D–1622

Sub. Code
35011

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2023.

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 questions.

1. Cladogram

2. Psudocoelomata

3. Canal system

4. Schizont

5. Metamerism

6. Gastropod

7. Pharynx

8. Carapace

9. Ornithology

10. Metatheria.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) What are the seven taxonomic ranks recognized in Linnaean classification?

Or

(b) What are the differences between radial and bilateral symmetry in animal architecture?

12. (a) Describe the life cycle of Entamoeba, and how does it reproduce.

Or

(b) Give the symptoms and consequences of Ascaris infections in humans.

13. (a) What are the different types of larval forms in crustacean during their development?

Or

(b) Write the characteristics of cephalopods, and how do they differ from other mollusks?

14. (a) Give a brief note on structural and functional adaptations of reptiles.

Or

(b) Write a brief account on Dinosaurs.

15. (a) Explain the flight adaptation of birds.

Or

(b) Write an essay on general characteristics of prototheria.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Briefly explain the Cladistics and Molecular taxonomy.

17. Write an essay on the structure of Obelia colony.

18. Give a brief account on Water vascular system in Echinoderms.

19. Explain the general characters of Amphibians.

20. Write an essay on the Aquatic mammals.

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D–1623

Sub. Code
35012

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2023.

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. Tetroses

2. Phospholipids

3. Zwitterions

4. Nucleosides

5. Isozymes

6. Induced fit hypothesis

7. Cyanocobalamine

8. Vasopressin

9. Glycogenesis

10. Diabetes insipidus.

PART B — (5 × 5 = 25 marks)

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

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

Or

(b) Write short notes on Essential fattyacids

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 on Metabolism of Cholesterol

Or

(b) Describe the fate of Carbon skeleton of Aminoacids.

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 functions of lipids.

17. Describe the Structure of Protein.

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

19. Describe the Biosynthesis and degradation of purine and pyrimidine Ribonucleotides.

20. Explain Aminoacid Metabolism.

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D–1624

Sub. Code
35013

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2023.

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 questions.

1. Prokaryotes.

2. Golgi apparatus.

3. Endonuclease.

4. Okazaki fragments.

5. Polymerase-I.

6. DNA gyrase.

7. Repressor.

8. Nucleoid.

9. trp operons.

10. steroid receptors.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Structural organization of prokaryotes.

Or

(b) Structural organization of Eukaryotes.

12. (a) Ultra structure of Nucleus.

Or

(b) Ultra structure of Cell membrane.

13. (a) Explain the different stages of Mitosis.

Or

(b) Explain the different stages of Meiosis.

14. (a) Describe the Mechanism of Prokaryotic replication.

Or

(b) Describe the Mechanism of Eukaryotic replication.

15. (a) Describe the DNA binding motifs in Prokaryotes.

Or

(b) Describe the DNA binding motifs in Eukaryotes.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the ultrastructure of Mitochondria.

17. Explain the structure and functions of DNA.

18. Describe in detail about protein synthesis.

19. Explain Lac operons in detail.

20. Describe gene expression in detail.

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D–1625

Sub. Code
35021

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2023.

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 questions.

1. Sperm Structure
2. Symmetry
3. Monospermy
4. Sperm Banking
5. Blastulation
6. Darwinism
7. Cryopreservation
8. Gene Knowout and Knockin
9. Speciation
10. Phylogenetic tree

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain about Spermatogenesis in detail.

Or

(b) Explain about Oogenesis in detail.

12. (a) Explain about the classification of eggs.

Or

(b) Describe the Activation of egg briefly.

13. (a) Describe about Cell motility and Differential cell activity.

Or

(b) What is Gastrulation? Explain Gastrulation in frog.

14. (a) Explain the Placenta in mammals.

Or

(b) Describe the Foetal membranes in chick.

15. (a) Explain the theory of Natural Selection.

Or

(b) Explain about Lamarckism and Neolamarckism in detail.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe about Egg membranes.

17. What is Polyspermy? how the Polyspermy is prevented?

18. What is Gastrulation? Describe the Mechanism of morphogenetic movement in chick.

19. What is IVF? Explain in detail.

20. List out the evidences for evolution on the basis of Anatomical, Embryological, Physiological and Biochemical aspects.

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D–1626

Sub. Code
35022

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2023.

Second Semester

GENETICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Why the study of genetics is important for human society?

2. A person of blood group A is injured and must be given a blood transfusion. The attending physician is provided with blood from all four groups: O, A, B and AB. Which should be accepted and which rejected and why?

3. Define Mendel's law of segregation.

4. How are genetic maps constructed?

5. State the significance of polyploidy.

6. Explain translocation.

7. What is meant by degree of inbreeding?

8. State the factors affecting gene frequency.

9. Define genetic counseling.

10. What is the cause, symptoms of Down's syndrome?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain why man is unsuitable material for genetic experimentation and how geneticist studied the inheritance in man?

