F–0444

Sub. Code
7BMB2C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Marine Biology

VERTEBRATE

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Tetrapoda
2. Scales
3. Mesozoic era
4. Elasmobranches
5. Amniotes
6. Diapsid
7. Heterodont dentition
8. Cleidoic egg
9. Fry
10. Fate map

Part B (5 × 5 = 25)

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

11. (a) Give an account on general characteristics of reptiles.

Or

(b) Write about the different types of fangs present in poisonous snakes.

12. (a) Highlight the importance and features of Mesozoic era in geological time scale.

Or

(b) Explain the adaptive radiation of bony fishes.

13. (a) Write about the terrestrialization of amphibians.

Or

(b) Give a note on evolution of birds.

14. (a) Explain about the dentition in mammals.

Or

(b) Give an account on types of eggs in mammals.

15. (a) Write about the gastrulation process in fish embryology.

Or

(b) Give an account on respiratory organs of frog.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give a brief account on classification of different classes of Pisces.

17. Give a detailed account on geological time scale and its significance.

18. Write about the origin, evolution and biology of birds.

19. Write a detailed account on development of placoid scales with a neat diagram.

20. Write about the process of morphogenetic movement involved in the gastrulation of fish.

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F–0445

Sub. Code
7BMB2C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Marine Biology

ANIMAL PHYSIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Probiotics
2. Omnivorous
3. Hemocyanin
4. Cytochromes
5. GHRH
6. Oxytocin
7. Lunar periodicity
8. Chromatophores
9. Protogynous hermaphrodite
10. Creatinine

Part B (5 × 5 = 25)

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

11. (a) Brief the various digestive enzymes in marine organisms.

Or

(b) Explain the way of transport of food in fish gut.

12. (a) What is oxygen tension? How did it is affecting respiration?

Or

(b) Brief the role of respiratory pigments in transport of CO_2.

13. (a) Narrate the neuro-hormones involving in endocrine system.

Or

(b) Explain the functions of nervous system.

14. (a) Explain the following :

(i) Biological clocks

(ii) Bioluminescence.

Or

(b) Brief the mechanism of osmotic regulation and ion regulation.

15. (a) Brief on the various nitrogenous wastes produced in fish.

Or

(b) What is sex reversal? Explain their types.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss the food and feeding mechanisms of marine bivalve.

17. Explain the types of pigments and their role in transport of oxygen.

18. Describe the types and functions of growth hormones in crustaceans.

19. Write an essay on various pigments and colours occurring in marine animals.

20. Elaborate the reproductive behaviour of coral.

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F–0446

Sub. Code
7BMB3C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Marine Biology

CELL BIOLOGY AND GENETICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Glyoxysomes

2. Auto- Phagic vacuoles

3. Cytokinesis

4. Haploid cell

5. α - Amino acids.

6. PCR.

7. Operon

8. Recombinant DNA technology Epiboly.

9. Reading frame

10. RNA polymerase.

Part B (5 × 5 = 25)

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

11. (a) Explain the structure and function of the eukaryotic cell.

Or

(b) Discuss the functions of the endoplasmic reticulum.

12. (a) Give a short note on meiosis cell division.

Or

(b) Explain the role of receptors in cell signaling.

13. (a) Sketch out the structure of DNA.

Or

(b) Elucidate shortly on the DNA replication process.

14. (a) Define chromosomal manipulation.

Or

(b) Discuss the history of genetic study.

15. (a) Explain cytoplasmic inclusions.

Or

(b) Write shortly on the tRNA termination process.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Give a detailed account of the fluid mosaic model of the cell membrane.

17. Explain the process of the cell cycle in eukaryotes.

18. Discuss the structure of amino acids.

19. Explain the role of genetic engineering in marine organizations.

20. Write about the genetic code and its properties.

F–0447

Sub. Code
7BMB4C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fourth Semester

Marine Biology

ENVIRONMENTAL BIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Abiotic factor.
2. Food-web.
3. Polyclimax.
4. Metapopulation.
5. Estuarine ecosystem.
6. *Kappaphycus alvarezii.*
7. Lithosphere.
8. Ozone depletion.
9. Ocean acidification.
10. Sea level rise.

Part B (5 × 5 = 25)

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

11. (a) Describe about ecological pyramids.

Or

(b) Write a short notes on energetic with ecosystem.

12. (a) Explain about the types of interspecific interactions.

Or

(b) Write a note on fish tagging and marketing.

13. (a) Describe about the differences in freshwater and marine habitates.

Or

(b) Write the different types of coral reef ecosystem.

14. (a) Describe about the sedimentary cycles.

Or

(b) Write about the recycling pathways of elements.

15. (a) What are the types of environmental pollution?

Or

(b) Write about the laws related to environmental protection.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on ecological complexity and stability in food webs.

17. Write an essay on community structure and ecological succession.

18. Describe in detail – Terrestrial habitates.

19. Explain about the cycling of non-essential elements.

20. Write an essay on environmental pollution and management.

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F–0448

Sub. Code
7BMB5C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Marine Biology

DEVELOPMENTAL BIOLOGY AND EVOLUTION

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Gametogenesis.
2. Spermatogenesis.
3. Cleavage.
4. Placentation.
5. Competence.
6. Cell induction.
7. Darwinism.
8. Gene pool.
9. Abiotic synthesis.
10. Molecular evolution.

Part B (5 × 5 = 25)

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

11. (a) Give a brief introduction on developmental biology.

Or

(b) Explain molecular aspects of fertilization.

12. (a) Describe briefly about the potency of embryonic cells.

Or

(b) Explain cell fate and cell lineages.

