D–8539

Sub. Code
35011

DISTANCE EDUCATION

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

First Semester

ANIMAL DIVERSITY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Binomial nomenclature.

2. Radial symmetry.

3. Ostia.

4. Medusa.

5. Scolex.

6. Metamerism.

7. Nauplius.

8. Osphradium.

9. Ornithomimus.

10. Synsacrum.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write about the different types of species concept.

Or

(b) Write short notes on coelom in Animals.

12. (a) Explain - structure of Leucosolenia.

Or

(b) Describe about corals and coral reefs.

13. (a) Write about Helminth parasites.

Or

(b) Explain - polymorphism in coelenterates.

14. (a) Write short notes on Harmful and beneficial insects.

Or

(b) Discuss - Cephalopad as an advanced Molluscs.

15. (a) Write about genera characters and classification of prochordates.

Or

(b) Describe the flight adaptation in birds.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Give a detail account on major divisions and subdivisions of the animal kingdom.

17. Explain - canal system in sponges.

18. Explain - metamerism in annelids.

19. Write an essay on larval forms of Echinodermata.

20. Explain - migration in birds.

D–8540

Sub. Code
35012

DISTANCE EDUCATION

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

First Semester

BIOCHEMISTRY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Glucose.

2. Phospholipids.

3. Zwitterions.

4. Nucleosides.

5. Isozymes.

6. Induced fit hypothesis.

7. Cyanocobalamine.

8. Thyroxine.

9. Glycogenesis.

10. Diabetes insipidus.

PART B — (5 × 5 = 25 marks)

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

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

Or

(b) Write short notes on essential fatty acids.

12. (a) Describe the factors affecting enzyme activity.

Or

(b) Discuss about biochemical functions of vitamins.

13. (a) Write down the general classification of hormones.

Or

(b) Explain the glycogenesis.

14. (a) Write short notes biosynthesis of fatty acids.

Or

(b) Explain - urea cycle.

15. (a) Give an account on Diabetes mellitus.

Or

(b) Discuss about Lesch-Nyhan syndrome and Zellweger syndrome.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give a detail account on classification and function of lipids.

17. Describe the structure of protein.

18. Explain the origin and major functions of pituitary gland.

19. Describe about carbon skeleton of Amino acids.

20. Explain Nucleotide metabolism.

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D–8541

Sub. Code
35013

DISTANCE EDUCATION

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

First Semester

CELL AND MOLECULAR BIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ 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 motifs 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–8542

Sub. Code
35021

DISTANCE EDUCATION

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

Second Semester

DEVELOPMENTAL BIOLOGY AND EVOLUTION

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Symmetry of Egg.

2. Egg pigments.

3. Monospermy.

4. Fate map.

5. Neural crest.

6. Cryopreservation.

7. Sperm banking.

8. Molecular drive.

9. Speciation.

10. Non-genetic variation.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe about the "Sperm Structure".

Or

(b) What is spermatogenesis? Explain.

12. (a) Classification of egg.

Or

(b) What is Oogenesis? Explain.

13. (a) Concept of Organizer.

Or

(b) Describe about egg metabolism.

14. (a) What is cleavage? Describe the factors affecting cleavage.

Or

(b) Describe embryo transfer and test tube Babies.

15. (a) Give an account on Darwinism.

Or

(b) Describe the theory of natural selection.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the mechanism of morphogenetic movement.

17. Explain about nuclear transplantation.

18. What is teratogenesis? Explain in detail.

19. Explain about the Assisted Reproductive Technology (ART).

20. Explain human origin and evolution.

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D–8543

Sub. Code
35022

DISTANCE EDUCATION

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

Second Semester

GENETICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. What is meant by multiple allele?

2. Differentiate test cross and back cross.

3. What is epistasis?

4. What do you know about the tetrad analysis?

5. What are the types of chromosomes?

6. Define the inbreeding and outbreeding.

7. What is meant by gene pool?

8. Comment on Twins.

9. Why the Hardy - Weinberg equilibrium is important in population genetics?

10. What is gene regulation?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Give short notes on Mendel contributions in genetics.

Or

(b) Elucidate the dihybrid experiment ratio 9:3:3:1 with suitable example.

12. (a) Enlighten the mechanism of sex determination in human.

Or

(b) Explain the process of polygenetic inheritance with example.

