

R5996

Sub. Code

509101

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

First Semester

Zoology

ANIMAL DIVERSITY – I : INVERTEBRATE

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Phylum
2. Explain – Binomial classification.
3. Ciliates.
4. Filter feeding.
5. Filariasis.
6. Body setae.
7. Sting cells
8. Define : Mollusca.
9. Stone lilies.
10. Tube feet.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the molecular taxonomy of invertebrates.

Or

- (b) Define animal kingdom.

12. (a) Write a short note of calcareous sponges.

Or

- (b) Define the phylum Ctenophora.

13. (a) Write a short note on life cycle of *Fasciola hepatica*.

Or

- (b) What are the general characters of Aschelminthes?

14. (a) Explain the locomotory organs of arthropods.

Or

- (b) Describe the body plan of mollusca.

15. (a) Give an account on feeding mechanism of Starfish.

Or

- (b) What are the economic importance of Echinoderms?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on phylogeny of animals.

17. Give an account on alternation of generation.

18. Write about the *Fasciola hepatica* and their control measures.
 19. Explain about Larval forms of Arthropods.
 20. Write an essay on the reproduction of echinoderms.
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R5997

Sub. Code

509102

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

First Semester

Zoology

ANIMAL DIVERSITY II — CHORDATA

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Law of priority
2. Natural system
3. Adelochoadata
4. Wheel organ
5. Poikilotherms
6. Vocal sac
7. Monogamous
8. Harderian gland
9. Melanoblasts
10. Keratinization

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain briefly about the modern taxonomic hierarchy.

Or

- (b) Give an account on numerical taxonomy.

12. (a) Mention the general characters of hemichordata.

Or

- (b) Briefly explain the structural and functional adaptation of fishes with suitable example.

13. (a) Describe in detail about the parental care in amphibians.

Or

- (b) Explain the adaptive features of anura and urodela.

14. (a) Discuss about the flight adaptation in birds.

Or

- (b) Describe about dentition in mammals with neat sketch.

15. (a) Explain about zoogeography and types of zoogeographical realms.

Or

- (b) Illustrate the functions of blood.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Illustrate the principle of binomial and trinomial nomenclature.
17. Describe in detail about retrogressive metamorphosis in urochordata with example.

18. Discuss the structural and functional adaptations of amphibians.
 19. Give a detail account on migration in birds and its significance.
 20. Explain the theories about the distribution of animals.
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R5998

Sub. Code

509103

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

First Semester

Zoology

BIOCHEMISTRY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is transamination?
2. Write the functions of myoglobin.
3. Define glycolysis .
4. What is HMP shunt?
5. Write about ketogenesis.
6. Differentiate nucleoside from nucleotides.
7. Classify enzymes.
8. List the functions of Vitamin B.
9. What is steroid hormone?
10. Classify receptors.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Classify and write the importance of amino acids.

Or

- (b) Explain briefly about Ramachandran plot.

12. (a) Write a note on biological importance of carbohydrates.

Or

- (b) Describe TCA cycle.

13. (a) Discuss the biosynthesis of triacylglycerol.

Or

- (b) Describe in brief about purine biosynthesis.

14. (a) Classify types and list the properties of enzymes.

Or

- (b) Classify vitamins and add a note on its function.

15. (a) Discuss the mode of hormone action.

Or

- (b) List the function and importance of receptors.

Part C

(3 × 10 = 30)

Answer any **three** of the following questions.

16. Explain in detail about protein metabolism.

17. Write about glycogenesis, glycogenolysis and gluconeogenesis.

18. Discuss about ketogenesis and its regulation. .
 19. Write an essay on receptors.
 20. Describe hormonal regulation and signal transduction
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R5999

Sub. Code

509104

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

First Semester

Zoology

CELL AND MOLECULAR BIOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Peroxisome
2. Chloroplast
3. Topoisomerase.
4. RNA Primase.
5. Phosphorylation
6. RNA splicing
7. Integrins.
8. Gap junctions.
9. Apoptosis.
10. Feeder layer

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Briefly describe the ultrastructure of nucleus with neat diagram.

Or

- (b) State the cell wall components in gram positive and gram negative bacteria with diagram.

12. (a) Differentiate the prokaryotic and eukaryotic replication process.

Or

- (b) Describe about the DNA damage and repair mechanisms.