Or

(b) Give a brief life sketch of Mendel and state why his name is so significant for genetics.

12. (a) Individuals of identical phenotype may have the different Geno types and vice versa. State whether this statement is true or false and why?

Or

(b) Explain Mendel's law of independent assortment with suitable examples.

13. (a) Two drosophila both heterozygous for the same two pair of alleles (viz Aa Bb) are mated. In the offspring a 2: 1: 1: 0 phenotypic ratio is obtained

(i) Explain the how genetic linkage can lead to this kind of ratio

(ii) Discuss the suitability of these kinds of data

(1) For measuring the degree of linkage

(2) For detecting linkage. State and explain Hardy-Weinberg law and factors affecting it.

Or

(b) What do you mean by Rh factor? Briefly explain its effect in human beings.

14. (a) What are mutagenic agents? Explain their role in mutations.

Or

(b) What is Ploidy? Explain its various types with example.

15. (a) Tabulate the relationship between antigen, antibody and ABO blood.

Or

(b) What are the different measures used to improve the qualities of human race?

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe the phenomenon of linkage by giving suitable examples. why is linkage an exception to Mendel's second law?

17. Explain the inheritance of color blindness between normal woman and color blind man.

18. Write an account on
    (a) Erythroblastosis foetalis
    (b) Molecular markers and QTL mapping
    (c) Pedigree analysis.

19. Distinguish between:
    (a) Primary and secondary sex characters
    (b) Sex determination and sex differentiation
    (c) Hermaphrodites and monoecious individuals
    (d) Autosomes and sex chromosomes
    (e) Heterogametic and homogametic.

20. Explain genetic regulation in development and role of cell death in detail.

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D–1627

Sub. Code
35023

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2023.

Second Semester

MICROBIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Yeast
2. Fluorescent microscopes
3. Sterilization
4. Nucleiod
5. Ebola
6. Data Analysis
7. Cell wall
8. Anaerobic culture media
9. Capsule
10. Phylogenetic tree

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe the general characteristics of fungi.

Or

(b) Describe the ultra structure of RNA virus.

12. (a) What are the Factors influencing microbial growth?

Or

(b) Describe the different types of culture media for microbial growth.

13. (a) Describe the Principles and Applications of' Compound microscope.

Or

(b) Describe the Principles and Applications of Fluorescent microscope.

14. (a) What is a Differential staining method? Describe the different types of differential staining methods.

Or

(b) What is "Structural staining? Briefly describe the structural staining methods.

15. (a) What are the General characteristics of Protozoa?

Or

(b) Describe the Sterilization and disinfection methods for microbes.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. List down the General properties of virus.

17. What are the Different method of bacterial culture? Describe it.

18. Describe the Prokaryotic cell structure.

19. Describe the Biological and Economic importance of Micro and Macroalgae.

20. Give on account on the following

    (a) Tuberculosis

    (b) Typhoid

    (c) Leprosy

    (d) AIDS.

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D–1628

Sub. Code
35031

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2023.

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.

1. Salivary gland.

2. Assimilation.

3. Haemopoiesis.

4. Neuro-muscular junction.

5. Blood plasma.

6. Action Potential.

7. Hibernation

8. Pancreas.

9. Biological clock.

10. Circannual periodicity.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe the "Physiology of digestion".

Or

(b) Describe the Digestive system of Man.

12. (a) Describe the Mechanism of respiration

Or

(b) Explain the Respiratory system in Man

13. (a) Write a detailed account on blood volume and its regulation.

Or

(b) Describe the Structure of Human Heart.

14. (a) What are the physiological events of Vision?

Or

(b) What are the physiological events of Hearing?

15. (a) Write a note on Hypothyroidism

Or

(b) Write a note on Hyperthyroidism.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

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

17. Write a detailed account on “Composition of Blood".

18. Explain the Mechanism of muscular contraction.

19. Explain in detail about central and peripheral Nervous system.

20. Invertebrate ;hormones and hormonal control of insect metamorphosis-Explain.

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D–1629

Sub. Code
35032

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2023.

Third Semester

IMMUNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Complements.

2. Helper cell.

3. Myeloid cells.

4. Innate Immunity.

5. Natural Killer cells.

6. Antibody Engineering.

7. Vaccines.

8. Mantoux test

9. Types of Cancer.

10. Immunofluorescence Microscopy.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) What are the types of immune cells – Explain.

Or

(b) Describe the Organs of Immune system.

12. (a) Explain Innate Immunity

Or

(b) Explain Adaptive Immunity.

13. (a) Describe the Effector mechanism of "Humoral Immunity"

Or

(b) Describe the Effector mechanism of "Cell-medicated Immunity".

14. (a) Describe about Auto-Immune disorders.

Or

(b) Write an account on Organ Transplantation.

15. (a) How do you detect molecules using Immunoblot Techniques – Explain.

