

This question paper contains 2 printed pages]

## NEPWT—1001—2024

### FACULTY OF SCIENCE AND TECHNOLOGY

#### M.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2024

(NEP-2020)

#### RESEARCH METHODOLOGY

(Tuesday, 10-12-2024)

Time : 10.00 a.m. to 1.00 p.m.

Time—3 Hours

Maximum Marks—60

N.B. :— (i) Question No. 1 is compulsory.

(ii) Of the remaining solve any *three* questions.

(iii) Calculator and log table is allowed.

1. Attempt any *three* of the following : 15

(a) Motivation in research

(b) Need for research designing

(c) ANOCOVA

(d) Statistical measure in research.

2. (a) What do you mean by research ? Describe the different steps involved in a research process. 8

(b) Discuss the observation method as a technique of data collection. 7

P.T.O.

3. (a) Calculate the mean, median and mode of the following data : 8

3, 6, 3, 7, 4, 3, 9

- (b) Draw the flow diagram for hypothesis testing. 7

4. (a) What is Sampling ? Explain steps in sample design. 8

- (b) Calculate the chi-square value of the following data : 7

Fully Agree	Not Sure	Not Agree	Total
102	108	75	285

5. (a) Define case study. Give their characteristics. 8

- (b) Explain dependent and independent variables. 7

6. Write short notes on : 15

- (a) Fundamental type of research

- (b) Parametric test

- (c) Secondary data sources.

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**NEPWT—344—2024**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (First Year) (First Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**ZOOLOGY**

**Paper-SZOOE-401**

**(Quantitative Biology and Bioinformatics)**

**(Thursday, 19-12-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—3 Hours*

*Maximum Marks—60*

*Note :—* (i) Question No. 1 is compulsory.

(ii) Out of the remaining 5 questions (Q. No. 2 to Q. No. 6) answer any *three* questions.

(iii) All questions carry equal marks.

(iv) Illustrate your answers with suitable labelled diagram wherever necessary.

1. Answer any *three* of the following : 15

(a) Mean

(b) Bar graph

(c) Swiss port

(d) Introduction to drug discovery.

P.T.O.

2. (a) Explain methods of collection of data. 8
- (b) Explain classification and tabulation of data. 7
3. (a) Explain data presentation method by using PowerPoint. 8
- (b) Explain statistical data analysis method by using Excel. 7
4. (a) Explain Gene Bank. 8
- (b) Explain role of internet in bioinformatics. 7
5. (a) Explain protein structure analysis and its applications. 8
- (b) Explain scope and applications of gene sequence search. 7
6. Answer any *three* of the following : 15
  - (a) Median
  - (b) Line graph
  - (c) Uni pro-U gene
  - (d) Biological search engine.

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**NEPWT—345—2024**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (First Year) (First Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(NEP 2020)**

**ZOOLOGY**

**Paper IV (SZOOE-401)**

**(Conservation Biology)**

**(Thursday, 19-12-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—3 Hours*

*Maximum Marks—60*

*Note :—* (i) Question No. 1 compulsory.

(ii) Out of remaining 5 questions (Q. No. 2 to Q. No. 6) answer any *three* questions.

(iii) *All* questions carry equal marks.

(iv) Illustrate your answers with suitable labelled diagrams wherever necessary.

1. Answer any *three* of the following :

15

(a) Ecological diversity

(b) Habitat destruction

(c) Sanctuaries

(d) WWF.

P.T.O.

2. (a) Describe in detail values of biodiversity. 8
- (b) Explain different biodiversity hotspots in India. 7
3. (a) What are endangered species ? Describe in detail endangered species of India. 8
- (b) Explain in detail Ex-situ conservation. 7
4. (a) Give an account of different national parks in India. 8
- (b) What is wildlife conservation ? Discuss in detail causes of wildlife depletion. 7
5. (a) Describe in detail administrative measures for conservation of wildlife in India. 8
- (b) Give an account of different conservation tools. 7
6. Answer any *three* of the following : 15
- (a) Species abundance indices
- (b) Red Data Book
- (c) Different approaches for wildlife conservation
- (d) Challenges in wildlife conservation of India.

