D–1527	Sub. Code
	35011

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2025.

First Semester

ANIMAL DIVERSITY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Pseudocoelom

2. Bilateral symmetry

3. Spicules

4. Polyps

5. Wuchereria bancrofti

6. True metamerism

7. Zoea

8. Tiedmann's bodies

9. Ornitholestes

10. Kiwi

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write about Theories of taxonomy.

Or

(b) Write about the different types of symmetry.

12. (a) Explain – Protozoan parasites.

Or

(b) Write about General characters and classification of Porifera.

13. (a) Explain – structure of Obelia colony.

Or

(b) Explain – Nematode parasites.

14. (a) Write about Larval forms of crustaceans.

Or

(b) Discuss – Cephalopad as an advanced Molluscs.

15. (a) Describe about Mesozoic reptiles.

Or

(b) Write a short notes on General characters of prototheria.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give a detail account on Species concept.

17. Explain – Canal system in sponges.

18. Explain about Polymorphism in Coelenterates.

19. Write an essay on Water vascular system in Echinodermata.

20. Explain – Aquatic mammals.

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D–1528

Sub. Code
35012

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2025.

First Semester

BIOCHEMISTRY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Isomers

2. Rancidity

3. Isoelectric point

4. Nucleotides

5. Holoenzymes

6. Lock and key hypothesis

7. Niacin

8. Vasopressin

9. Ketogenesis

10. Diabetes mellitus

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Discuss the structure of any two disaccharides.

Or

(b) Describe about chemical properties of Amino acids.

12. (a) Describe the structure of DNA.

Or

(b) Explain -Mechanism of Enzyme action.

13. (a) Write a brief notes on functions of Pituitary hormones.

Or

(b) Explain-Citric acid cycle.

14. (a) Write short notes on Ketogenesis.

Or

(b) Describe the Transamination.

15. (a) Write short notes on Glycogen storage diseases.

Or

(b) Describe the carbamoyl phosphate synthetase I deficiency.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give a detail account on Classification of Carbohydrates.

17. Describe the classification and chemical properties of Amino acids.

18. Explain -Vitamins biochemical functions and their deficiency

19. Write an essay on the Hexose Mono phosphate shunt.

20. Explain Artherosclerosis symptoms, causes, diagnosis and treatment.

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D–1529	Sub. Code
	35013

DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2025.

First Semester

Zoology

CELL AND MOLECULAR BIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Karyotype

2. 70S Ribosome

3. Microfilaments

4. mRNA

5. Okazaki fragments

6. RNA polymerase

7. Reverse transcription

8. Translocation

9. trp operon

10. Steroid receptor

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain-Ultrastructure of Chomosomes.

Or

(b) Write about Structure of Endoplasmic reticulum and their function.

12. (a) Describe the different types of RNA and its function.

Or

(b) Describe about Okazaki fragments.

13. (a) Discuss-Properties of bacterial RNA polymerase.

Or

(b) Write a short notes on post transcriptional modification.

14. (a) Describe the protein biosynthesis in Eukaryotes.

Or

(b) Discuss-Lac and trp operon.

15. (a) Describe about Steroid receptors.

Or

(b) Write a short notes on DNA binding motifs in Eukaryotes.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain-Meiosis cell cycle

17. Discuss Difference between prokaryotic and Eukaryotic replication.

18. Give a detail account on Protein synthesis.

19. Write an essay on Prokaryotic transcription.

20. Describe about analysis of gene expression using Molecular methodology.

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D–1530

Sub. Code
35021

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2025.

Second Semester

DEVELOPMENTAL BIOLOGY AND EVOLUTION

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Polarity of egg

2. Monospermy

3. Fate map

4. Embryonic Induction

5. Cryopreservation

6. IVF

7. Darwinism

8. Species

9. Phylogenetic tree

10. Human origin

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Describe the structure of sperm.

Or

(b) Describe the structure of Egg.

12. (a) Explain the classification of Eggs.

Or

(b) Briefly explain the maturation of egg.

13. (a) Describe the types of cleavage.

Or

(b) Describe the types of Blastula.

14. (a) List out the factors affecting cleavage.

