F–0686	Sub. Code
	7MZO2C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Second Semester

Zoology

ANIMAL PHYSIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is absorption in human body?
2. Give the byproduct of respiration?
3. What are the main blood groups?
4. What will happens when blood volume decreases?
5. Why is muscle contraction important?
6. List out different function of spinal cord?
7. What are the factors affect thermoregulation?
8. What happens during Estivation?
9. What is the role of pituitary gland?
10. Define the term lunar rhythms?

Part B (5 × 5 = 25)

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

11. (a) How is oxygen and carbon dioxide exchanged in the lungs?

Or

(b) What is the process of digestion step by step?

12. (a) Describe the formed elements of blood in man?

Or

(b) What causes concentrated urine? Is concentrated urine bad?

13. (a) Explain the chemical changes occur during muscle contraction?

Or

(b) What is the mechanism of synaptic transmission?

14. (a) How does the body adapt to high altitude?

Or

(b) What are the two types of visual receptors?

15. (a) What are the mechanisms of hormone action?

Or

(b) Which hormones are considered reproductive hormones?

Part C (3× 10 = 30)

Answer any **three** questions.

16. Compare the respiration of any two animals.

17. Explain the structure and function of nephron.

18. Describe the general structure and types of muscle.

19. Briefly explains the osmatic and ionc regulation of fishes.

20. Write an essay on biological clocks in animal kindom.

———————

F–0687

Sub. Code
7MZO2C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Zoology

GENETICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Multiple Alleles
2. Allelomorphs
3. Chiasmata
4. Mutagenesis
5. Tetrad analysis
6. QTL mapping
7. Pseudogenes
8. Promoter sequence
9. Gene pool
10. Euthenics

Part B (5 × 5 = 25)

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

11. (a) Explain the Mendel's law of segregation with appropriate example.

Or

(b) Explain sex influenced inheritance with appropriate examples.

12. (a) Briefly explain the linkage.

Or

(b) Write about the structure of chromosome and its types.

13. (a) Explain tetrad analysis mapping method.

Or

(b) Describe the Human Genome Project.

14. (a) Explain the gene concept.

Or

(b) Discuss about the sequential expression of genes with reference to drosophila.

15. (a) Briefly explain the concept of eugenics.

Or

(b) What is gene frequency? Explain.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write an account on pedigree analysis.

17. Write an essay on mechanism of crossing over in drosophila.

18. Write an essay on gene mapping with molecular markers.

19. Write an essay on gene expression in prokaryotes.

20. Write in detail about the Hardy-Weinberg law and its significance.

———————

F–0688

Sub. Code
7MZO2C3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Zoology

IMMUNOLOGY AND MICROBIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. Paratope

2. NK cells

3. Killed vaccines

4. Autoimmune disorder

5. MHCII

6. Monoclonal antibodies

7. Lag phase

8. Peptidoglycon

9. Botulism

10. Canning

Section B (5 × 5 = 25)

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

11. (a) Write a brief account on immunity and its types.

Or

(b) Write the structure of primary lymphoid organs.

12. (a) Write a note on hypersensitivity.

Or

(b) Briefly describe the cell mediated immune response.

13. (a) Write a note on ELISA.

Or

(b) Briefly describe the monoclonal antibody production.

14. (a) Give a brief note on gram positive bacteria.

Or

(b) Write a brief note on structure of virus.

15. (a) Write a note on subcutaneous infections.

Or

(b) List out the pathogenecity and diseases of Herpsviridae.

Section C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about antigen and its classification.

17. Give an elaborate account on AIDS.

18. Explain in detail about the Major Histocompatiblity Complex.

19. Write the different types of culture media used for the culture of bacteria.

20. Explain in detail about the food preservation.

———————

F–0689

Sub. Code
7MZO2E1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Zoology

Elective – SERICULTURE

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A ($10 \times 2 = 20$)

Answer **all** questions.

1. Moriculture
2. Pruning
3. Pebrine
4. Uzifly
5. CSTRI
6. Systematic of Silkworm
7. Rearing house
8. Disinfection methods of Rearing house
9. Flimsy Cocoons
10. Characteristics of marketable cocoons

Part B (5 × 5 = 25)

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

11. (a) Explain the silkworm life history with neat diagram.