13. (a) What are the roles of promoter, operator, regulator, structural genes and repressor proteins in operon operation?

Or

- (b) Short notes on CRISPER technology.

14. (a) How cell to cell communication happens?

Or

- (b) Comment on the process of neurotransmission.

15. (a) Write in detail about tumor suppressor genes

Or

- (b) Describe the immune response to cancer cells.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on meiotic cell division with suitable neat diagrams
 17. Discuss in detail about DNA replication in prokaryotes and eukaryotes.
 18. Describe about transcription and its regulators in prokaryotes and eukaryotes.
 19. Explain in detail about Quorum sensing in microbes
 20. Give an account on gene rearrangements in progenitor cells.
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R6000

Sub. Code

509501

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

First Semester

Zoology

ENDOCRINOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. What is the role of melatonin?
2. Define fight and flight response.
3. What are the hormones secreted From posterior pituitary?
4. Write the function of thyroid hormone.
5. What is Insulin?
6. Roles of GI hormones.
7. What is the thymic hormone?
8. Structure of Pineal gland.
9. Oxytocin.
10. Testicular cancer.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What is feedback mechanism? Explain it in relation to hormonal action.

Or

- (b) Explain in details about hormonal rhythms.

12. (a) Describe the steps involved in Synthesis and release of thyroid hormones.

Or

- (b) Describe hormonal regulation of Phosphate metabolism.

13. (a) Write a short note on gastrointestinal hormones and their function.

Or

- (b) Explain about the role of glucagon in blood glucose control.

14. (a) Write a short note on thymic hormones and their functions.

Or

- (b) Give short note on Melatonin and the hypothalamic-pituitary-ovarian axis.

15. (a) Explain the role of hormone in pregnancy.

Or

- (b) Give an account on testicular disorder.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write in detail about Hirsutism, hypogonadism and erectile dysfunction.
 17. Explain in detail about the hypothalamic control of pituitary hormone.
 18. Describe in detail about the role of GI hormones in gut mucosal growth.
 19. Write in detail about the physiology of pineal body and their role in seasonal and non-seasonal breeders.
 20. Explain in detail about menstrual disorders and sexual disfunctions.
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R6001

Sub. Code

509301

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

Third Semester

Zoology

DEVELOPMENTAL BIOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Competence
2. Morphogenic gradients
3. Blastula
4. Oogenesis
5. Gastrula
6. Cell affinity
7. Cell differentiation
8. Organogenesis
9. Apoptosis
10. Transplantation

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Give an account on Fate map.

Or

- (b) Write short note on potency of cells.

12. (a) Discuss in detail about the structure of sperm.

Or

- (b) Write short note on different types of cleavages.

13. (a) Write short note on epiboly and emboly.

Or

- (b) Describe the migration of cells during gastrulation process.

14. (a) Explain about the formation of blastula. in amphibians- explain.

Or

- (b) Give an account on development of eye lens in chick.

15. (a) What are the basic concepts of cell death?

Or

- (b) Describe in detail about teratogenesis.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the embryological theories and justify.

17. Write an essay on gametogenesis.

18. What is gastrulation? Explain in detail about the gastrulation in chick.
 19. Write an essay on aggregation of cells in *Diclyostelium*.
 20. Briefly describe about the nuclear transplantation.
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R6002

Sub. Code

509302

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

Third Semester

Zoology

ECOLOGY AND CONSERVATION BIOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Energy flow
2. Nitrogen cycle
3. Mortality
4. Carbon cycle
5. Limnetic zone and Profundal zone
6. Lentic and Lotic
7. Acid rain
8. Flagship species
9. Environmental laws
10. Fly ash

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss pond as an example of ecosystem.

Or

- (b) What is biogeochemical cycle? Discuss gaseous cycle.

12. (a) Explain briefly the factors controlling the population density.

Or

- (b) Distinguish between natality and mortality of population.

13. (a) Enumerate the major ecosystems in the world. Give a detailed account on fresh water ecosystem.

Or

- (b) Describe the ecological features and adaptations of freshwater habitat.

14. (a) Write an essay on Environmental pollution.

Or

- (b) What are different pollutants of soil? What are the methods used to check soil pollution?

15. (a) What do you meant by Conservation? Write a brief account on Ethics in Biodiversity conservation.

