D–2531	Sub. Code
	35011

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2026.

First Semester

ANIMAL DIVERSITY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Invertebrates.

2. Numerical taxonomy.

3. Coelomata.

4. Spicules.

5. Corals.

6. Metamerism.

7. Advanced Molluscs.

8. Prochordates.

9. Amphibians.

10. Phylogeny.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Explain the principle of classification of Animals.

Or

(b) Differentiate between the cladistics and molecular taxonomy.

12. (a) Identify the general characters of phylum Porifera.

Or

(b) Discuss the structure of Obelia colony.

13. (a) Enumerate the parasitic adaptations found in worms with examples.

Or

(b) Give a brief account on beneficial insects.

14. (a) Discuss about the water vascular system in Echinoderms.

Or

(b) Explore the structural and functional adaptations of Fishes.

15. (a) Enlist the special features of Reptiles.

Or

(b) Migration of Birds — Discuss.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Outline the major divisions and subdivisions of the animal kingdom with examples.

17. *Entamoeba* is the causative agent of human amoeobiasis — Analyze.

18. Write an essay on larval forms of Echinodermata.

19. Mesozoic reptiles-Dinosaurs — Justify.

20. Examine the general characteristic features of Protheria, Metatheria and Eutheria.

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D–2532

Sub. Code
35012

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2026.

First Semester

BIOCHEMISTRY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Monosaccharide.

2. Steroids

3. Nucleic acids.

4. Isoenzymes.

5. MM equation.

6. Recommended dietary allowance.

7. Master gland.

8. Glycogenesis.

9. Cholesterol.

10. Amino acid pool.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Enumerate the biological functions of Carbohydrates.

Or

(b) Explain the properties of Fats.

12. (a) Outline the steps involved in Glycolysis.

Or

(b) Discuss the Nomenclature and classification of enzymes.

13. (a) Explain the metabolic process Ketogenesis with a neat illustration.

Or

(b) Give a brief account on Urea cycle.

14. (a) Discuss about the biosynthesis of purine.

Or

(b) Fatty liver disease is a condition excess fat accumulates in the liver — Explain.

15. (a) Phenylketonuria is an inborn error of metabolic disorder — Discuss.

Or

(b) Write a short note on Gout.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write a detailed account on structure and functions of protein.

17. "The Watson and Crick model describes DNA as a double helix structure" — Analyze.

18. Write an essay on classes of vitamins and its sources and functions.

19. Describe the general classifications of hormones and its actions.

20. "Diabetes mellitus is a metabolic disorder" — Prove the fact.

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D–2533

Sub. Code
35013

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2026.

First Semester

CELL AND MOLECULAR BIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Centromere

2. Endocytosis

3. Microtubules

4. tRNA

5. Endonucleases

6. Reverse transcription

7. Translocation

8. Chaperones

9. Lac operon

10. Steroid receptors

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain-Ultrastructure of Nucleus.

Or

(b) Write about Structure of Ribosomes and their functions.

12. (a) Explain — Structure and function of DNA.

Or

(b) Describe the Mechanism of Eukaryotic replication.

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 prokaryotes.

Or

(b) Describe about Cell free protein synthesis.

15. (a) Discuss-Lac and trp operon.

Or

(b) Write a short notes on DNA binding motifis in Prokaryotes.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain-Mitosis cell cycle.

17. Discuss Different types of enzymes involved in Molecular biology.

18. Write an essay on Eukaryotic transcription.

19. Give a detail account on Protein synthesis.

20. Describe about Hormonal regulation of gene expression.

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D–2534	Sub. Code
	35021

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2026.

Second Semester

DEVELOPMENTAL BIOLOGY AND EVOLUTION

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Symmetry of Egg

2. Monospermy

3. Egg yolk

4. Embryonic Induction

5. Concept of organizer

6. Nuclear transplantation

7. Neo darwinism

8. Species

9. Phylogenetic tree

10. Genetic variations

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain spermatogenesis.