Or

(b) Write about the history of sericulture in India.

12. (a) Describe the weed and weed control measures in Moriculture.

Or

(b) Write about different methods of leaf harvesting.

13. (a) Explain silkworm rearing equipments with neat diagrams.

Or

(b) Describe the methods of Acid Treatment.

14. (a) Write about different types of minor pests.

Or

(b) Symptoms and control measures of Uzi - Discuss.

15. (a) Write about different steam stifling methods.

Or

(b) Explain open pass system of cooking.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe about the history of sericulture and its scope in India.

17. Write an essay on disease management in moriculture.

18. What are all the appliances used in sericulture? Explain.

19. Describe in detail about the disease management in sericulture.

20. Calculate the economics for silkworm production in India perspective.

———————

F–0690

Sub. Code
7MZO3C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Zoology

DEVELOPMENTAL BIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

Write a short answer on the following

1. Ovulation
2. Mesolecithal egg
3. Blastula
4. Fate map
5. Ectoderm
6. Nephrogenesis
7. In complete metamorphosis.
8. Juvenile hormone.
9. IVF
10. Allantois.

Part B (5 × 5 = 25)

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

11. (a) Give an account on fertilization.

Or

(b) What are the factors affecting cleavage? Explain.

12. (a) Write about on Gastrulation in chick.

Or

(b) What is chemo differentiation? Define.

13. (a) Write the mechanism of organ formation.

Or

(b) Explain briefly about the development of ear in chick.

14. (a) Write the regeneration ability of vertebrates with examples.

Or

(b) Define the Mangold Organizer concept.

15. (a) Give the advantages of test tube embryogenesis method.

Or

(b) What is cryopreservation? Explain the applications.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the patterns of cleavage and types of eggs.

17. Describe the presumptive organ forming areas in frog.

18. Give an account on cell aggregation and differentiation in chick.

19. Explain the types of metamorphosis in insects with examples.

20. Write a note and applications of artificial insemination.

———————

F–0691	Sub. Code
	7MZO3C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Zoology

ECOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

Write a short note on the following

1. Mortality
2. Ecological succession
3. Food chain
4. Primary Productivity
5. Bio geo chemical cycle
6. Non essential elements
7. Tropical habitat
8. Extreme habitat
9. Bioremediation
10. Environmental degradation

Part B (5 × 5 = 25)

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

11. (a) How do biotic and abiotic factors regulate the community structure? Explain.

Or

(b) Write a short note on

(i) Natality

(ii) Mortality

12. (a) Write the concept of an ecosystem.

Or

(b) What are the types of ecological pyramids? Explain.

13. (a) Explain the carbon cycle and its ecological role.

Or

(b) Explain about incomplete biogeochemical cycles.

14. (a) Give an account on estuarine ecosystem.

Or

(b) Write the importance of natural resource conservation.

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

Or

(b) Give an account on role of microbes in bioremediation.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the different types of animal associations with examples.

17. Give an account on Structure and dynamics of ecosystem.

18. Explain about the cycling of non essential elements and organic nutrients.

19. Discuss on biotic features of freshwater and terrestrial ecosystem.

20. Explain about the global warming and its effect on organisms.

———————

F–0692

Sub. Code
7MZO3C3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Zoology

EVOLUTION

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

Write short notes on:

1. Biomolecules
2. Homologous organ
3. Attavism
4. Nautiloid
5. Hardy Weinberg Law
6. Allopatric Speciation
7. Orthogenesis
8. Stick Insect
9. Carbon Dating
10. Ramapithecus

Part B (5 × 5 = 25)

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

11. (a) Give an account on modern synthetic theory.

Or

(b) Explain about Neo - Lamarckism.

12. (a) Explain the universal tree of life from single celled organisms to kingdoms.

Or

(b) Explain organic evolution with palaeontological evidences.

13. (a) Give an account on genetic variation in individual organism.

Or

(b) Explain the theory of natural selection.

14. (a) Write an account on origin of species.

Or

(b) Give an account on mimicry and colouration.

15. (a) Give an account on various fossil dating methods.

Or

(b) Write an account on geological time scale.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe in detail about biological evolution and various theories origin of life.

