D–7619

Sub. Code
35011

DISTANCE EDUCATION

M.Sc.(Zoology) DEGREE EXAMINATION, DECEMBER 2022.

First Semester

ANIMAL DIVERSITY

(CBCS 2018 – 19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Binomial Nomenclature

2. Cladistics

3. Amoebiasis

4. Coral reefs

5. Solenocytes

6. Osphradium

7. Tunicata

8. Cephalochordata

9. Prototheria

10. Operculum

PART B — (5 × 5 = 25 marks)

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

11. (a) Write short note on history and theories of taxonomy.

Or

(b) Give an elaborate account on Major sub divisions of the animal kingdom.

12. (a) Describe the structure of obelia colony with a suitable diagram.

Or

(b) Write an essay on parasitic adaptation in Helminthes parasites.

13. (a) Discuss about the adaptive radiations in Arthopoda.

Or

(b) Describe the metamerism in annelids.

14. (a) Give a brief note on harmful and beneficial insects

Or

(b) Write a brief account on functional adaptation of fishes.

15. (a) Explain the salient features of Mesozoic reptiles.

Or

(b) Write an essay on flightless birds.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Briefly explain the Biochemical approach and Numerical taxonomy.

17. Write an essay on the structure of Leucosolenia.

18. Give a brief account on classification of Echinodermata.

19. Explain the salient features of prochordates.

20. Explain the structures and function for flight adaption of birds.

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D–7620	Sub. Code
	35012

DISTANCE EDUCATION

M.Sc.(Zoology) DEGREE EXAMINATION, DECEMBER 2022.

First Semester

BIO CHEMISTRY

(CBCS 2018-2019 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define carbohydrates?

2. Define amino acids?

3. What is nucleoside?

4. What is DNA?

5. Give an example of enzyme catalysed reaction.

6. What is the difference between enzymes and isoenzymes?

7. What are the symptoms of Hypervitaminosis?

8. What are the symptoms of Rickets?

9. What is thyroxin?

10. Define diabetes mellitus.

PART B — (5 × 5 = 25 marks)

Answer ALL questions. Choosing either (a) or (b).

11. (a) Explain the functions of carbohydrates.

Or

(b) Discuss properties of lipids.

12. (a) Write in details properties of proteins.

Or

(b) Write a short note on biological functions of nucleic acids?

13. (a) Briefly explain about activation energy.

Or

(b) Write down the major function of hormones.

14. (a) Give an account on biological functions of fat soluble vitamins.

Or

(b) Illustrate the Kearns sayre syndrome and Niemann pick disease.

15. (a) Mention briefly about zellweger syndrome and maple syrup urine disease.

Or

(b) Describe the isoenzymes.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the classification of carbohydrate.

17. Write in detail about classification of fatty acids?

18. Elaborately explain amino acid metabolism.

19. Describe Watson and Crick model of DNA.

20. Discuss nomenclature and classification of enzymes.

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D–7621

Sub. Code
35013

DISTANCE EDUCATION

M.Sc.(Zoology) DEGREE EXAMINATION, DECEMBER 2022.

First Semester

CELL AND MOLECULAR BIOLOGY

(CBCS 2018 - 19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Define cell theory.

2. Give the functions of ribosomes.

3. State base pair rule.

4. Explain heterochromatin.

5. What is cell cycle?

6. Write the main events of protein synthesis.

7. What are Suicidal bags of the cell?

8. Distinguish between DNA and RNA.

9. Define negative control.

10. What is the role of Aulophagic vacuole?

PART B — (5 × 5 = 25 marks)

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

All questions carry equal marks.

11. (a) What did Danielli and Davson say about the structure of Plasma membrane?

Or

(b) Tabulate the structure present in the cell and write the names of the of the scientist who discovered and described them.

12. (a) Describe the ultra structure of an animal cell with neat diagram.

Or

(b) Describe the structure and functions of Golgi bodies.

13. (a) Describe the process of biogenesis of ribosomes.

Or

(b) Explain the enzymes involved in Molecular biology.

14. (a) Give the essential features of Operon theory

Or

(b) How does micosis differ in animal cell and plant cells?

15. (a) Distinguish between nucleoside and nucleotide? What is a phosphodiester linkage and why is it called that?

Or

(b) What would be the most likely role of perxisomes in cell lacking mitochondria.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

All questions carry equal marks.

