate the adaptations and importance of marine birds in coastal and open ocean ecosystems. (CO3, K1)

19. (a) Differentiate the different types of ecological interactions and highlight its importance. (CO4, K1)

Or

(b) Outline the significance of species inventory in conserving the biodiversity. (CO4, K6)

20. (a) Explain the ecological importance of mangroves and their role in protecting coastlines from erosion. (CO5, K5)

Or

(b) Justify the significance of coral reefs as biodiversity hotspots and their global economic importance. (CO5, K2)

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R0343	Sub. Code 465102

P.G. DIPLOMA EXAMINATION, NOVEMBER – 2023

First Semester

Scuba Diving

BENTHIC ASSESSMENT

(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. AFSCN stands for ————. (CO1, K2)

   (a) Air Force Satellite Control Network

   (b) Air Force Satellite Communication for Navigation

   (c) Air Force Social Communication Network

   (d) None of the above

2. What are the sources of errors in GPS? (CO1, K2)

   (a) Signal Multi path (b) Orbital errors

   (c) Shading (d) All the above

3. Light intensity is measured using a (CO2, K5)

   (a) Light meter (b) pH meter

   (c) Thermometer (d) Moisture meter

4. Choose the following is true about sampling (CO2, K5)

(a) Sampling saves time, money and energy

(b) Sample is a part of population

(c) Sampling helps in estimating sampling error

(d) All the above

5. What can a quadrat be used to measure? (CO3, K5)

(a) Length

(b) Weight

(c) Population density

(d) Volume

6. What do we call the population value? (CO3, K5)

(a) Statistic (b) Parameter

(c) Data (d) Variable

7. Coral reefs only occur and thrive in: (CO4, K2)

(a) Tropical settings

(b) Shallow water conditions

(c) Warm and clear water conditions

(d) All the above

8. Where would you not expect to find a coral reef? (CO4, K2)

(a) Near the equator

(b) Near an island

(c) At the north pole

(d) Near the coast

9. The upper part of an aquatic ecosystem contains (CO5, K2)

(a) Nekton (b) Plankton

(c) Benthos (d) Both (a) and (b)

10. Biotic components of an ecosystem include? (CO5, K1)

(a) Producers, consumers, and decomposers

(b) Producers and consumers

(c) Producers only

(d) Consumers only

Part B (5 × 5 = 25)

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

11. (a) How is GPS used for benthic surveying? (CO1, K2)

Or

(b) Explain about various preservation methods of benthic samples. (CO1, K5)

12. (a) Write a short account on transect quadrat method. (CO2, K5)

Or

(b) Explain about the belt transect method of sampling. (CO2, K5)

13. (a) How do you document the coastal and marine biodiversity? (CO3, K2)

Or

(b) Give a short account of the photo-quadrat method. (CO3, K5)

14. (a) Describe the importance of benthic data management. (CO4, K2)

Or

(b) Explain about intertidal benthic fauna. (CO4, K2)

15. (a) Write a brief note on diversity index. (CO5, K5)

Or

(b) Write a short note on Pielou's evenness index. (CO5, K5)

Part C (5 × 8 = 40)

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

16. (a) Write an essay on qualitative analysis of benthic samples. (CO1, K5)

Or

(b) Describe about benthic sampling methodologies. (CO1, K5)

17. (a) Explain in detail – Transect methodologies. (CO2, K5)

Or

(b) Give a detailed notes on point intercept transect method of sampling. (CO2, K5)

18. (a) Describe the quadrate sampling methodologies. (CO3, K5)

Or

(b) Write a detailed note on the health status of corals with quadrat sampling. (CO3, K5)

19. (a) Describe in detail with illustration – "Video Manta Tow Method." (CO4, K3)

Or

(b) Write a detailed account on document the status of benthic coral reef communities. (CO4, K5)

20. (a) Describe about Shannon-Weiner diversity index. (CO5, K5)

Or

(b) How do you assess the spatio-temporal changes in the cover of variety of benthos? (CO5, K5)