17. What is organic evolution? Describe various morphological and anatomical evidences for organic evolution.

18. Define isolation. Discuss the various isolating mechanisms.

19. What is adaptive radiation? Describe adaptive radiation in reptiles.

20. Write an essay on "Cultural evolution of Man".

———————

F–0693

Sub. Code
7MZO3E2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Zoology

Elective — ANIMAL CELL CULTURE TECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Plating density.

2. BSS

3. Viscocity

4. Serum substitutes

5. Disaggregation of cells

6. Trypsinization

7. Spinner flasks

8. Wave bioreactor

9. Hybriodoma technology

10. FACS

Part B (5 × 5 = 25)

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

11. (a) Enlist the composition of cell culture medium and solutions.

Or

(b) Describe the structure of animal cell in detail.

12. (a) Write an account on physical properties of culture media.

Or

(b) Discuss the role of serum supplement in cell culture.

13. (a) Explain the basic techniques ill cell culture.

Or

(b) Describe the viability assays.

14. (a) Give an account on types of scaling up techniques in cell culture.

Or

(b) Enumerate the cell culture based vaccines and its advantages.

15. (a) What is cell death? How it is measured? Explain.

Or

(b) Briefly explain cell preservation technique.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an account on different types of cell culture medium.

17. Enumerate the chemical and metabolic functions of different constituents of cell culture media.

18. Give a detailed account on biology and characterization of cultured cells and parameters to measure cell growth.

19. Give a detail account on somatic cell genetics.

20. Describe the genetically engineered cells and its mass cultivation.

———————

F–0695	Sub. Code
	7MZO4C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fourth Semester

Zoology

ANIMAL BIOTECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

Write short notes on:

1. Linkers.
2. Restriction endonucleases.
3. Co-transformation.
4. Selectable marker.
5. DNA library.
6. Molecular markers.
7. Cell lines.
8. Stem cell.
9. Targeted gene.
10. Transgenesis.

Part B (5 × 5 = 25)

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

11. (a) Discuss the scope of biotechnology.

Or

(b) Explain the basic concepts of Genetic engineering.

12. (a) What is plasmid? Mention the different types of plasmids.

Or

(b) Explain the different kinds of vectors available for fungi and algae.

13. (a) Give an account on nucleic acid hybridization.

Or

(b) Define molecular markers and mention their application of PCR.

14. (a) Write an account on cell types and cell growth kinetics.

Or

(b) Write a brief account on some valuable cell culture products.

15. (a) Write short notes on super ovulation.

Or

(b) Briefly explain about embryo transfer technology.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the various applications of genetic engineering.

17. Write an account on gene cloning vectors and describe their advantages and limitations.

18. Define DNA sequencing. Describe the procedure used for DNA sequencing.

19. Describe the different types of animal cell culture media for culture technique.

20. What are transgenic animals? Describe in details the production of transgenic animals.

———————

F–0696

Sub. Code
7MZO4E1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fourth Semester

Zoology

Elective – FISHERY BIOLOGY AND AQUACULTURE

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define – fishery potential.
2. What is Drag Net?
3. Define — *In situ* conservation.
4. What is endangered species?
5. What is cage culture?
6. What is brood stock?
7. What is Bio–security?
8. Define – Argulosis.
9. Define – feed production.
10. Define – Water quality.

Part B (5 × 5 = 25)

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

11. (a) Briefly explain the modern crafts and gears used for capture fisheries.

Or

(b) Write about the food and feeding habits of fishes.

12. (a) Discuss the recent concepts in fishery management.

Or

(b) Explain the physical and biochemical methods to examine the freshness of fish.

13. (a) Briefly explain the pen culture method.

Or

(b) Discuss – Status of aquaculture in India.

14. (a) Briefly explain the HACCP systems in hatchery.

Or

(b) Briefly explain the disease management in cultivable species.

15. (a) Write notes on open and closed culture system.

Or

(b) Discuss – integrated fish farming.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an account on economically important marine fishes.

17. Write an essay on quality control in fish processing methods.

18. Write an essay on cultivable fresh water fish species.

19. Give an account on live feed production.

20. Write an essay on intensive culture system.

———————