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**NEPWT—63—2024**

**FACULTY OF SCIENCE & TECHNOLOGY**

**M.Sc. (First Year) (First Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(NEP 2020)**

**ZOOLOGY**

**Paper SZOOC-401**

**(Invertebrates Structure and Function)**

**(Thursday, 12-12-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—3 Hours*

*Maximum Marks—80*

*N.B. :—* (1) Question No. 1 is compulsory.

(2) Out of remaining five questions (Q. No. 2 to Q. No. 6) answer any *three* questions.

(3) *All* questions carry equal marks.

(4) Illustrate your answers with suitable labelled diagrams wherever necessary.

1. Answer each of the following :

20

(a) Describe various types of coelom in invertebrates.

(b) Describe the structure and function of Tracheae in invertebrates.

(c) Write a note on Osmoregulation in invertebrates.

(d) Describe Trochophore Larva and its significance.

P.T.O.

2. (a) Describe the structure of Flagella and flagellar locomotion in Protozoa. 10
- (b) Describe Hydrostatic movement in Coelenterata. 10
3. (a) Describe various modes of nutrition in Protozoa. 10
- (b) Explain patterns of feeding and digestion in lower metazoa. 10
4. (a) Describe the structure and functions of the excretory organs in invertebrates. 10
- (b) Describe the advanced nervous system of Annelida. 10
5. (a) Describe the differential larval forms of Helminths. 10
- (b) Describe the general characters of Hemichordata. 10
6. Answer each of the following : 20
- (a) Give an account of Cilia.
- (b) Write a note on Respiratory pigment.
- (c) Describe primitive Nervous system in Coelentrata.
- (d) Give an account of Bipinnaria Larva.



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**NEPWT—129—2024**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (First Year) (First Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(NEP 2020 Pattern)**

**ZOOLOGY**

**Paper SZOOC-402**

**(Biosystematics, Taxonomy and Evolution)**

**(Saturday, 14-12-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—Three Hours*

*Maximum Marks—80*

*Note :—* (i) Question No. 1 is compulsory.

(ii) Out of the remaining 5 questions (Q. No. 2 to Q. No. 6) answer any *three* questions.

(iii) All questions carry equal marks.

(iv) Illustrate your answers with suitable labelled diagrams, wherever necessary.

1. Answer each of the following :

20

(a) Write a brief note on biological classification.

(b) Enlist the merits and demerits of taxonomic keys.

(c) Give an account on economic importance of biodiversity.

(d) Explain in brief Darwin's theory of natural selection.

P.T.O.

2. (a) Give a brief account on the historical resume of systematics. 10  
(b) Discuss the modern trends and tools employed in biosystematics. 10
3. (a) Describe the different kinds of taxonomic characters. 10  
(b) Give an account on taxonomic publications. 10
4. (a) Give a brief account of binomial system of nomenclature with suitable examples. 10  
(b) What is biodiversity ? Explain the causes for loss of biodiversity. 10
5. (a) Explain Lamarck's theory of organic evolution. 10  
(b) What are mutations ? Discuss the role of mutations in evolution. 10
6. Answer each of the following : 20
  - (a) Explain in brief 'species' category.
  - (b) Give an account of taxonomic collections
  - (c) Describe distributions of biodiversity
  - (d) Explain in brief Gene evolution.

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**NEPWT—196—2024**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (First Year) (First Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(NEP 2020 Pattern)**

**ZOOLOGY**

**Paper SZOOC-403**

**(Economic Zoology and Animal Behaviour)**

**(Tuesday, 17-12-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—Three Hours*

*Maximum Marks—80*

*Note :—* (i) Question No. 1 is compulsory.

(ii) Out of the remaining 5 questions (Q. No. 2 to Q. No. 6) answer any *three* questions.

(iii) All questions carry equal marks.

(iv) Illustrate your answers with suitable labelled diagrams, wherever necessary.

1. Answer each of the following : 20

(a) Describe the forensic importance of Arthropods.

(b) Write a note on a stocking pond.

(c) Give a brief account of Hunger drive.

(d) Describe pheromones and their functions in animals.

P.T.O.

