D–4563

Sub. Code
35011

DISTANCE EDUCATION

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

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. Bilateral symmetry

2. Acoelomata

3. Amoebiasis

4. Ostia

5. Nematocyst

6. Scolex

7. Metameres

8. Madreporite

9. Ichthyphis

10. Airsacs.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write about types of classification.

Or

(b) Explain the Coelom in Animals.

12. (a) Describe the structure of Leucosolenia.

Or

(b) Discuss about Corals and Coral reefs.

13. (a) Write down the General characters and classification of Annelids

Or

(b) Describe about Larval forms of Crustacea

14. (a) Give an account on Structural and functional adaptions of fishes.

Or

(b) Explain the Mesozoic reptiles.

15. (a) Write about Flight Adaptation in Birds.

Or

(b) Write down the General characteristics of Prototheria.

PART 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 the Metamerism in Annelids.

19. Explain about Larval forms of Echinodermata.

20. Give a detail account on Migration in Birds.

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D–4564

Sub. Code
35012

DISTANCE EDUCATION

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

First Semester

BIOCHEMISTRY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Galactose

2. Glycolipids

3. Zwitterions

4. Nucleotides

5. Holoenzymes

6. Induced fit hypothesis

7. Pyridoxine

8. Adrenaline

9. Glycogenolysis

10. Ketoacidosis.

PART B — ($5 \times 5 = 25$ marks)

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

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

Or

(b) Write short notes on Phospholipids.

12. (a) Describe the mechanism of enzyme action.

Or

(b) Discuss about biochemical functions of Vitamins.

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

Or

(b) Explain the Glycogenolysis.

14. (a) Write short notes Metabolism of Cholesterol.

Or

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

15. (a) Give an account on Glycogen storage diseases

Or

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

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Give a detail account on Structural aspects of Polysaccharides.

17. Describe the Structure and classification of Aminoacids.

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

19. Describe the Citric acid cycle.

20. Explain Nucleotide Metabolism.

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D–4565

Sub. Code
35013

DISTANCE EDUCATION

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

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 questions.

1. Karyokinesis

2. Glycosylation

3. Giant chromosomes

4. m RNA

5. Exonucleases

6. Lagging strand

7. Central Dogma

8. Transcription

9. Lac operons

10. Gene amplification

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe the Endoplasmic reticulum and their functions.

Or

(b) Explain the Meiosis cell cycle.

12. (a) Describe the Structure and functions of DNA.

Or

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

13. (a) Discuss about the Properties of bacterial RNA Polymerase.

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 biosynthesis in prokaryotes.

15. (a) Write short notes on Lac operons.

Or

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

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe about structure of Golgi apparatus and their functions.

17. Difference between Prokaryotic and Eukaryotic replication.

18. Explain about Prokaryotic Transcription.

19. Discuss about comparison of protein biosynthesis in Prokaryotes and Eukaryotes.

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

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D–4566

Sub. Code
35021

DISTANCE EDUCATION

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

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 questions.

1. Egg Cortex.
2. Symmetry of Egg
3. Chemo differentiation
4. Neural crest.
5. Cryopreservation,
6. Artificial Insemination.
7. Species.
8. Lamarckism.
9. Phylogenetic tree.
10. Genetic variations

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe the process of Spermatogenesis.

Or

(b) Describe the process of Oogenesis.

12. (a) Describe the types of Cleavage.

Or

(b) Describe the types of Blastula.

13. (a) Explain the Gastrulation in Frog.

Or

(b) Explain the Gastrulation in Chick.

14. (a) Write an account on Embryo transfer and test tube babies.

Or

(b) Explain the concept of "Assisted Reproductive Technology". (ART)

15. (a) Human origin and Migration.

Or

(b) Describe the theory of Natural selection.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain in detail about fertilization in mammals with reference to Activation of egg and egg metabolism.

17. Describe in detail about Metabolic and molecular Changes during gastrulation.

18. Explain Differential gene activation in detail.

19. Darwinism and Neo Darwinism. Explain.

20. State the Anatomical, physiological, and Biochemical evidences for Evolution.

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D–4567

Sub. Code
35022

DISTANCE EDUCATION

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

Second Semester

GENETICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

Draw Diagrams if necessary.

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Monohybrid cross
2. Polygenetic inheritance
3. Barr bodies
4. Molecular markers
5. Sex linked inheritance
6. Mutation
7. Down's syndrome
8. Euthenics
9. Alternate splicing
10. Apoptosis

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) What is the law of segregation?

Or

(b) How is the Rh factor inherited?