16. Describe the various theories of cilliary movement. Mention specifically the sliding microtubule model of axonemal movement.

17. With neat labeled diagrams, describe the various events of Meiosis.

18. Write an account on hormonal regulation of gene expression.

19. What is the difference between conservative and semiconservative replication of DNA? Describe the experiment that supports the semiconservative mechanism.

20. List the lines evidences that indicate condensation of chromatin is an important regulatory process.

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D–7622

Sub. Code
35021

DISTANCE EDUCATION

M.Sc.(Zoology) DEGREE EXAMINATION, DECEMBER 2022.

Second Semester

Zoology

DEVELOPMENTAL BIOLOGY AND EVOLUTION

(CBCS 2018-2019 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions. All questions carry equal marks.

1. Leydig cell

2. Vas deferens

3. Vitellogenesis

4. Egg maturation

5. Meroblastic cleavage

6. Epiboly

7. Grey cresant

8. Superovulation

9. Species

10. Neo-Darwinism

PART B — (5 × 5 = 25 marks)

Answer ALL questions. All questions carry equal marks.
Choosing either (a) or (b).

11. (a) Describe the Oogenesis with neat diagram.

Or

(b) Define the cortical reaction of egg after fertilization.

12. (a) What are the factors influencing cleavage?

Or

(b) Describe the gastrulation in frog.

13. (a) Brief about the concept of organizer.

Or

(b) Briefly explain the fetal membrane in chick.

14. (a) Explain the development of brain of chick with neat diagram.

Or

(b) Explain the process of '*n-vitro* Fertilization'.

15. (a) Explain the evolution of man.

Or

(b) Write short notes on phylogenetic tree and its significance.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What is Oogenesis? Briefly explain the various steps involved in Oogenesis.

17. What is Gastrulation? Elaborately discuss about the various metabolic and molecular changes occurred during gastrulation.

18. Write short notes on the following:

    (a) Origin of Gene Theory

    (b) Artificial Insemination

    (c) Theory of Natural Selection

19. Briefly discuss about the types of mammalian placenta with suitable diagrams.

20. Explain a detailed account on morphological, embryological and physiological evidences of evolution.

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D–7623	Sub. Code
	35022

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION,
DECEMBER 2022.

Second Semester

GENETICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.
All questions carry equal marks.

1. Multiple alleles

2. Epistasis

3. Non-Allelic Interaction

4. Linkage

5. Tautomerization

6. QTL mapping

7. Telomere

8. Gene pool

9. Euthenics

10. Phages

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
All questions carry equal marks.

11. (a) Describe the Law of Independent Assortment.

Or

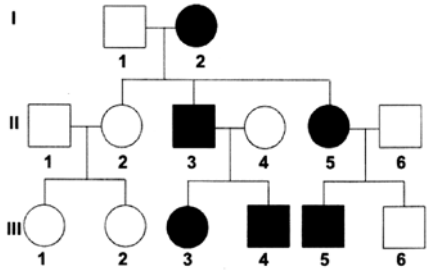
(b) Write short notes on types of twins.

12. (a) Write an essay on Multiple Alleles and its inheritance.

Or

(b) Brief about the chromosomal disorders.

13. (a) Given below is the pedigree chart shows the inheritance of freckles in a family. The allele for freckles (F) is dominant to the allele for no freckles (f).



(i) Name the type of inheritance.

(ii) What is the genotype of I -2?

(iii) Is the inheritance dominant or recessive? Give reasons.

Or

(b) Explain Complementary gene interaction with example.

14. (a) Give an account on sex determination in animals and human.

Or

(b) Write short notes on significance of Outbreeding.

15. (a) Briefly explain the Hardy Weinberg Equilibrium.

Or

(b) Write a brief note on Operon concept.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.
All questions carry equal marks.

16. Elaborately explain about gene mapping.

17. Discuss in detail about types and significance of mutation.

18. Briefly explain the mechanism of crossing over and its significance in inheritance.

19. Write an essay on the regulation of programmed cell death.

20. Briefly discuss about Sex linked inheritance and dis-junction deformities syndromes.

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D–7624	Sub. Code
	35023

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION,
DECEMBER 2022.

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.
All questions carry equal marks.

