

Total No. of Printed Pages:02

SUBJECT CODE NO- NEPHR-01-2025
FACULTY OF SCIENCE AND TECHNOLOGY
EXAMINATION WINTER 2025
M.SC (FIRST YEAR) (SEM-I)
COMMON PAPER
SVECRM-401-RESEARCH METHODOLOGY(COMPULSORY)

[Time: 3:00 Hours]**[Max.Marks:45]**

“Please check whether you have got the right question paper.”

- N.B.
1. Question No. 1 is Compulsory.
 2. Solve any TWO questions from Question No. 2 to 5.
 3. Calculator and log table allowed.

Q.1 Write notes on:**5X3=15**

1. Research objectives
2. Features of good research designing
3. Editing processing operations
4. statistical measures in research
5. Variables

Q.2 1. Describe various steps involved in research. **08**

2. Explain types of research hypothesis. **07**

Q.3 1. Explain meaning and need of good research designing. **08**

2. Describe descriptive and fundamental types of research. **07**

Q.4 1. Calculate, mean, median and mode of the following data. **08**

Class Interval (CI)	Frequency (F)
50-54	2
45-49	5
40-44	8
35-39	7
30-34	10
25-29	5
20-24	9
15-19	2
10-14	1
5-9	1

2. Describe observation method for collection of primary data. **07**

- Q.5** 1. calculate chi square (χ^2) value of the following data. **08**

Excellent	Average	Poor	Total
58	32	30	120

2. Explain in detail case study. **07**

This question paper contains 2 printed pages]

NEPHR—96—2025

FACULTY OF SCIENCE AND TECHNOLOGY

M.Sc. (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

ZOOLOGY

(SZOOC-401)

(Invertebrate Structure and Function)

(Monday, 15-12-2025)

Time : 10.00 a.m. to 12.30 p.m.

Time— 2½ Hours

Maximum Marks—60

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

(ii) Solve any two questions out of Q. No. 2 to Q. No. 6.

(iii) Fifteen marks for each question.

1. Write short notes on the following :

15

(a) Acoelomates

(b) Nutrition in protozoa

(c) Nephridia

(d) Evolutionary significance of larval forms

(e) Gills in invertebrates.

P.T.O.

2. Describe organization of coelom in invertebrates. 15
3. What is respiration ? Describe organs of respiration in invertebrates. 15
4. What is excretion ? Describe structure of Nephridia and Malphigian tubules as organs of excretion. 15
5. Describe larval forms of Arthropoda. 15
6. Solve any *three* of the following : 15
 - (a) Pseudocoelomates
 - (b) Filter feeding in Polychaeta.
 - (c) Primitive nervous system in Coelenterata.
 - (d) Economic importance of Hemichordata.

This question paper contains 2 printed pages]

NEPHR—96—2025

FACULTY OF SCIENCE AND TECHNOLOGY

M.Sc. (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

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 - (d) Economic importance of Hemichordata.

Total No. of Printed Pages:01

SUBJECT CODE NO- NEPHR-192-2025
FACULTY OF SCIENCE AND TECHNOLOGY
EXAMINATION WINTER 2025
M.SC (FIRST YEAR) (SEM-I)
ZOOLOGY

SZOOCT – 402 BIOSYSTEMATICS, TAXONOMY AND EVOLUTION

[Time: 2:00 Hours]

[Max.Marks:60]

“Please check whether you have got the right question paper.”

- N.B.
- 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.

- Q.1 Answer each of the following: 15**
- a) Give an account on Cytotaxonomy.
 - b) Describe in brief the different types of Taxonomic keys.
 - c) Describe the methods of conservation of Biodiversity.
 - d) Explain the mutation theory of Hugo de Vries.
 - e) Give an account of Historical resume of systematics.
- Q.2 What is a species? Discuss different concepts of species. 15**
- Q.3 Give an account of taxonomic publications. 15**
- Q.4 Give a brief account of Binomial system of Nomenclature with suitable examples. 15**
- Q.5 Explain Lamarck's theory of Organic evolution. 15**
- Q.6 Answer Any Three of the following: 15**
- a) Explain Hierarchy of taxonomic categories in classification.
 - b) Give an account of Taxonomic collections.
 - c) Describe in brief the causes of loss of biodiversity.
 - d) Give a brief account of Genetic Drift

