D–6562

Sub. Code
35011

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2024.

First Semester

ANIMAL DIVERSITY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Radial symmetry.

2. Psudocoelomata.

3. Ookinete.

4. Osculum.

5. Polyps.

6. Rhabditiform larva.

7. Metamerism.

8. Tiedmann's bodies.

9. Synapsida.

10. Kiwi.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Write about principles and types of classification.

Or

(b) Explain the coelom in animals.

12. (a) Write about plasmodium.

Or

(b) Discuss about polymorphism in coelenterates.

13. (a) Explain-Harmful and beneficial insects.

Or

(b) Describe about cephalopod as an advanced mollusc.

14. (a) Write about general characters and classifications of amphibians.

Or

(b) Explain the Mesozoic reptiles.

15. (a) Write about flightless birds.

Or

(b) Write down the general characteristics of metatheria.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe about major divisions and subdivisions of the animal kingdom.

17. Give a detail account on canal system in sponges.

18. Explain about Larval forms of crustaceans.

19. Explain – water vascular system in echinodermata.

20. Give a detail account on aquatic mammals.

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D–6563

Sub. Code
35012

DISTANCE EDUCATION

M.Sc.(Zoology) DEGREE EXAMINATION, DECEMBER 2024.

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. Lactose.

2. Phospholipids.

3. Isoelectric point.

4. Nucleotides.

5. Isoenzymes.

6. Induced fit hypothesis.

7. Cyanocobalamine.

8. Vasopressin.

9. Glycolysis.

10. Diabetes mellitus.

SECTION B — ($5 \times 5 = 25$ marks)

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

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

Or

(b) Describe the structure of DNA.

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

Or

(b) Classify vitamins with examples.

13. (a) Describe the major functions of pituitary hormones.

Or

(b) Explain – Hexose monophosphate shunt.

14. (a) Write short notes on mechanism of cholesterol.

Or

(b) Describe the mechanism of ammonia.

15. (a) Write short notes on diabetes mellitus.

Or

(b) Describe the carbamoyl phosphate synthetase I deficiency.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Give a detail account on classification of carbohydrates.

17. Describe the structure and functions of proteins.

18. Explain vitamins, biochemical functions and their deficiency.

19. Write an essay on the fate of carbon skeleton aminoacids.

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

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D–6564	Sub. Code
	35013

DISTANCE EDUCATION

M.Sc.(Zoology) DEGREE EXAMINATION, DECEMBER 2024.

First Semester

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. Cytokinesis.

2. Autolysis.

3. tRNA.

4. Karyotype.

5. Endonucleases.

6. D-loop replication.

7. Central dogma.

8. Translation.

9. Lac operons.

10. Gene amplifications.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe the lysosomes and their functions.

Or

(b) Explain the mitosis cell cycle.

12. (a) Write short notes on

(i) RNA polymerase

(ii) Helicase.

Or

(b) Write down the types of RNA and its function.

13. (a) Discuss about the properties of RNA polymerase I, II and III.

Or

(b) Write short notes on reverse transcription.

14. (a) Give an account on post translational modifications of protein synthesis.

Or

(b) Explain the protein biosynethsis in prokaryotes.

15. (a) Write short notes on operon hypothesis.

Or

(b) Give a brief account on DNA binding motifs in pro and eukaryotes.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe about structural organization of prokaryotic and eukaryotic cells.

17. Give a detail account on mechanism of prokaryotic and eukaryotic replication.

18. Explain about prokaryotic transcription.

19. Explain protein synthesis.

20. Give a detail account on Hormonal regulation of gene expression in Eukaryotes.

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D–6565

Sub. Code
35021

DISTANCE EDUCATION

M.Sc.(Zoology) DEGREE EXAMINATION, DECEMBER 2024.

Second Semester

DEVELOPMENTAL BIOLOGY AND EVOLUTION

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Polarity of Egg.

2. Egg cortex.

3. Polyspermy.

4. Blastulation.

5. Neural crest.

6. Cryopreservation.

7. Artificial insemination.

8. Molecular drive.

9. Speciation.

10. Genetic variations.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe about the "Matuaration of sperm".

Or

(b) What is spermatogenesis? Explain.

12. (a) What are the various types of egg membranes? Explain them.

Or

(b) What is Oogenesis? Explain.

13. (a) Describe the mechanism of monospermy.

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.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe about Gastrulation in Frog.

17. What is embryonic induction?

18. What is teratogenesis? Explain in detail.

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

20. What is Lamarckism and Neo-Lamarckism? Explain in detail.

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D–6566

Sub. Code
35022

DISTANCE EDUCATION

M.Sc.(Zoology) DEGREE EXAMINATION, DECEMBER 2024.

Second Semester

GENETICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. What do you know about the branch genetics?