Or

- (b) What do you meant by 'Keystone species' with suitable examples.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. What are biogeochemical cycles? Describe the following cycles in nature (a) Oxygen cycle (b) Carbon cycle (c) Nitrogen cycle (d) Phosphorous cycles.
17. Write an essay on population ecology
18. What are characteristic physical factors which affect life in deep sea? Describe the 'deep sea fauna' and their adaptations. How far it is correct to call 'deep sea' a desert
19. Describe the sources of water and air pollutants and their effects on human beings.
20. What are all the major threats to conservation? Narrate the role of NGO'S In Biodiversity conservation?

R6003

Sub. Code

509303

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

Third Semester

Zoology

EVOLUTION

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define genetic variation?
2. Definition of gene duplication?
3. What is tree of life?
4. Definition and types of Eukaryotic cells?
5. Define gene regulation?
6. Definition of mass extinctions?
7. Explain social evolution?
8. What is geographical isolation?
9. Definition of geological isolation?
10. Define culture evolution?

Part B

(5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain evolutionary significance of nucleotide sequence?

Or

- (b) Describe about origin of new genes and proteins?

12. (a) Explain about tree of life?

Or

- (b) Describe about multicellular organisms?

13. (a) Describe about genetic variation in population?

Or

- (b) Explain about natural selection?

14. (a) Describe about speciation?

Or

- (b) Explain about origin of species?

15. (a) Describe about types of fossils?

Or

- (b) Explain about geological dating?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain about molecular divergence and molecular clocks?
 17. Describe about role of single celled organisms to kingdoms?
 18. Explain about genetic variation and gene regulation?
 19. Differentiate speciation and co-speciation?
 20. Explain about Paleontological evidence?
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R6004

Sub. Code

509304

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Zoology

FISHERY BIOLOGY AND AQUACULTURE

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Indigenous fishing crafts.
2. Gears of aquaculture.
3. Invasive species.
4. Ex-situ conservation.
5. *Litopenaeus vannamei*.
6. Intensive aquaculture.
7. GMP in aquaculture.
8. SPF larvae.
9. Bio-floc technology.
10. Organic aquaculture.

Part B

(5 × 5 = 25)

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

11. (a) Explain the spawning migration in fin fishes.

Or

- (b) Write note on commercially important marine fishery by-products.

12. (a) HACCP in sea food processing.

Or

- (b) Describe modern sea food processing methods.

13. (a) Discuss the engineering designs of grow-out aquaculture systems.

Or

- (b) Define cage and pen aquaculture technologies.

14. (a) Describe different types of fin fish and shell fish in hatcheries.

Or

- (b) Explain induced breeding technology.

15. (a) Note on suitable marine cultivable candidate species for aquaculture

Or

- (b) Describe the water quality management in brackish-water aquaculture systems

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on morphometric and meristic characters of fin fishes.
 17. Describe endangered fish species management.
 18. Write an essay on current status of aquaculture in India.
 19. Detail note on various diseases and parasites prevalence in hatchery and grow-out systems.
 20. Write an essay on integrated aquaculture technologies.
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R6005

Sub. Code

509506

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

Third Semester

Zoology

ENTOMOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Pterygota
2. Neuroptera
3. Tracheal system
4. Insect excretion
5. Pests of cotton
6. Economic threshold level
7. Pesticides
8. IPM
9. Beneficial insects
10. Flies transmitted diseases

Part B

(5 × 5 = 25)

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

11. (a) List out the difference between hemi-metabola and holo-metabola.

Or

- (b) Briefly explain the types of insect order.

12. (a) Brief the circulatory system of insects.

Or

- (b) Give an account on the reproductive system of insects.

13. (a) Briefly explain the insect damage in Mango tree.

Or

- (b) Illustrate the type of damage made by Locust and its control measurements.

14. (a) Give an account on insecticides.

Or

- (b) Summarize the types of biological control.

15. (a) Explain the methods for vector control.

Or

- (b) Give a suitable example for beneficial insects and their importance.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Distinguish between Exopterygota and Endopterygota with examples.

17. Explain the structure and functions of the respiratory system of insects.

18. Write an essay on pests of cotton and its damage.
 19. What is IPM? Explain IPM role in pest management.
 20. Give an account on the mosquito control measurements.
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