R1337

Sub. Code
548601

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Sixth Semester

Integrated Marine Biology

ANIMAL PHYSIOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

All questions carry equal marks.

1. What is micro nutrient and give few examples?
2. Write short note on enzyme?
3. Define electrocardiography?
4. Write short note on role of haemoglobin.
5. Write short note on types of nitrogenous wastes.
6. Define osmoregulation.
7. Write short note on white muscle?
8. Define CNS?
9. What is the significance of monosex?
10. What causes sex reversal in fish?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b)

11. (a) Describe the food compositions and classification.

Or

(b) Give an account on types and mechanisms of digestive enzymes?

12. (a) Write brief note on respiratory system.

Or

(b) Write detailed note on blood composition.

13. (a) Describe about function of nephron.

Or

(b) Write a note on Osmoregulation in fishes.

14. (a) Describe about functions of neurons.

Or

(b) Give an account on muscle physiology.

15. (a) Write a note on endocrine systems.

Or

(b) Describe about monosex seed production

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on balanced food composition.

17. Give a detailed note on blood function and coagulation mechanisms.

18. Write about excretion and types of nitrogenous wastes.

19. Describe in details about mechanism and theories of muscle contraction.

20. Explain the physiology of marine organism and their significance.

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R1338	Sub. Code
	548602

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Sixth Semester

Integrated Marine Biology

FISH AND FISHERIES

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define bony fish and give few example.

2. What are common features of fishes?

3. Define opercula.

4. Define pneumatic duct.

5. Define overfishing.

6. Why we do fish tagging?

7. Write note on nervous system.

8. Define Reflex action.

9. What is sex reversal?

10. What are the significance of marine organisms?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write note on outline classification of fish.

Or

(b) Describe about jawless fish with example.

12. (a) What are the different types of feeding habits of fish?

Or

(b) What are the factors influence fish migrations?

13. (a) List out factors causes fish mortality.

Or

(b) Write a note on types of fishing.

14. (a) Describe about factor causes fish spoilage.

Or

(b) How do you isolate fish pathogen?

15. (a) Write note on principles of conservation.

Or

(b) List out organization involved in fisheries conservation.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on major group of fish and their characteristics.

17. Write detailed note on embryonic development in fish.

18. Describe in detail about surveying the fishery resources.

19. Write detailed note on microbial toxin produced by fish spoilage.

20. Explain in detail about various component of fisheries administration.

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R1339	Sub. Code
	548E03

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Sixth Semester

Integrated Marine Biology

Elective: MARINE RESOURCES

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

All questions carry equal marks.

1. Define continental self
2. Define chemogenous.
3. Write a short note on polymetallic nodules.
4. Write a short note on unique nature of Black sea.
5. Define Guyots.
6. Define EEZ.
7. What is LC–50?
8. Define secondary metabolites.
9. Write a short note on Sterols.
10. Write a short note on significance of exopolysaccharides?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b)

11. (a) Describe about conservation of non-living resources.

Or

(b) How do you classify marine sediments?

12. (a) Describe about mineral resources available in east coast of India.

Or

(b) What is polymetallic nodules? And how it forms?

13. (a) Give an account on fish resources of Indian EEZ.

Or

(b) How marine fisheries resources are exploited.

14. (a) What are the sources of marine drugs.

Or

(b) List out nitrogenous compounds from marine animal.

15. (a) Describe about toxicoloagical properties from sea snake and Fish

Or

(b) Write note on marine carotenoids and its uses.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on marine minerals potentials of Indian coast.

17. Write an essay on exploration of deep sea deposits.

18. Write detailed note on indigenous and modern crafts and gears.

19. Describe in detail about marine drugs?

20. Write an essay on marine invertebrate and its sterols.

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R1340

Sub. Code
548801

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Eighth Semester

Integrated Marine Biology

EVOLUTION

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Esocene epoch

2. Isolating mechanism

3. Lamarckism

4. Living fossils

5. Jurassic period

6. Neo-darwinism

7. Big-bang theory

8. Gene pool

9. Genotypic frequency

10. Molecular clock

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

All questions carry equal marks.

11. (a) Discuss in brief the causes of extinction.

Or

(b) Compare and contrast cladistics and phenetics.

12. (a) Describe briefly on the species concept and speciation.

Or

(b) Write notes on protective colouration and mimicry.

13. (a) How Darwinism and Neo-darwinism differ?

Or

(b) Differentiate Lamarckism and Neo-lamarckism in details.

14. (a) Write a note on Cretaceous period.

Or

(b) Discuss briefly the Mississippian period.

15. (a) Write notes on the Louis Pasteur's theory of special creations.

Or

(b) Describes JBS Haldane's hypotheses on origin of life.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on the Mesozoic era emphasizing the geological period, paleogeography and climate.

17. Give a detailed explanation of the Urey-Miller experiment with necessary diagrammatic representation.

18. Discuss in detail about modern synthetic theory of evolution and add a note on the fossils and fossilization process.

19. What are the five principles of Hardy-Weinberg equilibrium? Discuss.

20. Describe in detail about the process of molecular evolution.

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R1341	Sub. Code
	548802

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Eighth Semester

Integrated Marine Biology

BIOTECHNOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. RT–PCR

2. Electroporation

3. DNA Ligation

4. Flocculation

5. PEG mediated Gene Transfer

6. Bioreactors

7. Reverse Transcriptase

8. Solid state fermentation

9. Marine bioactive compounds

10. Carageenan

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b)

11. (a) What are restriction enzymes? How do they DNA sequences?