Total No. of Printed Pages: 1

SUBJECT CODE NO:- NEPHR-142-2025
FACULTY OF SCIENCE & TECHNOLOGY
EXAMINATION WINTER 2025
M.Sc.(FIRST YEAR) (SEM –II)
ZOOLOGY

SZOOCT – 452 GAMETE BIOLOGY AND ANIMAL DEVELOPMENT

[Time: 3:00 Hours]

[Max.Marks:80]

“Please check whether you have got the right question paper.”

- N.B.
- 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.

- Q.1 Answer each of the following: 20**
- a) Describe in brief the process of Oogenesis.
 - b) Discuss in brief In Vitro Fertilization (IVF).
 - c) Give a brief account on Foetal membranes in chick.
 - d) Describe the regeneration in Vertebrates.
- Q.2 20**
- a) Give a detailed account of the process of spermatogenesis.
 - b) What is fertilization? Describe the process of Pre-fertilization in animals.
- Q.3 20**
- a) Describe the morphology of mature ovum of mammal.
 - b) Give an account of the Methods for Embryo sexing.
- Q.4 20**
- a) Describe in detail the structure of hen's egg.
 - b) Describe the process of Cleavage and Blastulation in chick.
- Q.5 20**
- a) Discuss the process of metamorphosis in Insect and its hormonal control.
 - b) What is regeneration? Explain regeneration in invertebrates.
- Q.6 Answer each of the following: 20**
- a) Explain in brief Semen deficiencies.
 - b) Write a note on care and breeding of experimental animal.
 - c) Describe in brief the process of Gastrulation in Chick.
 - d) Explain in brief the Hormonal control of Amphibian metamorphosis.

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SUBJECT CODE NO- NEPHR-439-2025
FACULTY OF SCIENCE AND TECHNOLOGY
EXAMINATION WINTER 2025
M.SC. (FIRST YEAR) (SEM-II)
ZOOLOGY
TOOLS & TECHNIQUES FOR BIOLOGY

[Time: 2:00 Hours]

[Max.Marks:45]

“Please check whether you have got the right question paper.”

- N.B.
1. Question Number 1 is compulsory.
 2. Out of remaining 4 Questions (Q. No. 2 to Q. No. 5) answer any 2 Questions.
 3. All Questions carry equal marks.
 4. Illustrate your answers with suitable labelled diagrams, wherever necessary.

Q.1 Answer each of the following:

15

- a) Give a brief account of Digital Balance.
- b) Describe in brief Radioactive Counters.
- c) Describe the types and applications of Microtomes.
- d) Give a brief account of Paper chromatography.
- e) Write a note on Oven.

Q.2 Explain the operation, maintenance and care of Distillation unit.

15

Q.3 Explain the Principle, working procedure and uses of Analytical Balance.

15

Q.4 Explain the principle and working of Electron Microscope. Add a note on its uses.

15

Q.5 Explain Centrifugation technique for the separation of cell organelles.

15

Total No. of Printed Pages:01

SUBJECT CODE NO- NEPHR-440-2025
FACULTY OF SCIENCE AND TECHNOLOGY
EXAMINATION WINTER 2025
M.SC. (FIRST YEAR) (SEM-II)
ZOOLOGY
PATHOBIOLOGY AND MEDICAL ZOOLOGY

[Time: 2:00 Hours]

[Max.Marks:45]

“Please check whether you have got the right question paper.”

- N.B.
1. Question Number 1 is compulsory.
 2. Out of remaining 4 Questions (Q. No. 2 to Q. No. 5) answer any 2 Questions.
 3. All Questions carry equal marks.
 4. Illustrate your answers with suitable labelled diagrams, wherever necessary.

Q.1 Answer each of the following:

15

- a) Describe muscular dystrophy, its causes, and muscular effects.
- b) Give a brief account of Leishmania donovani.
- c) Describe ticks and their role as vectors of human diseases.
- d) Describe in brief adolescence and the effects of drug and alcohol abuse.
- e) Describe colour blindness and its different types.