13. (a) Write a short note on chromosomal abnormalities.

Or

(b) Discuss about the allelic and non-allelic interactions of genes.

14. (a) Write a short note on euthenics.

Or

(b) Discuss about the pedigree analysis and its advantages.

15. (a) Comment on importance of population genetics.

Or

(b) Describe the differential and sequential expression of genes in Drosophila.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write an essay on scope of genetics in various fields.

17. Examine the theories of crossing over with a neat diagram.

18. Give a detailed account on types of mutations and its applications.

19. Write a detailed account on types of eugenics.

20. Compare the gene expression control in prokaryotes and eukaryotes.

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D–8544

Sub. Code
35023

DISTANCE EDUCATION

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

Second Semester

MICROBIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Yeast and moulds.

2. DNA virus.

3. Fluorescent microscope.

4. Disinfection.

5. Algae.

6. Synchronous culture.

7. Nucleoid.

8. Metagenomics.

9. Microbial diversity.

10. Entamoeba histolytica.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Haeckel's three - kingdom concept - Explain.

Or

(b) Whittaker"s five - kingdom concept Explain.

12. (a) Describe the general characteristics of protozoa.

Or

(b) List down the industrial uses of yeast and moulds - describe.

13. (a) Explain the ultra - structure of virus.

Or

(b) Explain culture collection of microbes.

14. (a) General characteristics of algae explain.

Or

(b) Explain the factor influencing microbial growth.

15. (a) Describe the general characteristics of macro algae.

Or

(b) List down the economic importance of algae.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe the principles and applications of electron microscopes.

17. Describe the different methods of staining techniques.

18. What are the different methods of preservation of microbes? Explain.

19. Explain the prokaryotic cell structure in detail.

20. Explain about bacterial diseases.

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D–8545

Sub. Code
35031

DISTANCE EDUCATION

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

Third Semester

ANIMAL PHYSIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. What is the significance of study of physiology?

2. Why is digestion a necessary process for humans?

3. What are the types of respiration?

4. Define the excretory system of human.

5. What is Haemostasis?

6. Draw the cardiac cycle diagram.

7. Write the functions of sarcomere.

8. What is called aestivation?

9. Give examples for endocrine glands.

10. Comment on circadian rhythm.

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain the relationship of physiology with other sciences.

Or

(b) Write short note on mechanism of respiration in man.

12. (a) Discuss the structure and function of nephron.

Or

(b) Identify the composition of blood.

13. (a) Differentiate between the central and peripheral nervous system.

Or

(b) Outline the general structure of muscles.

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

Or

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

15. (a) Explain the mechanism behind the hormonal control of insect metamorphosis.

Or

(b) Give a brief account on biological clock.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the digestive system in man and add a note on enzymes and gastrointestinal hormones role in digestion.

17. Write a detailed account on structure of human heart.

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

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

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

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D–8546

Sub. Code
35032

DISTANCE EDUCATION

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

Third Semester

IMMUNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Define immunology.

2. What are Epitopes?

3. Mention the elements of immune system.

4. Write the functions memory cells.

5. What do you know about the immune responses?

6. What are vaccines?

7. Differentiate between the autoimmune disorder and immunodeficiency disease.

8. Define on transplants.

9. Enlist the uses of immunological techniques.

10. What is antibody generation?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Enumerate the scope of immunology.

Or

(b) Explain the types and functions of antibodies.

12. (a) Write a short note on T-lymphocytes.

Or

(b) Tabulate the immunization schedule.

13. (a) Explain the cell mediated immune response with illustration.

Or

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

14. (a) Examine the types of cancer.

Or

(b) Immunotherapy is the stimulation of the immune system to treat cancer - Discuss.

15. (a) Write the working principle of radioimmuno assay (RIA).

Or

(b) Identify the applications of hybridoma technology.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

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

17. Write a detailed account on structure and functions MHC molecules with a neat diagram.

18. Write an essay on types of immunity with adding example.

19. Outline the types of hypersensitivity reactions.

20. Give an elaborate note on principle, types and uses of ELISA.

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D–8547

Sub. Code
35033

DISTANCE EDUCATION

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

Third Semester

ENVIRONMENTAL BIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. What is an ecosystem?