2. (a) Give an account of the Binomics, prevention and control of *Entamoeba histolytica*. 10
- (b) Describe in detail the structure and life cycle of *Taenia solium*. 10
3. (a) Describe the life cycle of silkworm. 10
- (b) Discuss the process of production of vermicompost. 10
4. (a) Describe different types of innate animal behaviour. 10
- (b) Describe learning behaviour pattern in animals. 10
5. (a) Describe in brief visual communication in animals. 10
- (b) Describe in detail parental care in Amphibians. 10
6. Answer each of the following : 20
- (a) Describe various control measures of mosquitoes.
- (b) Explain in brief poultry diseases and their control measures.
- (c) Describe sexual drive in animals.
- (d) Explain in brief the optimal foraging theory.

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**NEPWT—26—2024**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (First Year) (Second Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(NEP-2020)**

**ZOOLOGY**

**Paper SZOOC-451-(T)**

**(Animal Ecology, Toxicology and Environmental Pollution)**

**(Wednesday, 11-12-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—Three Hours*

*Maximum Marks—80*

*Note :—* (i) Question Number 1 is compulsory.

(ii) Out of remaining 5 questions (Q. No. 2 to Q. No. 6) answer any *three* questions.

(iii) All questions carry equal marks.

(iv) Illustrate your answers with suitable labelled diagrams, wherever necessary.

1. Answer each of the following :

20

(a) Describe in brief temperature as an ecological factor.

(b) Give an account of population fluctuation.

(c) Write a note on global warming.

(d) Give a brief account of waste water treatment processes.

P.T.O.

2. (a) Define ecosystem. Discuss in detail the energy flow in an ecosystem. 10
- (b) Explain in detail ecological adaptation of animals. 10
3. (a) What is biogeochemical cycle ? Explain the nitrogen cycle in an ecosystem. 10
- (b) Describe different characteristics of population with suitable examples. 10
- 4 (a) What is air pollution ? Describe the sources and effects of air pollution. 10
- (b) Describe the sources, effects and control of soil pollution. 10
5. (a) Define pollution. Describe the sources and effects of water pollution. 10
- (b) Describe in brief the sources, effects and control of noise pollution. 10
6. Answer each of the following : 20
- (a) Explain in brief Liebig's law of minimum.
- (b) Write a note on phosphorus cycle.
- (c) Write a note on Toxic metal pollutants.
- (d) Give an account on Environment Protection Act, 1986.

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**NEPWT—92—2024**

**FACULTY OF SCIENCE & TECHNOLOGY**

**M.Sc. (First Year) (Second Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(NEP 2020)**

**ZOOLOGY**

**Paper SZOOC-1452**

**(Gamete Biology and Animal Development)**

**(Friday, 13-12-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—3 Hours*

*Maximum Marks—80*

*N.B. :—* (1) Question No. 1 is compulsory.

(2) Out of remaining five questions (Q. No. 2 to Q. No. 6) answer any *three* questions.

(3) *All* questions carry equal marks.

(4) Illustrate your answers with suitable labelled diagrams wherever necessary.

1. Answer each of the following :

20

(a) Give a brief account of Semen deficiencies.

(b) Explain in brief Embryonic Stem Cells.

(c) Describe the process of Gastrulation in chick.

(d) Explain in brief regeneration in vertebrates.

P.T.O.

2. (a) Give a detailed account of the process of spermatogenesis. 10
- (b) Describe the morphology of mature ovum of mammal. 10
3. (a) Discuss in brief In Vitro Fertilization (IVF) and Embryo transfer in animals. 10
- (b) Describe cloning of animals by nuclear transfer method. 10
4. (a) Describe in detail the structure hen's egg. 10
- (b) Describe the process of cleavage and blastulation in chick. 10
5. (a) Discuss the process of metamorphosis in amphibians and its hormonal control. 10
- (b) Give an account of the process of regeneration in invertebrates. 10
6. Answer each of the following : 20
- (a) Fertilizin-antifertilizin Reaction.
- (b) Describe in brief the care and breeding of experimental animals.
- (c) Describe the development of Foetal membranes in chick.
- (d) Explain in brief the Hormonal control of Insect metamorphosis.



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**NEPWT—159—2024**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (First Year) (Second Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(NEP 2020 Pattern)**

**ZOOLOGY**

**Paper SZOOC-1453-(T)**

**(Biochemistry and Immunology)**

**(Monday, 16-12-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—Three Hours*

*Maximum Marks—80*

*Note :—* (i) Question No. 1 is compulsory.

(ii) Out of the remaining 5 questions (Q. No. 2 to Q. No. 6) answer any *three* questions.

