F–8538

Sub. Code
7MZO2C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

Second Semester

Zoology

ANIMAL PHYSIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Enteroglucagon.
2. Respiratory pigments.
3. Bundle of His.
4. Nephron.
5. Myofibrils.
6. Synapse.
7. Poikilotherms.
8. Buoyancy.
9. Diabetes insipidus.
10. Circadian rhythm.

Part B (5 × 5 = 25)

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

11. (a) Explain the food and feeding mechanisms in animals.

Or

(b) Explain the transport of O_2 and CO_2 through blood during respiration.

12. (a) Give an account on blood volume and its regulation.

Or

(b) Explain the process of urine formation and urine concentration.

13. (a) Give an account on muscle contraction.

Or

(b) Explain the structure and types of Neuron.

14. (a) Give an account on various types of receptors in animals.

Or

(b) What is aestivation? Explain the physiology of aestivation.

15. (a) Describe the impacts of hypo and hyper secretion of thyroid hormones.

Or

(b) Give an account on biological rhythms.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the gastrointestinal hormones and their role in digestion.

17. Compare the types and anatomy of heart in different animals.

18. Describe the ultra structure of skeletal muscle.

19. What is osmoregulation? Describe osmoregulation in crustaceans and fishes.

20. Describe in detail the secretions and functions of pituitary.

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F–8539	Sub. Code 7MZO2C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

Second Semester

Zoology

GENETICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Law of dominance.
2. Phenotype
3. Turner syndrome
4. Bar bodies
5. RAPD
6. Centimorgan
7. mRNA
8. Promoter gene
9. Gene pool
10. Eugenics

Part B (5 × 5 = 25)

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

11. (a) Enlist the Mendelian principles.

Or

(b) Give a brief note on pedigree analysis

12. (a) Give a brief account on mutation and its types.

Or

(b) Write a note on chromosome structure and its types.

13. (a) Write a note on linkage maps.

Or

(b) Briefly describe the tetrad analysis.

14. (a) Give a brief note on concept of gene.

Or

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

15. (a) Write a note on Euthenics and Euphenics.

Or

(b) Give a brief account on Twin study.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on sex linked inheritance.

17. Give an elaborate account on chromosomal abnormalities.

18. Explain in detail about gene mapping methods.

19. Explain the gene expression in prokaryotes.

20. Explain in detail about gene frequency.

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F–8541

Sub. Code
7MZO3C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

Third Semester

Zoology

DEVELOPMENTAL BIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Acrosome.
2. Polyspermy.
3. Invagination
4. Epiboly.
5. Cell aggregation.
6. Lens differentiation.
7. Regenerative field.
8. Ecdysone.
9. Spawning.
10. Yolk sac.

Part B (5 × 5 = 25)

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

11. (a) Explain the structure and physiology of sperm.

Or

(b) What is polarity and symmetry? Mention their significance.

12. (a) Write an account on cell motility and differential cell affinity.

Or

(b) Briefly explain about chemo differentiation.

13. (a) Give an account on cell aggregation.

Or

(b) Explain the development of ear in chick.

14. (a) Write a brief account on regeneration in insects.

Or

(b) Discuss the role of various hormones that control metamorphosis.

15. (a) Give an account on test tube baby.

Or

(b) What is induced breeding? Explain the process of induced breeding.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe in detail the process of spermatogenesis.

17. Describe the process of gastrulation in mammals.

18. With a neat diagram explain the development of heart in chick.

19. What is regeneration? Summarise the regenerative capacity in vertebrates.

20. Write an essay on placentation in mammals.

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F–8542

Sub. Code
7MZO3C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

Third Semester

Zoology

ECOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Telotaxis
2. Parasitism
3. Food web
4. Energy flow
5. Sedimentary cycle
6. Non essential elements
7. Nekton
8. Mangroves
9. Greenhouse effect
10. Minnamata disease

Part B (5 × 5 = 25)

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

11. (a) Briefly explain the biological effect of light.

Or

(b) Explain briefly the types of mutualism with example.

12. (a) Illustrate briefly the trophic levels.

Or

(b) Explain the productivity of an ecosystem.

13. (a) Briefly explain the nitrogen cycle.

Or

(b) Explain the cycling of organic nutrients.

14. (a) Write short notes on biotic features of estuarine habitat.

Or

(b) Write shortly the biological features of Coral Reefs.

15. (a) Write notes on germplasm conservation.

Or

(b) Explain the role of microbes in bioremediation.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the structure and characters of community.