2. Differentiate monohybrid cross and dihybrid cross.

3. What is allele?

4. Define on sex chromosome.

5. State on mutation.

6. Mention the uses of pedigree analysis.

7. What is meant by gene frequency?

8. Tell about the uses of interaction of genes.

9. What is the difference between eugenics and euphenics?

10. What is the functions of gene expression?

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Enlist the scope of genetics.

Or

(b) Elucidate the simple mendelian traits in man.

12. (a) Enlighten the types of chromosomes.

Or

(b) Explain the mechanism of sex linked inheritance with example.

13. (a) Write a short note on Barr bodies.

Or

(b) Differentiate the inbreeding and outbreeding.

14. (a) Describe the factors affecting Hardy-Weinberg equilibrium.

Or

(b) Discuss about the types of twins and add note on importance of twin study.

15. (a) Comment on phages.

Or

(b) Give a brief account on gene regulation in development of cell and cell death.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. "Blood types are examples of multiple alleles" – Justify.

17. Examine the mechanism of linkage with a neat diagram.

18. Give a detailed account on chromosomal and gene mapping methods.

19. Write an essay on chromosomal abnormalities.

20. "Differential and sequential expression of genes observed in Drosophila" – Prove.

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D–6567

Sub. Code
35023

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2024.

Second Semester

MICROBIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Lichens.

2. RNA virus.

3. Compound microscope.

4. Disinfection.

5. General characteristics of protozoa.

6. Auxenic culture.

7. Nucleoid.

8. Leprosy.

9. Microbial diversity.

10. Plasmodium.

SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL the 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 characteristic of fungi.

Or

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

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

Or

(b) Explain ICTV system of classification of virus.

14. (a) General characteristics of bacteria explain.

Or

(b) Explain the factor influencing microbial growth.

15. (a) Describe the general characteristics of microalgae.

Or

(b) List down the economic importance of algae.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe the principles and applications of confocal 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 viral diseases.

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D–6568

Sub. Code
35031

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2024.

Third Semester

ANIMAL PHYSIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Animal physiology.

2. Respiration.

3. Bowman's capsule.

4. Haemostasis.

5. Heart beat.

6. Sarcomere.

7. Aestivation.

8. Hypo-osmotic media.

9. Adrenal gland.

10. Circannual rhythm.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Briefly explain about absorption and assimilation of food.

Or

(b) Draw and describe the structure of nephron.

12. (a) Write about blood volume and its regulation.

Or

(b) With neat diagrams explain the types of nerve fibres.

13. (a) Describe the ultra-structure of skeletal muscle.

Or

(b) Comment on the physiology of vision.

14. (a) Write briefly about the tolerance to high and cold temperature in animals.

Or

(b) Write a short note on buoyancy mechanism in animals.

15. (a) Explain the endocrine regulation in insects.

Or

(b) What is the significance of biological clock?

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write an essay on gastrointestinal hormones and their control in digestion.

17. Describe the mechanism of the transport of respiratory gases in detail.

18. Discuss the structure and functions of human heart.

19. Explain how fresh and marine water fishes modulate their Osmo-ionic balance in their respective environment.

20. Discuss the hypo and hyper secretions of hormones and their diseases.

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D–6569

Sub. Code
35032

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2024.

Third Semester

IMMUNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Immune cells.

2. Cytokines.

3. B Lymphocytes.

4. Adaptive immunity.

5. Immunoprophylaxis.

6. Vaccines.

7. Hypersensitivity.

8. Transplantation.

9. Immunochemistry.

10. FACS.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain the historical background of immunology with important milestones.

Or

(b) Describe the essential features of successful antigen.

12. (a) Discuss different kinds of lymphocytes.

Or

(b) Explain the process of antigen processing and presentation.

13. (a) Elaborate on the preparation, advantages and disadvantages of BCG vaccine.

Or

(b) Give an account on any two secondary lymphoid organs with suitable diagram.

14. (a) Enumerate the applications of antibody engineering.

Or

(b) What are the different types of immunotherapies for cancer? Explain.

15. (a) Write the principle and applications of ELISA technique.

Or

(b) Give a note on immunofluorescence assay.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Discuss human MHC complex in detail.

17. Explain the effector mechanism elicited in cell mediated cytotoxicity.

18. Write on the innate and acquired immunity with suitable example.

19. Discuss about autoimmune disease with three examples.

20. Describe the working principles of immunofluorescence microscope with neat diagram.

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D–6570

Sub. Code
35033

DISTANCE EDUCATION

M.Sc.(Zoology) DEGREE EXAMINATION, DECEMBER 2024.

Third Semester

ENVIRONMENTAL BIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Ecological pyramid.

2. Shelford's law.

3. Red tide.

4. Seaweeds.

5. Lithosphere.

6. Natality.

7. Complete cycle.

8. Ecological niche.

9. Polyclimax.

10. Endangered species.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Illustrate food chain and its types with examples.