Q.2 Describe the causes, types, clinical features, and preventive measures of Diabetes mellitus as a non-communicable disease.

15

Q.3 Describe the life cycle, biology, mode of transmission, symptoms, and control measures of Entamoeba histolytica.

15

Q.4 Give an account of the methods of vector control, including chemical, physical, and biological approaches, with suitable examples.

15

Q.5 Describe the important laboratory tests for disease diagnosis, including blood counts, enzyme assays, and other investigations.

15

Total No. of Printed Pages:1

SUBJECT CODE NO:-NEPHR-48
FACULTY OF SCIENCE & TECHNOLOGY
EXAMINATION WINTER 2025
M.Sc.(FIRST YEAR) (SEM –II)
ZOOLOGY
SZOOCT 451 - ANIMAL ECOLOGY, TOXICOLOGY
AND ENVIRONMENTAL POLLUTION

[Time: 3:00 Hours]

[Max.Marks:60]

“Please check whether you have got the right question paper.”

- N.B.
- 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.

Q.1 Answer each of the following: 15 Marks

- a) Describe in brief Temperature as an ecological factor.
- b) Describe the Characteristics of Population.
- c) Give a brief account of Soil pollution.
- d) Give an account of waste water treatment processes.
- e) Write a note on Law of Limiting Factor.

Q.2 Define Ecosystem. Explain various biotic factors of an ecosystem. 15 Marks

Q.3 What is biogeochemical cycle? Explain the Water cycle in an ecosystem. 15 Marks

Q.4 Define pollution? Give an account of monitoring and control of air pollution. 15 Marks

Q.5 Describe in brief the sources, effects and control of noise pollution. 15 Marks

Q.6 Answer Any Three of the following: 15Marks

- a) Explain in brief Ecological adaptation of animals.
- b) Write a note on Phosphorus cycle.
- c) Give a brief account on Global warming.
- d) Give an account on effects of solid waste pollution.

This question paper contains 2 printed pages]

NEPHR—97—2025

FACULTY OF SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2025

ZOOLOGY

(SOOCT-502)

(Molecular Cell Biology)

(Monday, 15-12-2025)

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

Time— 3 Hours

Maximum Marks—80

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 answer with suitable labelled diagram, wherever necessary.

1. Answer each of the following :

20

(a) Microtubules

(b) Antitermination

(c) Transposition

(d) Secondary messenger

P.T.O.

2. (a) Describe in detail structure and function of microfilament. 10
- (b) Discuss in detail structure and composition of fluid mosaic model. 10
3. (a) Discuss in detail structure and function of satellite DNA. 10
- (b) Explain in detail DNA damage and its repair mechanism. 10
4. (a) Discuss in detail mechanism of transcription in prokaryotes. 10
- (b) Explain in detail RNA processing. 10
5. (a) Explain mechanism of carcinogenesis. 10
- (b) Explain mechanism of signal transduction. 10
6. Answer each of the following : 20
- (a) Passive transport
- (b) Attenuation
- (c) Heterochromatin
- (d) Cyclic AMP.

Total No. of Printed Pages:1

SUBJECT CODE NO:- NEPHR-44-2025
FACULTY OF SCIENCE & TECHNOLOGY
EXAMINATION WINTER 2025
M.Sc.(SECOND YEAR) (SEM –IV)
(COMMON PAPER)

RESEARCH PUBLICATION ETHICS (NEPPE - 1002)

[Time: 2:00 Hours]

[Max.Marks:40]

“Please check whether you have got the right question paper.”

- N.B.
- i) Question number 1 is compulsory.
 - ii) Solve any three questions from Question NO.2 to 6.