Or

(b) What is "ELISA" - Explain.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write a detailed account on the structure and function of primary and secondary lymphoid organs.

17. Write a detailed account on Immunoprophylaxis.

18. Explain in detail about the immediate hypersensitivity.

19. Explain about Infectious diseases in detail.

20. Explain "Hybridoma technology" in detail.

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D–1630

Sub. Code
35033

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2023.

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. Foodweb

2. Allen's rule

3. Photoperiodism

4. Nekton

5. Pneumatophore

6. Atolls

7. Natality

8. Ecological niche

9. Monoclimax theory

10. Minamata disease.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe about biological effects of light

Or

(b) Explain-Pond as an Ecosystem

12. (a) Write down the physical and Chemical properties of seawater.

Or

(b) Describe about Coral reefs.

13. (a) Explain-Carbon cycles.

Or

(b) Write short notes on Regulation of Population

14. (a) Explain-Climax community

Or

(b) Write short notes on Ecological Niche.

15. (a) Describe about Global warming

Or

(b) Write a brief notes on Endangered and threatened species in India.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain-Biological effects of Temperature

17. Describe about sedimentary cycle.

18. Give a detail account on ecological succession.

19. Explain Air pollution and their biological effects.

20. Write a detail account on Biodiversity hotspots of India.

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D–1631

Sub. Code
35041

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2023.

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 questions.

Each question carries TWO marks.

1. Fishing gears.
2. Morphometric characters of Fish.
3. Endangered Species.
4. Cultivable organism
5. Cage culture
6. Brood Stock
7. Live feed culture.
8. Spawning
9. HACCP
10. Chitin.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Classify fishes based on morphology.

Or

(b) Classify fishes based on habitat.

12. (a) Describe the status of Indian aquaculture.

Or

(b) Explain the important Fin fish and shell fish disease and its control measures.

13. (a) Describe the concept and potential of integrated fish farming.

Or

(b) Describe composite fish culture.

14. (a) Types of Hatchery in fish management.

Or

(b) Write an account on larval rearing in fish management.

15. (a) Explain the Biochemical methods to examine freshness of fish

Or

(b) Describe National and International quality standard for fish and fishery products.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the economic importance of marine and fresh water fishes with regards to fishery potential.

17. Describe the conservation and Management of Fishery resources.

18. How do you construct pond for fisheries-Explain.

19. Write a detailed account on "Live feed culture".

20. What are the processing methods for the preservation of fish? Explain.

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D–1632

Sub. Code
35042

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2023.

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.

Each question carries TWO marks.

1. Shuttle vector

2. Biolistic method of gene transfer.

3. Sonoporation.

4. Dolly.

5. Xenotransplantation.

6. Bioreactors.

7. DNA Fingerprinting.

8. Pheromones.

9. Stem cells.

10. PET-CT.

PART B — (5 × 5 = 25 marks)

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

11. (a) State Basic principles of Genetic Engineering.

Or

(b) Write an account on the Plasmid vector.

12. (a) Explain the transfer of genes by the Electroporation method.

Or

(b) Explain the Retrovirus - mediated gene transfer.

13. (a) Describe the monolayer culture of Animal cell.

Or

(b) Describe the Hanging drop method" of cell culture.

14. (a) Explain the "Maxam and Gilbert Method" of DNA Sequencing.

Or

(b) Explain the Sanger's di-deoxy method of DNA sequencing.

15. (a) Explain the production of insulin by using biotechnology

Or

(b) State the legal implications of Transgenics.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write a detailed account on various types of vectors.

17. Describe the method of production of transgenic animals.

18. Describe Southern and western hybridization in detail.

19. Describe the Pest management through pheromones.

20. Explain "Gene therapy" in detail.

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D–1633

Sub. Code
35043

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION, MAY 2023.

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. Electronegativity

2. Natural Radiations

3. Autoradiography

4. Random sampling

5. polygon

6. P value

7. Regression

8. Pharmaco informatics

9. Inflammatory mediators

10. Epitopes.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) What are the different types of polymerization, and how do they differ in terms of reaction mechanism and product properties?

Or

(b) Write short notes on Nicotinamide Adenine Dinucleotide.

12. (a) Describe the common statistical techniques used in bio-statistics.

Or

(b) Write short notes on stratified random sampling.

13. (a) Briefly explain about the SD and SE with the help of examples.

Or

(b) Explain about the Chi-Square.

14. (a) Write briefly about the normal distribution with the help of examples.

Or

(b) Write short nots on the basic features of cheminformatics and pharmacoinformatics.

15. (a) Discuss how phylogentic analysis is done Using Clustal W.

Or

(b) Explain the application of BLAST in sequence homology search.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Discuss briefly about the spectroscopy giving the principles and applications.

17. Analyze the collection of data with various types of methods.

18. Describe the correlation and regression analysis with appropriate examples.

19. Write a note on latest microbial genome applications in bio-informatics.

20. Explain DNA and protein sequence Analysis.

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