F–9438	Sub. Code
	7MZO2C1

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Second Semester

Zoology

ANIMAL PHYSIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define the term absorption

2. Which is gastrointestinal hormone?

3. What is blood clotting?

4. Why is the cardiac cycle important?

5. Enumerate the function of skeletal muscle

6. What is the function of nerve impulse?

7. What does it mean to be Poikilothermic?

8. What does it mean Hypoosmotic?

9. What are the endocrine glands?

10. What is meant by animal behaviour?

Part B (5 × 5 = 25)

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

11. (a) What are the major transport mechanisms for CO_2? Explain.

Or

(b) Describe functions of gastrointestinal mucosa hormones.

12. (a) Give an account blood clotting mechanism in man

Or

(b) What are the symptoms of electrolyte imbalance?

13. (a) Write about ultra structure skeletal muscle.

Or

(b) Describe the structure of synapse

14. (a) Give a short note on physiology of hibernation.

Or

(b) Write short note on buoyance

15. (a) Give an account on most common cause of endocrine disorders.

Or

(b) What are the mechanisms of hormone action?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write about the comparison of respiration in different animals.

17. Explain the mechanism of urine formation in man

18. Describe the chemical changes occur during muscle contraction

19. Write an essay on osmotic and ionic regulation of fishes.

20. How does your biological clock work? Why is the biological clock important?

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F–9439

Sub. Code
7MZO2C2

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Second Semester

Zoology

GENETICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Multiple allels

2. Genotype

3. Frame shift mutation

4. Telocentric chromosome

5. QTL

6. Genetic map

7. tRNA

8. Terminator gene

9. Gene frequency

10. Euthenics

Part B (5 × 5 = 25)

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

11. (a) Write a note on Mendelian principles.

Or

(b) Give a brief note on multiple alleles with example.

12. (a) Give a brief account on heterochromatin.

Or

(b) Write a note on sex determination

13. (a) Write a note on QTL mapping.

Or

(b) Briefly describe the linkage maps.

14. (a) Give a brief note on gene expression in phages.

Or

(b) Write a brief note on gene expression in prokaryotes.

15. (a) Write a note on Hardy – Weinberg equilibrium.

Or

(b) Give a brief account on eugenics.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write the sex linked inheritance with suitable example.

17. Give an elaborate account on mutation.

18. Explain in detail about gene mapping methods.

19. Explain the gene regulation in Drosophila.

20. Explain in detail about gene pool.

F–9440

Sub. Code
7MZO2C3

M.Sc. DEGREE EXAMINATION, APRIL 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. Epitope
2. MALT
3. Live-attenuated vaccines
4. Memory B Cells
5. MHC1
6. Tumor
7. Log phase
8. Capsid
9. Pasteurization
10. Mycotoxicose

Section B (5 × 5 = 25)

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

11. (a) Write a brief account on cytokines.

Or

(b) With a suitable diagram write the structure of an antibody.

12. (a) Briefly describe the humoral immune response.

Or

(b) List out the immunization schedule.

13. (a) Write a note on Western blot technique.

Or

(b) Briefly describe the RIA.

14. (a) Give a brief note on bacterial growth curve.

Or

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

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

Or

(b) List out the pathogenecity and diseases of Adeno Viridae.

Section C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about secondary lymphoid organs.

17. Give an elaborate account on hypersensitivity reactions.

18. Explain in detail about the Hybridoma technology.

19. Write an essay on ultra structure of gram negative bacteria.

20. Explain in detail about the food poisoning.

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F–9441

Sub. Code
7MZO2E1

M.Sc. DEGREE EXAMINATION, APRIL 2023

Second Semester

Zoology

Elective — SERICULTURE

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. CSB
2. Tasar
3. Cocoons
4. Silkworm moulting
5. Stifling
6. Double Cocoons
7. Mulberry varieties
8. Foliar disease
9. Flacherie
10. White muscadine

Part B (5 × 5 = 25)

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

11. (a) Write about the role of NGOs in Sericulture development.

Or

(b) Briefly explain about the types of silk.

12. (a) Explain mulberry varieties which are cultivated in India.

Or

(b) Write the environmental physical factors required for mulberry growth.

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

Or

(b) Discuss the importance of temperature and humidity during silkworm rearing.

14. (a) Write symptoms and control measures of Pebrine disease.

Or

(b) List out and explain about bacterial diseases in silkworm.