12. (a) Explain linkage mapping.

Or

(b) Comment on QLT mapping.

13. (a) Write a few words on Pedigree analysis.

Or

(b) Explain a few genetic disorders caused by non-disjunction.

14. (a) Write a short note on genotypic frequency.

Or

(b) What is a translocation?

15. (a) Explain in brief the concept of gene.

Or

(b) What is the difference between a genotype and a phenotype?

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the principles of incomplete dominance and codominance and provide examples of genetic traits that exhibit these patterns of inheritance.

17. Discuss the significance of crossing over in generating genetic diversity and evolution of populations.

18. Write a detailed note on Hardy-Weinberg Equilibrium. Explain the frequency and factors affecting them.

19. Describe the different levels of gene expression control in prokaryotes.

20. Write an essay on the genetic control of programmed cell death.

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D–4568

Sub. Code
35023

DISTANCE EDUCATION

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

Second Semester

MICROBIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

Draw Diagrams if necessary.

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Protista

2. Lichens

3. Compound microscope

4. Differential staining

5. Cryopreservation

6. Growth curve

7. Inclusion bodies

8. *Entamoeba histolytica*

9. MEGA

10. High-throughput sequencing.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain Whittaker's Five-kingdom concept.

Or

(b) Write the general properties of virus with a neat sketch.

12. (a) Explain the principles and application of confocal microscope.

Or

(b) Write the importance of sterilization and disinfection of microbes.

13. (a) Comment on

(i) Fimbriae

(ii) Motility.

Or

(b) Write the economic importance of microalgae.

14. (a) Write the general characteristics of *plasmodium* sp.

Or

(b) Explain the importance of molecular tools in assessing microbial diversity.

15. (a) What is the difference between genomics and metagenomics?

Or

(b) Explain the use of culture me or the growth aerobic microbes.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. How has Bergey's Manual contributed to our understanding of bacterial diversity and evolution?

17. Describe the working principle of a transmission electron microscope (TEM) and explain how it generates images of microbes.

18. Write in detail on general characteristics of protozoa.

19. Elaborate in detail the classification of algae based on Fritsch system.

20. Write in detail the molecular taxonomy involved the identification of microorganisms.

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D–4569

Sub. Code
35031

DISTANCE EDUCATION

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

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. Animal physiology

2. Digestion

3. Nephron

4. Haemopoiesis

5. CNS

6. Kymograph

7. Hibernation

8. Buoyancy

9. Thyroid gland

10. Circadian rhythm

PART B — ($5 \times 5 = 25$ marks)

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

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

Or

(b) Give short notes on absorption of proteins in the gastrointestinal tract.

12. (a) Explain the composition of blood.

Or

(b) Enumerate the functions of neurons.

13. (a) Elucidate the mechanism of muscle contraction.

Or

(b) What is tactile? Write their functions.

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

Or

(b) Write note on adaptation to high altitude.

15. (a) Give a note on hormonal regulations in insect metamorphosis.

Or

(b) Write a note on biological clock.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Discuss elaborately the mechanism of urine formation.

17. Give a detailed account on the mechanism of respiration in humans.

18. Explain the cardiac cycle.

19. Describe the process of osmo-iono regulation in fish.

20. Write an essay on the functions of endocrine glands.

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D–4570

Sub. Code
35032

DISTANCE EDUCATION

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

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. Immunology
2. Complement system
3. T-Lymphocytes
4. Innate immunity
5. NK cells
6. Lymphoid organs
7. Hashimoto's disease
8. Immunotheraphy
9. Immuno cytochemistry
10. ELISA.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write a short note on aims and scope of immunology.

Or

(b) Enumerate the properties and functions of antigens.

12. (a) Elaborate on the cells of the immune system.

Or

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

13. (a) Tabulate the immunization schedule for children.

Or

(b) Give a brief account on primary lymphoid organs.

14. (a) Explain the mechanism of graft rejection.

Or

(b) How does the immune system recognize and react to tumours? Explain.

15. (a) Elaborate the principle and procedure of RIA.

Or

(b) Discuss on hybridoma technology, and add a note on its applications.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe the various classes of MHC molecules.

17. Enumerate the role of lymphocytes in humoral and cellular immune response.

18. Explain the different levels of innate and adaptive immunity.

19. Give an account on the types and mechanism of hypersensitivity.

20. Illustrate the principle and working mechanism of immunofluorescence microscopy.

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D–4571

Sub. Code
35033

DISTANCE EDUCATION

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

Third Semester

ENVIRONMENTAL BIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Energy flow

2. Abiotic factors

3. Plankton

4. Coral reefs

5. Biosphere

6. Mortality

7. Incomplete cycle

8. Ectone

9. Monoclimax theory

10. Hotspot of diversity.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write about the significance of ecosystem.

Or

(b) Briefly explain light as an abiotic factor.