(iii) All questions carry equal marks.

(iv) Illustrate your answers with suitable labelled diagrams, wherever necessary.

1. Answer each of the following : 20

(a) Describe the process of Glycogenesis.

(b) Write a note on Ketone bodies.

(c) Explain the antigen-antibody interaction.

(d) Give a brief account of Anaphylactic Hypersensitivity.

P.T.O.

2. (a) Describe the classification, structure and properties of proteins. 10  
(b) Describe the different steps involved in the process of Glycolysis. 10
3. (a) Explain in brief the phenomenon of  $\beta$ -oxidation pathway. 10  
(b) Describe in detail the process of transamination and deamination. 10
4. (a) Explain in brief passive and active acquired immunity. 10  
(b) Give an account of classification, structure and functions of immunoglobulin. 10
5. (a) Explain in detail structure, properties and functions of cytokines. 10  
(b) Explain various autoimmune diseases with suitable examples. 10
6. Answer each of the following : 20
  - (a) Describe the process of Gluconeogenesis
  - (b) Give a brief account on Ketogenesis
  - (c) Write a note on T-cell receptors
  - (d) Give a brief account of stimulatory hypersensitivity.

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## **NEPWT—263—2024**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (First Year) (Second Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(NEP 2020 Pattern)**

**ZOOLOGY**

**Paper SZOOE-1451-(T)**

**(Pathobiology and Medical Zoology)**

**(Wednesday, 18-12-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—3 Hours*

*Maximum Marks—60*

*Note :—* (i) Question No. 1 is compulsory.

(ii) Out of the remaining 5 questions (Q. No. 2 to Q. No. 6) answer any *three* questions.

(iii) All questions carry equal marks.

(iv) Illustrate your answers with suitable labelled diagrams, wherever necessary.

1. Answer any *three* of the following :

15

(a) Write a note on influenza.

(b) Give an account of *Taenia solium*.

(c) Explain in brief mode of transmission of pathogens by vectors.

(d) Write a note on Adolescence.

P.T.O.

2. (a) Explain in detail colour blindness and add a note on symptoms and prevention. 8
- (b) Give an account of Arthritis. Add a note on its symptoms and treatment. 7
3. (a) Explain in detail life cycle, biology, symptoms and control of *Trypanosoma gambiense*. 8
- (b) Explain life cycle, biology, symptoms and control of *Ascaris lumbricoides*. 7
4. (a) Explain in detail biology of *Musca domestica*. 8
- (b) Describe in detail different types of vector control methods. 7
5. (a) Give an account of HIV and AIDs. 8
- (b) Explain in detail types of vaccines. Add a note on Vaccination. 7
6. Answer any *three* of the following : 15
- (a) Give an account of Tuberculosis
- (b) Give an account of *Plasmodium vivax*
- (c) Write a note on Mosquitoes.
- (d) Write a note on types of anaemia.

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**NEPWT—253—2024**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (Second Year) (Third Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**ZOOLOGY**

**Paper—SZOOET-501 (B)**

**(Fishery Science—I (B) Fish Morphology, Anatomy and Physiology)**

**(Tuesday, 17-12-2024)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—3 Hours*

*Maximum Marks—60*

*N.B. :—* (i) Question No. 1 is compulsory.

(ii) Out of remaining 5 questions (Q. No. 2 to Q. No. 6) answer any 3 questions.

(iii) All questions carry equal marks.

(iv) Illustrate your answer with suitable labelled diagrams, wherever necessary.

1. Answer any *three* of the following :

15

(a) Scope and significance of fishery science

(b) Accessory respiratory organs-air bladder

(c) Advantages of migration

(d) FSH and LH.

P.T.O.

2. (a) Explain placoid and cycloid scales in fishes. 8
- (b) Classification of fishes. 7
3. (a) Explain osmoregulation in freshwater fishes. 8
- (b) Explain structure and function of brain in freshwater fish. 7
4. (a) Explain in detail male reproductive system in fish. 8
- (b) Explain in detail types of migration in fishes. 7
5. (a) Explain the structure and function of Thyroid gland in fishes. 8
- (b) Explain in detail structure modification of swim bladder. 7
6. Answer any *three* of the following : 15
- (a) Ctenoid scales
- (b) Organs of respiration in fishes
- (c) Spawning
- (d) Posterior pituitary gland.