Or

(b) Mechanism of Fertilization.

15. (a) Explain about the patterns of behavioural adaptations.

Or

(b) Explain briefly about lamarckism.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions

16. Explain the mechanism prevention of polyspermy.

17. What is morphogenetic movement explain it?

18. Explain the concept of Assisted reproductive technology (ART).

19. What is Teratogenesis? Describe it.

20. Describe the Evidence for evolution with reference to Embryological, Anatomical and Physiological aspects.

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D–1531	Sub. Code
	35022

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2025.

Second Semester

GENETICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Intron.

2. Mendal.

3. Allele.

4. Chromosome.

5. Linkage.

6. Gene pool.

7. Crossing over.

8. Mutation.

9. Euthenics.

10. Gene expression.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Mention the scope of Genetics.

Or

(b) Describe simple mendelian traits in man.

12. (a) Trace the Blood group inheritance in Man

Or

(b) Describe dihybrid cross with example.

13. (a) Write short notes on Heretochromatization and Barrbodies.

Or

(b) Give an account on QTL Mapping.

14. (a) Differentiate inbreeding and outbreeding.

Or

(b) Highlight the importance of pedigree analysis.

15. (a) Elaborate on Non-disjunction of chromosomes and syndromes.

Or

(b) Explain the Gene regulation in Cell death.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What is sex determination? Explain with example.

17. What is Chromosome? Mention Chromosomal abnormalities in man.

18. Elaborate the Hardy Weinberg equilibrium with suitable example.

19. What is Gene expression? Add notes on gene expression control in Eukaryotes and phages.

20. Write an essay on Gene interactions.

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D–1532

Sub. Code
35023

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2025.

Second Semester

MICROBIOLOGY

(CBCS 2018 – 19 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Whittaker's concept

2. Mycoplasma

3. Lichens

4. TEM

5. Simple staining

6. Auxenic culture

7. Fimbriae

8. Chlorella

9. Metagenomics

10. Tuberculosis

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write down the General characteristics of Fungi.

Or

(b) Describe about Three domain concept of Carl woese.

12. (a) Explain the principles and applications of Compound Microscope.

Or

(b) Write a brief notes on Differential staining methods.

13. (a) Describe about preservation methods of microbes for storage and microbial studies.

Or

(b) Write about Factors influencing microbial growth.

14. (a) Write short notes on Cytoplasmic matrix.

Or

(b) Discuss-Importance of Entamoeba histolytica

15. (a) Describe types and construction of Phylogenetic tree

Or

(b) Write a short notes on Bacterial diseases-Tuberculosis and leprosy.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give a detail account on General properties, Morphology and Ultra structure of Virus.

17. Explain-Principles and applications of Scanning Electron Microscope(SEM),

18. Explain —Biological and Economic importance of Algae.

19. Write an essay on 16 s/18 s rRNAs and its importance in identification of microorganisms.

20. Explain — Metagenomics sequencing methods.

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D–1533

Sub. Code
35031

DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2025.

Third Semester

Zoology

ANIMAL PHYSIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What are the divisions of physiology?

2. What are the enzymes and hormones involved in digestion process?

3. Draw and label the structure of Nephron.

4. What are the functions of excretory system of human?

5. Mention the composition of blood.

6. Define Heart beat.

7. What do you know about Kymograph?

8. What is called hibernation and aestivation?

9. Define endocrine glands.

10. What are invertebrate hormones?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain the significance of the study physiology.

Or

(b) Write short note on digestive system in man.

12. (a) Discuss the mechanism of urine formation and its regulation.

Or

(b) Draw and label the structure of human heart.

13. (a) Explain the principle and applications of ECR.

Or

(b) Give a brief account on mechanism of muscle contraction.

14. (a) Discuss about the thermoregulation in animals.

Or

(b) Explore the osmo-ionic regulation in freshwater fishes.

15. (a) Write a short note on hormonal control of insect metamorphosis.

Or

(b) Comment on Biological clock and Lunar Periodicities.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the mechanism and functions of respiratory system in man.