Or

(b) Explain oogenesis.

12. (a) Explain gastrulation of frog briefly.

Or

(b) Explain gastrulation in chick briefly.

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) Describe about isolating mechanism and speciation.

Or

(b) Explain briefly about Lamarckism.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the preventing mechanism of polyspermy.

17. What is morphogenetic movement explain it?

18. Write a detail account on Egg membranes.

19. Explain about placenta in mammals.

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

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D–2535

Sub. Code
35022

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2026.

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. Hybridization

2. Exon

3. Trait

4. Linkage

5. Chromosome

6. Allele

7. Phylogeny

8. Mutation

9. Eugenics

10. Gene

PART B — (5 × 5 = 25 marks)

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

11. (a) What is sex linked inheritance? Explain.

Or

(b) Describe the Allelic and Non-Allelic interactions.

12. (a) Trace the theories of Linkage and Crossing over.

Or

(b) Describe dihybrid cross with example.

13. (a) Write short notes on Chromosomal abnormalities.

Or

(b) Give an account on gene interactions

14. (a) Differentiate Gene frequency and Genotypic frequency.

Or

(b) Highlight the importance of Molecular markers.

15. (a) Elaborate on differential expression of genes with reference to Drosophila.

Or

(b) Explain the Gene regulation in development.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What is multiple alleles? Explain with example.

17. What is Chromosome? Describe its structure and its types

18. Elaborate the Hardy Weinberg equilibrium citing example.

19. What is Pedigree analysis? Enlist the uses of Pedigree analysis in medical field.

20. Write an essay on Gene expression in Prokaryotes.

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D–2536

Sub. Code
35023

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2026.

Second Semester

MICROBIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Haeckel's concept

2. Cyanobacteria

3. Moulds

4. SEM

5. Differential staining

6. Synchronous culture

7. Fimbriae

8. Spirulina

9. Metagenomics

10. Leprosy

PART B — (5 × 5 = 25 marks)

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

11. (a) Write about Whittaker's five kingdom concept.

Or

(b) Discuss Industrial uses of Yeast and Moulds.

12. (a) Explain — Principle and applications of Fluorescent Microscope.

Or

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

13. (a) Explain — Aerobic and Anaerobic culture media and Nutritional types.

Or

(b) Write about Factors influencing microbial growth.

14. (a) Explain — Structure of Prokaryotic Plasma membrane.

Or

(b) Discuss-Importance of Plasmodium species.

15. (a) Describe Molecular tools in assessing microbial diversity.

Or

(b) Write a short notes on Viral diseases-Hepatitis and HIV.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give a detail account on Lichens structural organization and their properties.

17. Explain — Principle and applications of TEM.

18. Give a detail account on General characteristics of Micro and Macro Algae.

19. Write an essay on molecular tools in assessing microbial diversity.

20. Explain — Metagenomics data analysis and applications.

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D–2537

Sub. Code
35031

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2026.

Third Semester

ANIMAL PHYSIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Ileum

2. Functions of liver

3. Internal respiration

4. Haemopoiesis

5. Cardiac cycle

6. Kymograph

7. Gigantism

8. Biological clock

9. Hibernation

10. Pancreas

PART B — (5 × 5 = 25 marks)

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

11. (a) Describe the significance of gastrointestinal hormones in digestion.

Or

(b) Structure of Human heart. Draw the diagram and label the parts.

12. (a) Draw the structure of respiratory system in man and label the parts.

Or

(b) Draw the digestive system of man and label the parts.

13. (a) Describe the structure of kidney.

Or

(b) Write a brief notes on concept of absorption in intestine.

14. (a) What are the different types of Neuron? Describe.

Or

(b) Write a short notes on "Neuro muscular junction".

15. (a) Write a brief account on thermoregulaton in animals.

Or

(b) Describe the hormonal control of insect metamorphosis.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the mechanism of respiration in man.