13. (a) Briefly explain the genomic equivalence.

Or

(b) Write a short note on midblastula transition in *Drosophila*.

14. (a) Explain the theory of Neo—Darwinism.

Or

(b) Give an account on gene frequency.

15. (a) Describe the process of abiotic synthesis of organic monomers.

Or

(b) Explain origin of photosynthesis.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the process of Oogenesis with a neat diagram.

17. Give a detail on types and patterns of cleavage.

18. Explain the potency of embryonic cells.

19. Give a detailed account on theories of evolution.

20. Write an essay on the process of eukaryotic evolution.

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F–0449

Sub. Code
7BMBE1A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Marine Biology

Elective – MOLECULAR BIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Nucleosides.
2. DNA ligase.
3. Plasmids.
4. Recombinant DNA.
5. Cloning.
6. Transcription.
7. Cell-cell fusion.
8. *Agrobacterium tumefaciens*.
9. Lac operon.
10. Cistron.

Part B (5 × 5 = 25)

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

11. (a) How Oswald Avery identified DNA as genetic materials?

Or

(b) Write note on rolling circle replication.

12. (a) Describe about SOS repair mechanism.

Or

(b) Write about the structure and replication of plasmids.

13. (a) Describe about capping arid polyadenylation.

Or

(b) Write about the synthesis of mRNA in prokaryotes.

14. (a) Describe about the chemical methods of gene transfer.

Or

(b) Write about triparental mating of plasmids.

15. (a) Write a note on modern definition of gene.

Or

(b) What are the types and action of gene?

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write all essay on DNA replication and its types with illustration.

17. Describe about eukaryotic DNA replication.

18. Write a detailed note on the process of transcription.

19. Explain about the different mechanism of gene transfer with diagrams.

20. Write an essay on gene concept in eukaryotes.

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F–0451

Sub. Code
7BMBE1C

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Marine Biology

Elective – BIOINFORMATICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Open source software.
2. Database
3. Alignment
4. Phylogenetic analysis
5. Protein
6. Rasmol
7. Proteomics
8. Microarray
9. Name two Bioinformatics software
10. Docking

Part B (5 × 5 = 25)

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

11. (a) Give an account on bioinformatics.

Or

(b) Write an overview about EMBOSS.

12. (a) Give an account on sequence alignment.

Or

(b) Write a short note on Database searching.

13. (a) Describe - Tertiary structure prediction.

Or

(b) Explain - RNA structure analysis.

14. (a) Write a short note on structural genomics.

Or

(b) Discuss about Data mining.

15. (a) Write a short note on virtual screening.

Or

(b) Explain about molecular modeling.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Briefly discuss about Application and scope of Bioinformatics.

17. Explain about multiple sequence alignment.

18. Give a detailed account on protein structure prediction.

19. Briefly discuss about basic principles of drug designing.

20. Give a detailed account on thug designing concept.

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F–0453

Sub. Code
7BMBE2B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Marine Biology

Elective – MARICULTURE

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Coastal Aquaculture
2. Pearl culture
3. Tilling
4. Catwalk
5. Microdiet
6. Copepod
7. Tiger shrimp
8. *Perna viridis*
9. CIBA
10. IMTA

Part B (5 × 5 = 25)

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

11. (a) Discuss the importance of coastal aquaculture.

Or

(b) Explain the following:

(i) Natural stock (ii) Over fishing

12. (a) Describe the various types and structures of inlet and drainage canals.

Or

(b) Brief the various technical considerations of site selection for aqua farm.

13. (a) Discuss the various procedures involving in pond management.

Or

(b) Note on preventive and controlling measures of diseases in shrimp.

14. (a) Explain the feeding and reproductive biology of milk fish *Chanos chanos.*

Or

(b) Brief on various criteria for the selection of species for mariculture.

15. (a) Elaborate the raft and rack culture methods of seaweeds.

Or

(b) Narrate the economics of open sea farming.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the potentialities and socio–economic issues of aquaculture.

17. Explain the design and construction of open sea farming structures and cages.

18. Discuss the method of fish nursery rearing and management.

19. Elaborate the biology and intensive culture practices of *Epinephelus tauvina.*

20. Narrate the recent developments and future perspective of open sea farming.

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F–0455

Sub. Code
7BMB6C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Sixth Semester

Marine Biology

FISHERY BIOLOGY AND BIOSTATISTICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Elasmobranchi.
2. Perciformes.
3. *Chanos chanos*
4. Tuna fishery.
5. Adipose fin.
6. Maximum Sustainable Yield.
7. CPUE.
8. Fishing effort.
9. F test.
10. Chi-square test.

Part B (5 × 5 = 25)

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

11. (a) Write about the general characteristic features of class Osteichthyes.

Or

(b) Explain the phenotypic features of order scorpaeniformes.

12. (a) Describe about the commercial marine fin fish fisheries resources in Tamil Nadu.

Or

(b) Describe about the commercial marine shell fish fisheries resources in Tamil Nadu.

13. (a) Write about the different types of caudal fins with neat illustrations.

Or

(b) Explain the respiratory system in a fish with neat diagram.

14. (a) Describe about fish tagging.

Or

(b) Explain about the survey of fish eggs and larvae.

15. (a) Write a shot note on correlation and regression analyses.

Or

(b) Describe about one way and two way ANOVA.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain about the major groups of fishes in world water.

17. Write about the present status of mackeral fisheries in India.

18. Write an essay on maturation and spawning of marine fishes in Bay of Bengal water.

19. Describe about the fish survey methods.

20. How do you analyses your fisheries data using Microsoft Excel.

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