15. (a) Write about physical and commercial characters of cocoons.

Or

(b) Write about scope and limitations of Reeling Industry.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on taxonomical and morphological characteristics of silkworm.

17. Describe in detail about the cultivation techniques of Mulberry leaves.

18. Elaborate the methods of industrial egg production of silkworm.

19. Write an essay on disease management in silkworm production.

20. Write an essay on defective cocoons.

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F–9442

Sub. Code
7MZO3C1

M.Sc. DEGREE EXAMINATION, APRIL 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. Acrosome
2. Polyspermy
3. Blastopore
4. Invagination
5. Amnion
6. Primitive streak
7. Morphallaxis
8. Super regeneration
9. Cryopreservation
10. Umbilical cord

Part B (5 × 5 = 25)

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

11. (a) Give the structure of sperm with a neat sketch.

Or

(b) Write a note on the structure of egg envelops.

12. (a) Write about basic types of cell movements after gastrulation.

Or

(b) Give an account on fate map of frog.

13. (a) What are the organs produced by germ layers? Explain.

Or

(b) Explain the steps in the development of optic cub and lens.

14. (a) Write a note on tail regeneration in lizards.

Or

(b) What are the types of metamorphosis occurs in insects? Explain.

15. (a) What is artificial insemination? Explain.

Or

(b) What is induced breeding? Write the methods of induced breeding with examples.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe spermatogenesis and Oogenesis.

17. Explain the mechanism of morphogenetic movements and organ formation.

18. Give an account on the development of heart in chick.

19. Discuss on the hormonal control of metamorphosis.

20. Explain the applications of modern embryology with an example.

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F–9443	Sub. Code
	7MZO3C2

M.Sc. DEGREE EXAMINATION, APRIL 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. Abiotic factors
2. Growth rate
3. Trophic levels
4. Ecological pyramids
5. Nitrogen fixation
6. Carbon cycle
7. Micro habitat
8. Terrestrial habitat
9. Global warming
10. Germplasm

Part B (5 × 5 = 25)

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

11. (a) Write the differences between biotic and abiotic factors.

Or

(b) Write a note on animal associations with an example.

12. (a) Give the structure of an ecosystem with example.

Or

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

13. (a) Give an account on Nitrogen cycle and their role.

Or

(b) How do organic nutrients produced? Explain.

14. (a) Explain the biotic factors of marine ecosystem.

Or

(b) Give a note on the structure of Mangrove ecosystem.

15. (a) Write the expected effects of climate changes due to pollution.

Or

(b) Write the applications of germplasm conservation.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe the community structure and characters.

17. How do the energy flows at different trophic levels? Explain with illustrations.

18. Explain the general concepts of bio geo chemical cycles.

19. Give an account on Natural resources and the importance of conservation.

20. Explain the biotechnological applications in environmental studies.

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F–9444	Sub. Code
	7MZO3C3

M.Sc. DEGREE EXAMINATION, APRIL 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. Coacervates.
2. Analogous organ.
3. Fossils.
4. Ammonite.
5. Industrial Melanism.
6. Species isolation.
7. Viceroy Butterfly.
8. Jurassic Period.
9. Epochs.
10. Iron Age.

Part B (5 × 5 = 25)

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

11. (a) Write an account mutation theory of evolution with suitable examples.

Or

(b) Explain about Neo-Darwinism.

12. (a) Give an account on organic evolution.

Or

(b) Describe the organic evolution with embryological evidences.

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

Or

(b) Write an account on isolating mechanisms.

14. (a) Write short notes on the mass extinction of species.

Or

(b) Write an account on co-evolution.

15. (a) Give an account on fossil records.

Or

(b) Write an account on drift molecular clock.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe Lamarckism with various evidences in support and criticism.

17. Explain various evidences from physiological and biochemical evidences to support organic evolution.

18. Write an essay on theory of natural selection.

19. Define species. Describe in detail about the process of speciation.

20. Write an essay on geological time scale.

F–9445	Sub. Code
	7MZO3E2

M.Sc. DEGREE EXAMINATION, APRIL 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. CO_2 incubator

2. Plating density

3. Osmolarity

4. RPMI

5. Extra Cellular Matrix (ECM)

6. CAM

7. Anchorage

8. Pluripotent cells

9. Apoptosis

10. Hybridoma

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 organization of a cell

12. (a) Describe the composition of protein free defined media and its advantages.

Or

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

13. (a) Discuss the disaggregation techniques of culture tissues.