1. Lichens

2. Archaea

3. Halophyte

4. Gram Stain

5. Heterotrops

6. Pili

7. Rhodophyta

8. 16S rRNA

9. Shortgun

10. HIV

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
All questions carry equal marks.

11. (a) Explain the structural organization of Fungi.

Or

(b) Write the principle and application of Fluorescent microscope.

12. (a) Write short notes on Bacterial growth curve.

Or

(b) Briefly outline the types of sterilization and disinfection methods.

13. (a) Give a brief account on bacterial nutrition.

Or

(b) Briefly explain the principle of UV spectrum in measuring the growth of the bacteria.

14. (a) Write notes an 'Generation Time' and 'Glycocalyx'.

Or

(b) Write short notes on sequence submission and data analysis.

15. (a) Briefly explain the molecular tools used in assessing microbial diversity.

Or

(b) Write a brief note on Tuberculosis.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.
All questions carry equal marks.

16. Give an account on classification and morphology of Virus.

17. Write an essay on Principles and significance of Electron Microscope in bacterial studies.

18. Explain briefly about different types of bacterial staining methods.

19. Write elaborate notes on general features of Protozoa and its significance in pathology.

20. Give an account on the role of ribosomal RNA in identification of microorganisms.

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D–7625

Sub. Code
35031

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION,
DECEMBER 2022.

Third Semester

ANIMAL PHYSIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.
All questions carry equal marks.

1. Duodenum.

2. Chyme.

3. Salivary glands.

4. Haemopoiesis.

5. Synapse.

6. Kymograph.

7. Hibernation.

8. Thermoregulation.

9. Pancreas.

10. Circadian rhythm.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
All questions carry equal marks.

11. (a) Describe the Digestion of Protein.

Or

(b) Describe the Digestion of fat.

12. (a) Describe the Respiratory system in man.

Or

(b) Describe the Excretory System of man.

13. (a) What is Normal blood pressure? Explain its abnormal level.

Or

(b) What are the Different types of heart? Explain briefly.

14. (a) Describe the structure of human eye.

Or

(b) Explain the Types of muscles.

15. (a) What are the Importance of Thyroid hormones? And explain their Abnormalities.

Or

(b) How the Insect metamorphosis is controlled by the hormone? Explain briefly.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.
All questions carry equal marks.

16. Explain Digestive System in man with the Physiology of digestion.

17. Describe the Structure of Human heart.

18. Describe the Ultra structure of skeletal muscle.

19. Describe the Organ of hearing in man

20. Describe Adrenal gland in detail

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D–7626

Sub. Code
35032

DISTANCE EDUCATION

M.Sc.(Zoology) DEGREE EXAMINATION,
DECEMBER 2022.

Third Semester

IMMUNOLOGY

(CBCS 2018-19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Bono marrow

2. T – lymphocyte

3. Interferons

4. Memory cell

5. Vaccines

6. Hypersensitivity (Type IV)

7. Transplants

8. Immunotherapy

9. Radio immunoassay

10. Immunoprecipitation

PART B — (5 × 5 = 25 marks)

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

11. (a) Give a brief account on types of Immune cells.

Or

(b) Write short Account on complements.

12. (a) Give a brief account on Antigens.

Or

(b) Explain "Major Histo compatibility complex (MHC)" briefly.

13. (a) Discuss about Innate immunity.

Or

(b) Explain Adaptive Immunity.

14. (a) Explain Cell mediated immunity.

Or

(b) Explain Antibody mediated immunity.

15. (a) Explain briefly about Immunoprophylaxis.

Or

(b) What is Immunization? List out the Immunization schedule?

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain primary lymphoid organs in detail.

17. What are antibodies? Explain the different types of antibodies?

18. Write a details account on "Immediately type hypersensitivity.

19. What are "Auto immune disorders" Explain in details.

20. Give a details account on "AIDS".

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D–7627	Sub. Code
	35033

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2022

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 questions.

All questions carry equal marks.

1. Food web
2. Biological effect of temperature
3. Major elements
4. Inter tidal
5. Lithosphere
6. Incomplete Cycle
7. Growth rate
8. Ecotone effect
9. Bioremediation
10. Conservation

PART B — ($5 \times 5 = 25$ marks)

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

All questions carry equal marks.

11. (a) Briefly explain Food chain and its types.

Or

(b) Describe the Biological effect of light.