17. Write a detailed account on general structure and types of muscles.

18. Write an essay on types and functions of neurons with a labeled diagram.

19. Enlighten the physiology of hearing with a neat illustration.

20. Analyze the structure, functions of thyroid gland and their hormone related diseases.

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D–1534	Sub. Code
	35032

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2025.

Third Semester

IMMUNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What are the types of immune cells?

2. List the functions of immune system.

3. Mention the classes of antigens.

4. Write the functions T-Helper cells.

5. What do you know about the Natural killer cells?

6. Name the types of vaccines.

7. What is Immunoprophylaxis?

8. Comment on Transplants.

9. Enlist the uses of immunological techniques.

10. What is cancer?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain the scope of immunology.

Or

(b) Discuss the types and functions of antibodies.

12. (a) Differentiate between the T and B- Lymphocytes.

Or

(b) Tabulate the immunization schedule.

13. (a) Explain the types of immunity with example.

Or

(b) Give a brief account on organ transplantation and its types.

14. (a) Discuss about the causes and treatment of autoimmune disorder with one example.

Or

(b) Explain the type II hypersensitivity reactions.

15. (a) Write short notes on Immunocytochemistry.

Or

(b) How will you detect the AIDS? Discuss.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the structure and function of secondary lymphoid organs.

17. Analyze the structure and functions MHC molecules with a diagram.

18. Write an essay on types of immune responses with a neat illustration.

19. Immunotherapy is the stimulation of the immune system to treat cancer-Prove.

20. Examine the principle, types and uses of ELISA.

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D–1535	Sub. Code
	35033

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2025.

Third Semester

ENVIRONMENTAL BIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Draw the structure of food chain.

2. List the microorganisms present in the soil.

3. Define grassland ecosystem.

4. What is called primary and secondary production?

5. What do you know about Deep sea ecology?

6. Differentiate between Natality and Mortality rate.

7. Mention any four unique features of seaweeds.

8. What is meant by edge effect in ecosystem?

9. Define on Ecological succession.

10. What are the different types of pollution?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain the biological effects of temperature.

Or

(b) Write a short notes on Pond ecosystem.

12. (a) Give a brief account on Coral reefs.

Or

(b) Enumerate the unique feature of Mangroves.

13. (a) Outline the types of Biosphere in an ecosystem.

Or

(b) Explain the Carbon gaseous cycle with a neat illustration.

14. (a) Write short note on control measures of Air pollution.

Or

(b) Comment on types of Climax community.

15. (a) Identify the biological effects of Soil pollution.

Or

(b) Give a short note on Bioremediation.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write an essay on structure, functions and types of ecosystem.

17. Describe the physical and chemical properties of seawater.

18. Write a detailed account on sedimentary cycles with examples and neat illustration.

19. Analyze the biodiversity hotspots of India.

20. Pollutions lead to various climatic changes – Prove the fact.

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D–1537

Sub. Code
35042

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2025.

Fourth Semester

ANIMAL BIOTECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. BAC.

2. Electroporation.

3. Dulbecco's Modified Eagle Medium.

4. Knockout mice.

5. Transgenic cell.

6. PET-CT imaging.

7. RFLP.

8. Pheromones.

9. Pharmacogenomics.

10. Indigenous breed of cattle.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) List the Vectors in genetic engineering.

Or

(b) Explain the Status of the Indian Capture fishery.

12. (a) Describe the Biolistic Particle Delivery System in gene transfer.

Or

(b) Classify the therapeutic application of SV40.

13. (a) Briefly explain the sterilization techniques in animal cell culture.

Or

(b) Write notes on Bioreactors and scaling-up technologies.

14. (a) Examine the production of Insulin.

Or

(b) Comment on Positron emission tomography.

15. (a) Analyze the Maxam and Gilbert method in DNA sequencing.

Or

(b) Summarize the Pheromones in animal breeding.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Elaborate the types of animal tissue culture with their characteristics.

17. What is antisense gene therapy? Describe the barriers related to gene delivery.

18. Elaborately explain Artificial insemination and embryo transfer.

19. Discuss the Ethical Issues in Genetic Engineering and Transgenics.

20. Enumerate the Pheromones in pest management.

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