- | | | |
|-----------|--|-----------------|
| Q1 | Explain: | 5×2=10 |
| | <ol style="list-style-type: none"> a) Nature of philosophy b) Intellectual honesty c) World association of medical editor's. d) Open access publications. e) Web of Science | |
| Q2 | <ol style="list-style-type: none"> a) What do you mean by philosophy? Gives the IR branches. b) Write an essay on scientific misconduct. | 2x5=10 |
| Q3 | <ol style="list-style-type: none"> a) Define publication ethics? Why publication of research paper is important. Explain. b) SHERPA / ROMEO is an excellent online resource. Explain. | 2x5=10 |
| Q4 | <ol style="list-style-type: none"> a) What are predatory Journals? How to identify a predatory Journals! b) What is impact Factor? How it calculate? Explain it with suitable example. | 2×5=10 |
| Q5 | <ol style="list-style-type: none"> a) Give an account on violation of publications ethics. b) What is plagiarism? Describe different software of plagiarism. | 2x5=10 |
| Q6 | Write short notes on: | 4×2.5=10 |
| | <ol style="list-style-type: none"> a) Scope of ethics b) Salami slicing c) Springer d) h-index | |

Total No. of Printed Pages:01

SUBJECT CODE NO- NEPHR-143-2025
FACULTY OF SCIENCE AND TECHNOLOGY
EXAMINATION WINTER 2025
M.SC. (SECOND YEAR) (SEM-IV)
ZOOLOGY
MAMMALIAN ENDOCRINOLOGY

[Time: 3:00 Hours]

[Max.Marks:80]

“Please check whether you have got the right question paper.”

- N.B.
1. Question Number 1 is compulsory.
 2. Out of remaining 5 Questions (Q. No. 2 to Q. No. 6) answer any 3 Questions.
 3. All Questions carry equal marks
 4. Illustrate your answers with suitable labeled diagrams, wherever necessary

Q.1 Answer each of the following: 20

- a) Give an account of the hormones of the neurohypophysis.
- b) Describe in brief Renin-Angiotensin system.
- c) Describe the Structure and Histology of Thyroid Gland.
- d) Describe the Structure of placenta.

Q.2 a) Describe in detail the Hypothalmo-Hypophyseal Portal System and add a note on mechanism of hormonal action. 10

- b) Describe the histological Structure of mammalian Pituitary Gland. Add a note on hormones secreted by Adenohypophysis. 10**

Q.3 a) Describe the histological structure of Adrenal gland. Add a note on hormones of adrenal cortex. 10

- b) Describe the types of Diabetes and add a note on the role of insulin and glucagon in control of diabetes. 10**

Q.4 a) Describe the histological Structure of Parathyroid Gland. Add a note on role of parathyroid hormones. 10

- b) Describe in detail the structure, hormones, and endocrine functions of the pineal gland. 10**

Q.5 a) Explain the role of Estrogen and progesterone in Female Reproductive Physiology. 10

- b) Describe the different types and mechanisms of action of male and female contraceptives. 10**

Q.6 Answer each of the following: 20

- a) Give an account of Hormones as a chemical messenger.
- b) Write a note on hormones of adrenal medulla.
- c) Give a brief account of Gastrointestinal Hormones.
- d) Describe in brief the infertility in humans.

This question paper contains 2 printed pages]

NEPHR—442—2025

FACULTY OF SCIENCE AND TECHNOLOGY

M.Sc. (Second Year) (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

ZOOLOGY

(Fishery Science II (B) Fisheries and Fish Culture)

(Tuesday, 23-12-2025

Time : 2.00 p.m. to 4.30 p.m.

Time— 2½ 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. Attempt any *three* of the following : 15

- (a) Polyculture
- (b) Chinese Hatchery
- (c) Bombay duck fishery
- (d) Fish byproducts

P.T.O.

2. (a) Explain in detail cage culture. 8
- (b) Explain in detail biology of catla catla. 7
3. (a) Describe pre-stocking and post-stocking management of nursery pond. 8
- (b) Describe types of aquatic weeds and their control. 7
4. (a) Explain in detail tools and techniques used in fish transport. 8
- (b) Describe induced breeding in fishes by pituitary gland hormone. 7
5. (a) Explain in detail causes of fish spoilage. 8
- (b) Describe various methods of fish preservation. 7
6. Attempt any *three* of the following : 15
- (a) Pen culture
- (b) Electric fishing
- (c) Oil sardine fishery
- (d) Bacterial diseases.