Or

(b) What are the techniques to measure the growth of culture cells?

14. (a) Write an account on embryonic stem cells and their advantages.

Or

(b) Describe somatic cell genetics and its applications.

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

Or

(b) Write an account on cryopreservation.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the requirements to establish a cell culture lab.

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

18. Describe primary culture, maintenance of it and cell separation techniques.

19. Give a detail account on cell cloning and micromanipulation techniques.

20. Write the production of three dimensional culture and tissue engineering.

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F–9446	Sub. Code
	7MZO3E4

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Third Semester

Zoology

Elective – TRANSGENIC TECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. FDA
2. Variocele
3. Intra – cytoplasmic sperm injection (ICSI)
4. ISCN
5. ShRNA
6. Microinjection
7. Psedopregnant surrogate mothers
8. Ovarian hyperstimulation syndrome
9. Mesenchymal stem cell
10. Pluripotent stem cell

Part B (5× 5 = 25)

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

11. (a) Give an account on sterility

Or

(b) Describe the process of Oogenesis with a diagram.

12. (a) List out the chemical nature of DNA and its characteristics.

Or

(b) Explain the functions of nucleic acids.

13. (a) Brief the strategies used for the improvement of milk production.

Or

(b) Write a brief account on the various breeds of livestock.

14. (a) Describe the process of DNA cloning in pigs.

Or

(b) List and note on the methods used for egg collection.

15. (a) Note on the various research applications of cell technology.

Or

(b) Explain major innovations in the history of cell technology.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give an account on the characteristics of an egg and its preservation.

17. Describe the role of biochemical polymorphisms in animal Improvement.

18. Give an account on breeds of poultry in current food requirement.

19. Elaborate the process of DNA cloning in Cattle and their useful breeds.

20. Describe the merits and demerits of cell technology.

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F–9447

Sub. Code
7MZO4C1

M.Sc. DEGREE EXAMINATION, APRIL 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. Adapters
2. Reverse transcriptase
3. Plasmids
4. Cohesive ends
5. Recombinant clone
6. Hybridization
7. Subculture
8. Plasminogen activator
9. Splitting
10. Embryo transfer

Part B (5 × 5 = 25)

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

11. (a) Give an account on macromolecules and their functions in the cell.

Or

(b) Describe the various applications of genetic engineering.

12. (a) What is Ligation? Briefly explain the various strategies use for ligation.

Or

(b) Write an account on restriction enzymes.

13. (a) Explain the applications of PCR in biology.

Or

(b) Give an account on DNA finger printing and its applications.

14. (a) Define cell lines. Mention the development of continuous cell lines.

Or

(b) Write an account on stem cell culture.

15. (a) Write short notes on targeted gene transfer.

Or

(b) Write a brief account on transgenic mice and goat.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Define recombinant DNA technology. Describe the principle and steps involved in recombinant DNA technology.

17. Describe the strategies used for the isolation and purification of DNA and plasmids.

18. Explain the construction and screening of genomic and cDNA library.

19. Describe organ culture techniques and enumerate its advantages, limitations and applications.

20. Describe knock in and knock out technology and its applications.

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F–9448

Sub. Code
7MZO4E1

M.Sc. DEGREE EXAMINATION, APRIL 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. What are indigenous fishery crafts?
2. Define spawning
3. What is meant by in-situ conservation?
4. What is quality control.
5. Name any two culture systems.
6. What is pen culture?
7. List out the name of some live Feeds.
8. Define bio security.
9. Name few cultivable marine species of fishes
10. What is formulated feed?

Part B (5 × 5 = 25)

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

11. (a) Write about the general classification of fishes.

Or

(b) Give an account on Inland fishery potential.

12. (a) Write a note on management of endangered species of fishes.

Or

(b) Explain about the post harvest technology.

13. (a) How do you make an earthen pond for fish culture? Explain.

Or

(b) Specify the different brood collection methods.

14. (a) Give an account on feed management in aquaculture.

Or

(b) Write about HACCP system in hatchery.

15. (a) What are the major water quality parameters? Explain their importance.

Or

(b) Write the composition of formulated feed and its advantages.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give an account on fishery by products and its economic importance.

17. Explain the methods of examination of freshness of fish and processing

18. Describe the present scenario of Indian aquaculture and the economic status.

19. Discuss on the management of diseases in aquaculture.

20. Explain the advantages of intensive fish culture system.

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