17. Describe the structure and functions of Nephron.

18. Explain the Mechanism of muscle contraction.

19. Write a detail account on "Mechanism of hearing".

20. Describe about hypo and hyper thyroidism.

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D–2538	Sub. Code
	35032

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2026.

Third Semester

IMMUNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Complements

2. Interferons

3. Epitopes

4. Innate Immunity

5. Organ transplantation

6. Radio immunoassay

7. Immunotherapy

8. Immunofluorescent assay

9. Vaccine

10. Hybridoma technology

PART B — (5 × 5 = 25 marks)

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

11. (a) Give a short notes on Macrophages

Or

(b) Write an account on Mast cell

12. (a) Give an account on cytokines

Or

(b) Give an account on Lymphokines

13. (a) Explain about Lymphnodes

Or

(b) Explain about spleen

14. (a) Write a short notes on 'Antigen processing and presentation".

Or

(b) Give an account on MHC.

15. (a) Give an account on types of cancer cell briefly

Or

(b) Write an account on the "concept of antibody production".

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write a detail account on "Bone marrow"

17. Explain secondary lymphoid organs and their significance

18. Explain about " Auto immune disorder" in detail

19. Write a detail account on "Antibody".

20. Describe "Delayed type Hypersensitivity" in detail.

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D–2539	Sub. Code
	35033

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2026.

Third Semester

ENVIRONMENTAL BIOLOGY

(CBCS 2018 – 19 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Ecosystem.

2. Primary producers.

3. Coral reef.

4. Sea grass.

5. Lithosphere.

6. Carrying capacity.

7. Ecotone.

8. Edge effect.

9. Biodiversity Hotspot.

10. Greenhouse effect.

PART B — (5 × 5 = 25 marks)

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

11. (a) Mention the functions and types of ecosystems.

Or

(b) Describe the structure of Pond ecosystem.

12. (a) Explain the biological effects of light.

Or

(b) List out the unique features of Coral reef.

13. (a) Write short notes on Oxygen cycle.

Or

(b) Give an account on fluctuation and regulation of population.

14. (a) Describe community structure with example.

Or

(b) Highlight impacts of greenhouse gases. How do the green house gas affects human health?

15. (a) Highlight the benefits of Germplasm conservation.

Or

(b) Explain the role of environmental laws in protection of natural resources.

PART C — (3× 10 = 30 marks)

Answer any THREE questions.

16. Explicate the tropic structure and factors affecting ecosystem.

17. What is Thermal stratification? Describe the concept of limiting factors.

18. Elaborate the Population concept and carrying capacity in population.

19. What is Pollution? Add notes on biological effects and control measures of water pollution.

20. Differentiate on Endangered and threatened species with examples.

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D–2540

Sub. Code
35042

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2026.

Fourth Semester

ANIMAL BIOTECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Shuttle Vector

2. Electroporation

3. Monolayer culture

4. Bioreactors

5. Xenotransplantation

6. Western hybridization

7. RAPD

8. Recombinant vaccine

9. Computed tomography

10. Human genome project.

PART B — (5 × 5 = 25 marks)

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

11. (a) Write a short notes on Yeast artificial chromosomes

Or

(b) Give a brief notes on Basic principles of Genetic Engineering

12. (a) Describe the Preparation of Media and sterilization techniques

Or

(b) Discuss about production and application of Transgenic sheep

13. (a) Explain-Artificial insemination

Or

(b) Write brief notes on Southern hybridization

14. (a) Explain-DNA finger printing

Or

(b) Discuss Pheromones in pest management

15. (a) Give an account on Human genome project

Or

(b) Discuss about Ethical issues in Genetic engineering

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give a detail account on Gene transfer methods in animals

17. Describe about application of cell culture in product development and tissue repair

18. Explain principles, methods and instrumentation of DNA sequencing

19. Explain recombinant vaccines

20. Explain Gene therapy advanced techniques and their applications

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