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**NEPWT—252—2024**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (Second Year) (Third Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(NEP 2020)**

**ZOOLOGY**

**Paper SZOOET-501**

**(Applied Parasitology-I(A))**

**(Trematodes and Cestodes)**

**(Tuesday, 17-12-2024)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—Three Hours*

*Maximum Marks—60*

- Note :—*
- (i) Question Number 1 is compulsory.
  - (ii) Out of remaining 5 questions (Q. No. 2 to Q. No. 6) answer any 3 questions.
  - (iii) All questions carry equal marks.
  - (iv) Illustrate your answers with suitable labelled diagrams, wherever necessary.

1. Answer any *three* of the following : 15
- (a) Give an account on Aspidobothria.
  - (b) Give a brief account of innate immunity of Trematodes.
  - (c) Give a brief account of modification of uterus in Cestodes.
  - (d) Give an account of general organization of Acanthocephala.

P.T.O.

2. (a) Give an account of general organization of Trematodes. 8
- (b) Give an account of Egg shell formation in Trematodes. 7
3. (a) Give an account of different larval forms in Trematodes. 8
- (b) Describe the morphology, life cycle and pathogenicity of *Paragonimus westermani*.
4. (a) Give an account of general organization of Cestodes. 8
- (b) Give an account of Hold Fast organs in Cestodes. 7
5. (a) Describe the morphology, life cycle and pathogenicity of *Taenia solium*. 8
- (b) Describe the morphology, life cycle and pathogenicity of *Hymenolepis nana*.
6. Answer any *three* of the following : 15
- (a) Write a note on Helminth Metabolism
- (b) Write a note on *Fasciolopsis buski*.
- (c) Describe the salient features of Proteocephalidea.
- (d) Give an account on Hydatid Cyst.



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**NEPWT—253—2024**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (Second Year) (Third Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**ZOOLOGY**

**Paper—SZOOET-501 (B)**

**(Fishery Science—I (B) Fish Morphology, Anatomy and Physiology)**

**(Tuesday, 17-12-2024)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—3 Hours*

*Maximum Marks—60*

*N.B. :—* (i) Question No. 1 is compulsory.

(ii) Out of remaining 5 questions (Q. No. 2 to Q. No. 6) answer any 3 questions.

(iii) All questions carry equal marks.

(iv) Illustrate your answer with suitable labelled diagrams, wherever necessary.

1. Answer any *three* of the following :

15

(a) Scope and significance of fishery science

(b) Accessory respiratory organs-air bladder

(c) Advantages of migration

(d) FSH and LH.

P.T.O.

2. (a) Explain placoid and cycloid scales in fishes. 8
- (b) Classification of fishes. 7
3. (a) Explain osmoregulation in freshwater fishes. 8
- (b) Explain structure and function of brain in freshwater fish. 7
4. (a) Explain in detail male reproductive system in fish. 8
- (b) Explain in detail types of migration in fishes. 7
5. (a) Explain the structure and function of Thyroid gland in fishes. 8
- (b) Explain in detail structure modification of swim bladder. 7
6. Answer any *three* of the following : 15
  - (a) Ctenoid scales
  - (b) Organs of respiration in fishes
  - (c) Spawning
  - (d) Posterior pituitary gland.

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**NEPWT—22—2024**

**FACULTY OF SCIENCE & TECHNOLOGY**

**M.Sc. (Second Year) (Third Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(NEP 2020)**

**ZOOLOGY**

**Paper-SZOOCT501**

**(Vertebrates : Structure & Functions)**

**(Tuesday, 10-12-2024)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—3 Hours*

*Maximum Marks—80*

- N.B. :—*
- (i) Question Number 1 is compulsory.
  - (ii) Out of remaining 5 Questions (Q. No. 2 to Q. No. 6) answer any three questions.
  - (iii) All questions carry equal marks.
  - (iv) Illustrate your answers with suitable labelled diagrams, wherever necessary.

1. Answer each of the following : 20
- (a) Give an account of general characters of Cephalochordata.
  - (b) Describe the functions of Mammalian Blood.
  - (c) Give an account of Lung as respiratory organ.
  - (d) Describe in brief Metanephros.

P.T.O.