Or

(b) Briefly discuss about biological effects of temperature in animals.

12. (a) What are Mangroves? Discuss their unique features.

Or

(b) Write notes on the floating adaptations of plankton.

13. (a) Comment on atmosphere.

Or

(b) What are biogeochemical cycles? Explain with carbon cycle.

14. (a) Write short notes on population density and age distribution.

Or

(b) Highlight sulphur cycle with the help of a neat diagram.

15. (a) Define Global warming. Add notes on its causes and effects.

Or

(b) Environmental Protection Act - discuss.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe components of an ecosystem with pond as an example.

17. Give an account on the physico-chemical properties of seawater.

18. Write an essay on cycling of nitrogen between biotic and abiotic components.

19. Explain the various effects of water pollution and its control measures.

20. Describe the various methods of conservation of natural resources.

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D–6571

Sub. Code
35041

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2024.

Fourth Semester

FISHERIES AND AQUACULTURE

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Classification of fishes.

2. Modern fishing gears.

3. Fish morphometry.

4. Endangered species.

5. Intensive fish farming.

6. Feed management.

7. Pen culture.

8. Induce breeding.

9. HACCP concept.

10. Preservation of fish.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Discuss about indigenous and modern craft and gear that are used in capture.

Or

(b) Write a short note on morphometric and meristic characters of fish.

12. (a) Write a brief note on conservation and management of fishery resources.

Or

(b) Describe finfish and shellfish diseases. Add a note on their control measures.

13. (a) Define HACCP. Explain biosecurity and specific pathogen free seed production.

Or

(b) Define Indian aquaculture. Write a brief note on its current status.

14. (a) Write physical and biochemical methods to examine freshness of fish.

Or

(b) Explain the methods in fish preservation.

15. (a) Write a short note on any three fishery by products.

Or

(b) Define (i) Cage culture (ii) Pen culture (iii) Race ways culture (iv) Poly culture (v) Composite fish culture.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Elaborate on economically important marine and fresh water fishes.

17. Explain fishpond structure and construction. Add a note on its stocking, water quality and feed management.

18. Describe live feed culture and good management practices in hatchery.

19. Elaborate on hatchery management techniques.

20. Provide a detailed account on Fish processing and preservation methods.

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D–6572

Sub. Code
35042

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2024.

Fourth Semester

ANIMAL BIOTECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Microinjection.

2. Transgenesis.

3. Cryopreservation.

4. Stem cell therapy.

5. Embalming.

6. Pheromone.

7. Mesenchymal stem cells.

8. Xenotransplantation.

9. Hanging drop.

10. Sonoporation.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Add a brief note on basic principles of genetic engineering.

Or

(b) Give a short note on animal Biotechnology and its application.

12. (a) Distinguish between plasmid and cosmid.

Or

(b) Write a short note on biolistic particle delivery system.

13. (a) Give a brief account on first cloned mammal.

Or

(b) Write about the principle and mechanism involved in DNA profiling.

14. (a) Explain the principle and application of the Polymerase Chain Reaction.

Or

(b) Distinguish between epithelial cells and mesenchymal cells.

15. (a) Explain in detail about recombinant subunit vaccine.

Or

(b) Give a brief note on the conservation and management of indigenous cow and buffalo.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write in detail on the role of phenomones in animal breeding.

17. Write an account on the principle and application of animal cell culture.

18. Explain in detail about western and northern hybridization techniques.

19. Discuss embryo transfer technique. List out its merits and demerits.

20. Give an in-depth description and applications of animal tissue grafting and its types.

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D–6573	Sub. Code
	35043

DISTANCE EDUCATION

M.Sc.(Zoology) DEGREE EXAMINATION, DECEMBER 2024.

Fourth Semester

BIOPHYSICS, BIOSTATISTICS AND BIOINFORMATICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

Draw diagram if necessary.

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Covalent bond.
2. Bio-energetics.
3. Natural radiations.
4. Geiger Muller counter.
5. Bio-statistics.
6. Quantitative variables.
7. Histogram.
8. Mode.
9. UniPORT.
10. Cheminformatics.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Write a brief note on structure and properties of molecules.

Or

(b) Explain the importance of redox potential.

12. (a) Explain the principles and applications of spectroscopy.

Or

(b) Explain the brief the delayed effects of radiation.

13. (a) Why is collecting data important?

Or

(b) Enlist the different types of sampling.

14. (a) Explain the role of presentation of data in statistics.

Or

(b) Explain the measure of dispersion.

15. (a) Write a brief note on the Bioinformatics.

Or

(b) Explain the concepts of biological databases.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain in detail the role of biophysics in biological science.

17. Write in detail the types of variables in biostatistics.

18. Give a detailed account on regression analysis.

19. Describe the importance of probability and hypothesis testing.

20. Elaborate the role of bioinformatics in cancer detection.

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