This question paper contains 2 printed pages]

NEPHR—443—2025

FACULTY OF SCIENCE AND TECHNOLOGY

M.Sc. (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

ZOOLOGY

Paper—SZOOET-551

(Ento-II) (EAE & PM)

(Tuesday, 23-12-2025)

Time : 2.00 p.m. to 4.00 p.m.

Time—2 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 diagram, wherever necessary.

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

- (a) Silk gland
- (b) Pest resurgence
- (c) Control measures of rat flea
- (d) Demerits of chemical control of insects.

P.T.O.

2. (a) Describe economic importance of Honey, Wax. 8
- (b) Describe in detail silk gland and silk formation in silk-moth. 7
3. (a) Describe classification, morphology and damage caused by lemon butterfly. 8
- (b) Describe classification, morphology and damage caused by Jowar midge fly. 7
4. (a) Describe morphology, vectorship and pathogenicity of bed bug. Add a note on its control measures. 8
- (b) Describe morphology, damage caused by stable fly. Add a note on its control measures. 7
5. (a) Describe in detail about Biological control of insects. 8
- (b) Describe Integrated Pest Management in insect control. 7
6. Answer any *three* of the following : 15
- (a) Sericulture as a cottage industry
- (b) Sap suckers
- (c) Cricket as household pest
- (d) Genetic control of insects.

This question paper contains 2 printed pages]

NEPHR—441—2025

FACULTY OF SCIENCE AND TECHNOLOGY

M.Sc. (Second Year) (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP-2020 Pattern)

ZOOLOGY

Applied Parasitology-II(A)

Paper—SZOOET-551

(Animal Nematodes and Plant Nematodes)

(Tuesday, 23-12-2025)

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 answers with suitable labelled diagram, wherever necessary.

1. Answer any *three* of the following : 15
- (a) Give an account of ultrastructure of Cuticle in Nematodes.
 - (b) Give a brief account of *Ancylostoma duodenale*.
 - (c) Give an account of Below ground symptoms of nematode injuries to plant.
 - (d) Give a brief account of *Meloidogyne*.

P.T.O.

2. (a) Give an account of general organization of Nematodes. 8
- (b) Give an account of Carbohydrate metabolism in Nematodes. 7
3. (a) Describe the morphology, life cycle and pathogenicity of *Wuchereria bancrofti*. 8
- (b) Describe the morphology, life cycle and pathogenicity of *Trichinella spiralis*. 7
4. (a) Give an account of Biological Control of Plant Parasitic Nematodes. 8
- (b) Give an account of Above ground symptoms of nematode injuries to plant. 7
5. (a) Describe the structure, life cycle and control of *Anguina*. 8
- (b) Describe the structure, life cycle and control of *Tylenchulus*. 7
6. Answer any *three* of the following : 15
- (a) Write a note on Moulting in Nematodes
- (b) Give an account of *Enterobius vermicularis*.
- (c) Give a brief account of Soil fumigation.
- (d) Give an account of *Radopholus*.

This question paper contains 2 printed pages]

NEPHR—444—2025

FACULTY OF SCIENCE AND TECHNOLOGY

M.Sc. (Second Year) (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP-2020 Pattern)

ZOOLOGY

Paper—SZOET-551(D)

(Animal Physiology-II)

(Tuesday, 23-12-2025)

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 answers with suitable labelled diagrams, wherever necessary.

1. Answer any *three* of the following : 15
- (a) Explain the gastrointestinal hormones and their roles
(b) Write about dialysis therapy.
(c) Describe birth control measures.
(d) Elaborate the disorders of ear.

P.T.O.

2. (a) Describe in detail physiology of digestion and absorption of proteins. 8
- (b) Explain in detail chemical and nervous control of respiration. 7
3. (a) Give a detailed account on heart and its internal structure. 8
- (b) Write about composition and functions of blood. 7
4. (a) Describe in detail Male reproductive system. 8
- (b) Explain in detail central nervous system. 7
5. (a) Give a detailed account on eye and their physiology of vision. 8
- (b) Explain the ultrastructure of skeletal muscles. 7
6. Answer any *three* of the following : 15
- (a) Explain in short Asthma.
- (b) Give an account on coronary artery disorder.
- (c) Explain phases of female reproductive cycle and their hormonal control.
- (d) Give an account on muscular dystrophy.