2. (a) Give an account of structure of Urochordata and discuss affinities of the group. 10
- (b) Give an account of classification of Vertebrates and mention their structural features. 10
3. (a) What is Integument ? Describe the integument and its derivatives in vertebrates. 10
- (b) Describe the comparative anatomy of heart in Vertebrates. 10
4. (a) Give an account of different types of Jaw Suspensorium in Vertebrates. 10
- (b) Give a comparative account of skeleton of Hind limbs in different Vertebrates. 10
5. (a) Give a comparative account of Vertebrate Gonads and their ducts. 10
- (b) Describe in brief structure and function of Phonoreceptors in Vertebrates. 10
6. Answer each of the following : 20
- (a) Explain in brief the theories of origin of Vertebrates.
- (b) Describe in brief Evolution of Aortic arches in Vertebrates.
- (c) Give a brief account of Pectoral girdle of Mammal.
- (d) Describe in brief structure and function of Photoreceptors in Vertebrates.

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**NEPWT—254—2024**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (Second Year) (Third Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(NEP-2020)**

**ZOOLOGY (Entomology)**

**Paper-I (SOOET-502)**

**(Insect, Taxonomy, Development and Ecology)**

**(Tuesday, 17-12-2024)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—3 Hours*

*Maximum Marks—60*

*N.B. :—* (i) Question No. 1 is compulsory.

(ii) Out of remaining 5 questions (Q. No. 2 to Q. No. 6) answer any *three* questions.

(iii) *All* questions carry equal marks.

(iv) Illustrate your answers with suitable labelled diagrams, wherever necessary.

1. Answer each of the following :

15

(a) Silver fish

(b) Wing Venation

(c) Malpighian tubules in insect

(d) Cleavage in Insect.

P.T.O.

2. (a) Explain Newer trends in Insect Taxonomy. 8  
(b) Explain in detail diagnostic character and examples of order Coleoptera. 7
3. (a) Explain general structure of Abdomen. 8  
(b) Explain siphoning types of mouth parts in insects. 7
4. (a) Explain Nervous system in Insect. 8  
(b) Explain Respiratory system in Insect. 7
5. (a) Explain spermatogenesis in Insect. 8  
(b) Hormonal control of Metamorphosis in Insect. 7
6. Answer any *three* of the following : 15
  - (a) Butterfly and moths
  - (b) Natatorial legs
  - (c) Spiracles
  - (d) Insect egg.

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**NEPWT—155—2024**

**FACULTY OF SCIENCE & TECHNOLOGY**

**M.Sc. (Second Year) (Third Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(NEP 2020 Pattern)**

**ZOOLOGY**

**Paper—SZOOCT—503**

**(Applied Zoology—Microbes, Arthropods and Protozoans of Medical  
Importance)**

**(Saturday, 14-12-2024)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—3 Hours*

*Maximum Marks—60*

**N.B. :—** (i) Question No. 1 is compulsory.

(ii) Out of remaining 5 questions (Q. No. 2 to Q. No. 6) answer any *three* questions.

(iii) All questions carry equal marks.

(iv) Illustrate your answers with suitable labelled diagrams, wherever necessary.

1. Answer any *three* of the following : 15

(a) Give an account on Viral respiratory disease—COVID-19.

(b) Give a brief account of Parasitic Ticks.

(c) Give an account of *Entamoeba coli*

(d) Give an account of *Plasmodium vivax*.

P.T.O.

2. (a) Give an account of causative organism and pathogenesis of Plague. Add a note on prevention and control of Plague. 8
- (b) Give an account of causative organism, transmission and pathogenesis of Cholera. 7
3. (a) Give an account of morphology of parasitic mites. Add a note on their control. 8
- (b) Give an account of role of Siphonoptera as vectors of human diseases. 7
4. (a) Explain briefly the various types of parasites and hosts. 8
- (b) Give an account of morphology, life cycle and pathogenicity of *Entamoeba histolytica*. 7
5. (a) Describe the morphology, life cycle and pathogenicity of *Balantidium coli*. 8
- (b) Give an account of morphology, life cycle and pathogenicity of *Trichomonas vaginalis*. 7
6. Answer any *three* of the following : 15
- (a) Give a brief account on Typhoid
- (b) Write a note on Control of Mosquitoes
- (c) Give a brief account of locomotion in Protozoa
- (d) Give a brief account of *Nyctotherus*.