Or

(b) How to design primers for DNA sequencing? Name some commercially important sequencing software

12. (a) What do you understand by metagenomics? Add a note on their working principle

Or

(b) Describe briefly on the proteomics.

13. (a) Discuss briefly on the Bioreactor instrumentation and process control.

Or

(b) Define genomics and its applications

14. (a) What is centrifugation and describe the types of centrifuges used in biological research.

Or

(b) What do you understand by dialysis? Add a note on types of dialysis in chemistry and their applications?

15. (a) Write notes on Chitin and Chitosan

Or

(b) What are marine Flavonoids and their applications?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on the PCR and its applications in biological research

17. Discuss in detail PEG induced genetic transformation and their applications in marine genomics.

18. What are Bioreactors? Discuss about its design, principle and its applications and limitations.

19. What do you understand by Downstream Processing? What are its stages and elaborate with the help of detailed flow diagram.

20. Discuss in detail about enzymes used in fish and seafood industry.

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R1342

Sub. Code
548803

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Eighth Semester

Integrated Marine Biology

POST HARVEST TECHNOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Importance of containers in fish handling.

2. Rigor Mortis

3. Cryoprotectants

4. IQF

5. Codex Alimentarius

6. Traditional methods of harvesting seafood

7. Salting

8. CIP system

9. Shelf life period

10. USFDA

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

All questions carry equal marks.

11. (a) What are key causes of Food Loss and Waste (FLW) on board?

Or

(b) Describe briefly about the advantages and disadvantages of Refrigerated Seawater as transport medium for seafood.

12. (a) What do you understand by post mortem changes in fishes?

Or

(b) Describe the various factors affecting quality of fish.

13. (a) Discuss briefly on the types of freezing procedures prevalent in the seafood processing industry.

Or

(b) What do you understand by HACCP? Discuss briefly.

14. (a) What are the different types of packaging materials used in seafood processing plants?

Or

(b) Write notes on the traditional methods of preservation of seafood?

15. (a) Highlight the importance of organoleptic quality assessment. How is it carried out?

Or

(b) What is Export Inspection Agency? Add a note on their roles in seafood processing industry.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on the various spoilage occur in seafood.

17. Discuss in detail various steps involved in packaging of fresh of frozen seafood for transport and shipping.

18. Discuss in detail various components of seafood processing plant with a suitable flowchart.

19. Describe in detail the pre-processing procedures involved in seafood processing and add a note on the quality control procedures.

20. Write an essay on the canning method in seafood processing.

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R1343	Sub. Code
	548E05

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Eighth Semester

Integrated Marine Biology

Elective – COASTAL DISASTER MANAGEMENT

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define vulnerability
2. Depression
3. Land slide
4. Ecological imbalance
5. Describe capacity building
6. Disaster mitigation
7. What are the risks of disaster?
8. Define ecosystem drift
9. Geo hazards
10. Climate change

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b)

11. (a) Explain the basic concept of disaster management.

Or

(b) How would you solve the habitat destruction associated problems?

12. (a) Write a short note on impact of disaster in marine fisheries

Or

(b) What are the structural and non-structural mitigation measures in disaster?

13. (a) How would you assess the post-psychological status of the victims?

Or

(b) Write a short note on early warning and rehabilitation.

14. (a) How would you manage and resolve epidemic issues after disaster?

Or

(b) What are manmade hazards and its vulnerability?

15. (a) What are the climatologically impact of disaster?

Or

(b) Describe the trends in seismic activities.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. Summarize the ways to overcome the natural hazards impact on aquaculture.

17. Give a detailed account on major threats to coastal populations due to natural hazards.

18. Write an essay on disaster mitigation and add notes on menu of mitigation actions.

19. Elaborately discuss the role of State and Central Governments in disaster mitigations.

20. Highlights the importance of training the emergency mitigation personnel in disaster mitigation.

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R1344	Sub. Code
	548E07

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Tenth Semester

Integrated Marine Biology

Elective: AQUARIUM KEEPING

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Note on warm water aquarium.

2. Write about Activated Carbon.

3. List the major marine ornamental fish exporting countries.

4. How nitrate levels impact the aquarium system?

5. Write the media used in aquarium.

6. Define Canister.

7. Why disinfectants used in aquarium maintenance?

8. What is the role of probiotics?

9. What is 'brood stock'?

10. Mention the advantages of 'bio-balls'.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the status of ornamental fish culture in India.

Or

(b) Write the conditions need for the growth of aquarium plants.

12. (a) Describe the lighting method for aquarium tanks.

Or

(b) Comment on materials used in aquarium construction.

13. (a) Describe the three types filtration used for the maintenances of aquarium.

Or

(b) Explain the types of live feed used in aquarium fishes.

14. (a) Describe the fungal diseases of fresh water ornamental fishes.

Or

(b) Explain the control methods of fish diseases.

15. (a) Give a detailed account on breeding of freshwater ornamental fishes.

Or

(b) Write an account on packaging and transport methods ornamental fishes.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Write a detailed account on various size and shapes of aquarium tanks.

17. Write an essay on basic requirements for marine aquarium setup.

18. Give a detailed account on water quality management in tank fish culture.

19. Discuss the different treatment techniques of common ornamental fish diseases.

20. Write an account on economical importance of ornamental fishes.

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