2. Mention the abiotic factors.

3. What is meant by thermal stratification?

4. List the physical properties of marine environment.

5. What do you know about red tide?

6. What are seagrasses also known as lungs of sea?

7. Define biosphere.

8. What is the sedimentary cycle?

9. Define ecotone.

10. Give very short note on bioremediation.

PART B — ($5 \times 5 = 25$ marks)

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

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

Or

(b) Write a short notes on soil microorganisms and its importance.

12. (a) Give a brief account on factors influencing productivity in marine ecosystem.

Or

(b) Enumerate the unique feature of coral reefs.

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

Or

(b) Explain the oxygen gaseous cycle wit a neat illustration.

14. (a) Write short note on ecological niche.

Or

(b) Comment on ecological succession.

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

Or

(b) Discuss about the biodiversity hotspots of India.

PART C — ($3 \times 10 = 30$ 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 different population concepts what you have studies.

19. Analyze the types of climax community.

20. Different types of pollution lead to climatic changes - Justify.

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D–8548

Sub. Code
35041

DISTANCE EDUCATION

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

Fourth Semester

FISHERIES AND AQUACULTURE

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Cartilaginous fish.

2. Biofloc technology.

3. Alligator gar.

4. Pond drying.

5. Cage culture.

6. Brood stock ponds.

7. Copepods.

8. Biosecurity measures in aquaculture.

9. BIS.

10. Chitin.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) List five freshwater fishes and write their importance.

Or

(b) Explain the status of the Indian capture fishery.

12. (a) Describe the indigenous craft in India.

Or

(b) Classify the water quality parameters in pond preparation.

13. (a) Briefly explain the polyculture.

Or

(b) Write notes on induced breeding.

14. (a) Examine the live feed culture.

Or

(b) Comment on seed packing and transportation.

15. (a) Analyze the biochemical methods for the freshness of fish.

Or

(b) Summarize the preservation of fishes.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Give an account of indigenous and modern craft and gears used in fisheries.

17. Write an essay on different types of culture systems based on stocking density.

18. Elaborately explain the various types of Hatchery.

19. Discuss the good management practices in the hatchery.

20. Enumerate the fishery by-products.

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D–8549

Sub. Code
35042

DISTANCE EDUCATION

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

Fourth Semester

ANIMAL BIOTECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Therapeutic proteins.

2. YAC.

3. MacConkey agar.

4. Scaling-up technologies.

5. Dolly.

6. Xenotransplatation.

7. RFLP.

8. Pheromones.

9. Pharmacogenomics.

10. Indigenous breed of cattle.

PART B — ($5 \times 5 = 25$ 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 Knock out and knock in Technology.

15. (a) Analyze the Sanger's di-deoxy method in DNA sequencing.

Or

(b) Summarize the conservation of indigenous cow and buffalo.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Elaborate the types of gene transfer method in animals.

17. Explain in detail the various animal viral vectors used in the gene transfer along with the merits and demerits.

18. Elaborately explain methods and applications of cell culture.

19. Discuss the vaccine production.

20. Enumerate the PCR and its applications in animal biotechnology.

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D–8550

Sub. Code
35043

DISTANCE EDUCATION

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

Fourth Semester

BIOPHYSICS, BIOSTATISTICS AND BIOINFORMATICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. What is neutron?

2. Define chemical bond.

3. What is Redox potential?

4. What is an isotope?

5. Comment on sampling.

6. Define primary data.

7. What is polygon?

8. Define SD.

9. What is 't' test?

10. Define pharmacoinformatics.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Bring out the applications of spectroscopy.

Or

(b) Explain about chemical bond.

12. (a) How will you collect the data?

Or

(b) Distinguish between bar graph and histogram.

13. (a) Give an account on range and variance.

Or

(b) Calculate mean and mode for the following data.

26, 35, 14, 55, 78, 88, 14, 31, 14, 35.

14. (a) Explain about confidence interval and P value.

Or

(b) Distinguish between qualitative and quantitative variable.

15. (a) Enumerate the applications of bioinformatics in cancer research.

Or

(b) Describe about protein sequence analysis.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Illustrate the structure of an atom.

17. Describe histogram and pie diagram.

18. Find out the median for the given data.

Weight of fishers (g)	5	10	15	20	25	30	35	40	45	50
No. of fishes	11	21	31	41	51	61	41	31	21	11

19. Describe about the probability and hypothesis testing.

20. Write in detail about biological databases.

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