12. (a) Give a brief account on Vertical zonation of marine environment.

Or

(b) Describe the Coral Reef ecosystem

13. (a) Give general account on Carbon cycle.

Or

(b) Describe Biosphere and explain Atmosphere.

14. (a) Briefly explain the Growth rate and Mortality.

Or

(b) Describe the Edge effect with examples.

15. (a) What is climax community? Explain briefly Mono-climax theory.

Or

(b) Explain Briefly the biological effect of soil pollution.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

All questions carry equal marks.

16. Explain Structure of Ecological pyramids with suitable diagram.

17. Give on account on primary and secondary production.

18. What is sediment cycle? Explain with example.

19. Give a detail account on green house effects and environmental awareness.

20. What is conservation? Explain any two categories

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D–7628	Sub. Code
	35041

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2022

Fourth Semester

FISHERIES AND AQUACULTURE

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Indigenous Species.
2. Spawning
3. Modem craft
4. Stocking density
5. Fin fishes
6. Induced breeding
7. Live feed
8. Canning
9. SPF seed
10. Chitin

PART B — ($5 \times 5 = 25$ marks)

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

All questions carry equal marks.

11. (a) Briefly explain economically important fishes?

Or

(b) Explain about Morphometric characters with examples

12. (a) Give a brief account on conservation of fishery resources.

Or

(b) Explain about the Good management practices?

13. (a) Explain the types of fish culture.

Or

(b) Briefly explain about the types of hatchery

14. (a) Briefly explain the Biosecurity.

Or

(b) Briefly explain about the irradiation method of fish preservation.

15. (a) Explain about the HACCP and their activities?

Or

(b) Briefly explain about Fishery by –products.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

All questions carry equal marks.

16. What are the classifications of fishes with example?

17. Give account on type of culture based on stocking density and cultivable organism.

18. Give detail account on composite fish culture and integrated fish forming

19. Give a detail account on physical and biochemical methods to examine freshness of fish.

20. What is HACCP? Explain National and International standards of Quality control.

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D–7629

Sub. Code
35042

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2022

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 questions.

1. What are ligases give examples?
2. Write the characteristics of plasmid vector
3. What are the basic principles of tissue engineering?
4. Define - transgenic
5. Differentiate between primary and secondary cultures
6. What is the use of liquid nitrogen?
7. Write the advantages of DNA profiling
8. Define animal culture media
9. What is hybridization in biology?
10. Write the use of tomography

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Elaborate about Bacterial artificial chromosomes.

Or

(b) Explain in brief about Cosmid vector.

12. (a) Describe about synthetic media in animal cell culture.

Or

(b) Write the Characteristics of transformed cells.

13. (a) Write the principle and methods PCR.

Or

(b) Specify about Conservation and management of indigenous buffalo.

14. (a) Elaborate about Adult stem cells.

Or

(b) Describe about Recombinant vaccines.

15. (a) Explore about Artificial insemination.

Or

(b) Interpret about Optical transfection.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain in details about any two Gene transfer methods in animals.

17. Write the applications of cell culture in product development and tissue repair.

18. Describe about southern and western hybridization.

19. Explain in detail about Maxam and Gilbert DNA sequencing.

20. Discuss about Human genome project.

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D–7630	Sub. Code
	35043

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, DECEMBER 2022

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 questions.

1. What is polymerization and examples?
2. What is the definition of a redox reaction?
3. What is the spin of an electron?
4. What is isotopes? give one example.
5. What are the types of data?
6. What methods are used to collect qualitative data?
7. How do you describe a bar graph and a pie chart?
8. What is meant by SD?
9. What is null hypothesis?
10. Explain in brief ANNOVA.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain the types and properties of chemical bond

Or

(b) Discuss redox potential.

12. (a) Write in details Spin property of electrons.

Or

(b) Write a short note on autoradiography.

13. (a) Briefly explain about stratified random sampling

Or

(b) Write down the scope of biostatistics.

14. (a) Write a note on polygon and histogram.

Or

(b) Describe the SD with an example.

15. (a) Mention briefly about normal distribution.

Or

(b) Give accounts the statistical packages.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write in detail about principle and application of laws of thermodynamics?

17. Elaborately explain principle and application of spectroscopy

18. Explain the types of variables.

19. Describe measure of dispersion.

20. Discuss correlation and regression analysis.

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