17. Write an account on ecological pyramids and its types.

18. Write an essay on phosphorous cycle.

19. Write an essay on natural resources and their conservation.

20. Write an account on environmental laws.

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F–8543

Sub. Code
7MZO3C3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

Third Semester

Zoology

EVOLUTION

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Darwinism.
2. Hugo de vries.
3. Palaeontology.
4. Homologue structure.
5. Natural selection.
6. Genetic Drift.
7. Species.
8. Colouration.
9. Neonderthal man.
10. Fossil.

Part B (5 × 5 = 25)

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

11. (a) Write note on Neo Darwinism.

Or

(b) Give an account on modern synthetic theory of De Vries.

12. (a) Write down the physiological evidences of evolution.

Or

(b) Give an account on biochemical evidences of evolution.

13. (a) Give an account on Genetic Variation.

Or

(b) Comment on natural selection.

14. (a) Give an account on mimicry.

Or

(b) Write a brief note on mass extinction.

15. (a) Comment on Geological time scale.

Or

(b) Write note on dating methods.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain Darwinism in detail.

17. Give an account on morphological and anatomical evidences of evolution.

18. Write an essay on Isolating mechanism.

19. Explain origin of species.

20. Write an essay on human evolution.

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F–8544	Sub. Code
	7MZO3E1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Zoology

Elective – BIOPHYSICS AND INSTRUMENTATION

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Vander Waals forces.

2. Hydrogen bonding.

3. β -sheet.

4. mRNA.

5. Sedimentation coefficient.

6. Chromatography.

7. Scintillation counter.

8. Radioactive isotopes.

9. Light microscope.

10. NMR.

Part B (5 × 5 = 25)

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

11. (a) Explain about the structure of water.

Or

(b) Explain about hydrophobic and hydrophilic interactions.

12. (a) Discuss about the various forces involved in stabilising protein structure.

Or

(b) Explain about structural polymorphism in DNA.

13. (a) Explain the principle of centrifugation. Add a note on the types of centrifuge.

Or

(b) Explain the principle and working mechanism of inoexchange chromatography.

14. (a) Explain the principle and working mechanism of GM counter.

Or

(b) Explain about the safety measures to be taken while handling radioactive isotope.

15. (a) Discuss in brief about the usage of analytical microscopy in elucidating the structure functions relationship in prokaryotes.

Or

(b) Compare and contrast light and electron microscope.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe about strong bonding in macromolecules.

17. Explain about the primary, secondary, tertiary and quaternary structure of protein.

18. Discuss about the various applications of radioactive isotopes in biological studies.

19. Explain the principle and application of electrophoresis.

20. Explain the principle and working mechanism of phase contrast microscope.

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F–8545	Sub. Code
	7MZO3E2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

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. Suspension culture
2. Flow cytometry
3. Viscocity
4. Serum substitutes
5. Caspase assay
6. Trypsinization
7. Colchicine
8. Embryonic stem cells
9. Cryopreservation
10. FACS

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Enumerate the equipment required to establish a cell culture lab.

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 carbondioxide in cell culture.

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

Or

(b) Describe the viability assays.

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

Or

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

15. (a) Describe the hybridoma technique and its advantages.

Or

(b) Briefly explain cell preservation technique.

Part C

(3 × 10 = 30)

Answer any **three** questions.

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

17. Elaborately discuss serum and protein free media and their applications.

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

19. Write an essay on animal cell synchronization and its importance. Add a note somatic cell genetics.

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

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F– 8547	Sub. Code
	7MZO3E4

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

Third Semester

Zoology

Elective – TRANSGENIC TECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Knock out animal
2. Intra-cervical insemination
3. Recombinants
4. ISCN
5. Transgene
6. Myostatin
7. Dolly
8. Clomid
9. Mesenchymal Stem cell
10. Pluripotency

Part B (5 × 5 = 25)

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

11. (a) Explain the methods of Artificial insemination.

Or

(b) Write the causes and future remedies of sterility.

12. (a) Explain the types and applications of vectors in rDNA technology.

Or

(b) Write a brief account on transgenic animals and their advantages.

13. (a) List out the strategies used to improve the production of wool.

Or

(b) Explain about the methods used for the development meat production.

14. (a) Give an account on DNA cloning in Cattle with reference to milk production.

Or

(b) With a neat diagram, explain the process of *in vitro* fertilization.

15. (a) List out the major events in the history of cell technology.

Or

(b) Elucidate the importance of cell technology with reference to the current needs.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the process of gamete formation and the mechanism of fertilization.

17. Give an account on the immunogenetic polymorphisms and their effect in animal improvement.

18. Give an essay on breeding of animals for disease resistance

19. Describe the process of DNA cloning in Sheep and comment on their successful breeds.

20. List out the industrial applications of cell technology

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