12. (a) Give an account of the special features of estuaries.

Or

(b) Explain about deep sea adaptations.

13. (a) Comment on Lithosphere.

Or

(b) Explain the carbon cycle with the help of a neat diagram.

14. (a) Describe the phosphorous cycle with a flow chart.

Or

(b) Write short notes on natality and population growth curves.

15. (a) Write an account on the stratification of Community.

Or

(b) Comment on Ecological succession.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the salient aspects of grassland ecosystem.

17. Describe the physico-chemical properties of seawater.

18. Write an essay on cycling of oxygen between Abiotic and Biotic component.

19. What are the different types of air pollutants? How will you control them?

20. Discuss the role of an individual in the conservation of natural resources.

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D–4572

Sub. Code
35041

DISTANCE EDUCATION

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

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.

1. Indigenous craft and gears

2. Spawning

3. Invasive species

4. Farm design

5. Poly culture

6. Brood stock

7. Live feed culture

8. Canning

9. Isinglass

10. Fish ensilage.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe the economic importance of marine and freshwater fish.

Or

(b) Brief a note on endangered species and Invasive species.

12. (a) Write a short note on Reproduction of fish.

Or

(b) Explain types of culture based on stocking density.

13. (a) Add a note on fishpond structure and Construction

Or

(b) Write a detailed account of poly and composite fish culture.

14. (a) Discuss on live feed culture.

Or

(b) Explain any two fisheries by products.

15. (a) Add a note on the national and international standards in quality control.

Or

(b) Elaborate hatchery management techniques.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain morphometric, meristic characters, spawning and reproduction in fish.

17. Discuss conservation and management of fishery resources.

18. Write a brief note on types of culture based on stocking density and cultivable organisms.

19. Elaborate on important finfish and shellfish disease and its control measures

20. Write a detailed note on fish processing and preservation methods.

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D–4573

Sub. Code
35042

DISTANCE EDUCATION

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

Fourth Semester

ANIMAL BIOTECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Retrovirus.
2. Cell line.
3. Genome.
4. RFLP
5. Plasmid
6. Hematopoietic stem cells
7. Pheromone.
8. Sterilization.
9. Bioreactors.
10. Sonoporation.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write a note on Genetic engineering in animal systems.

Or

(b) Distinguish between Yeast artificial chromosome and Bacterial artificial chromosome.

12. (a) What are the methods of Purification of Nucleic acids?

Or

(b) Give a detailed description about DNA bar coding.

13. (a) Write a brief note on Artificial Insemination.

Or

(b) Explain the production of insulin.

14. (a) Discuss the role of pheromones in pest management

Or

(b) Discuss the role of pheromones in animal breeding.

15. (a) Give an account on recent advancements in animal biotechnology.

Or

(b) Give a brief note on the legal implication of transgenics.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Add a detailed note on the conservation and management of tiger and elephant.

17. Add a note on the types and steps involved in Artificial Insemination.

18. Discuss the different techniques for animal propagation.

19. Elucidate Maxam and Gilbert method of DNA sequencing.

20. Discuss Briefly about the principle, procedure and applications of polymerase chain reaction.

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D–4574

Sub. Code
35043

DISTANCE EDUCATION

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

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. Biophysics
2. Bio–energetics
3. Autoradiography
4. Differentiate Qualitative and Quantitative Data
5. Pie diagram
6. Standard deviation
7. Logistic regression
8. Medical-informatics
9. BLAST
10. Genome.

PART B — ($5 \times 5 = 25$ marks)

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

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

Or

(b) Explain the importance of coupling chemical reactions.

12. (a) Explain in short the properties of light.

Or

(b) Enlist the uses of isotopes as tracers.

13. (a) Explain the definition and scope of biostatistics.

Or

(b) What is collection of data in statistics?

14. (a) How do you present a data statistically?

Or

(b) Write about the measure of central tendency

15. (a) Explain the applications of bioinformatics in cancer detection.

Or

(b) Write a few words on animal genome diversity

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain in detail the principles and application of spectroscopy.

17. Write an essay on the different type of variables used in biostatistics.

18. Elaborate in detail the regression analysis.

19. Give a detailed account on the current researches in bioinformatics.

20. Describe the use of genome in phylogenetic tree construction?

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