

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**

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NEPHR—454—2025

FACULTY OF SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2025

BOTANY

(Bioinstrumentation and Methods in Biology)

(Wednesday, 24-12-2025)

Time : 10.00 a.m. to 12.00 noon

Time— 2 Hours

Maximum Marks—45

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

(ii) Of the remaining attempt any *two* questions.

(iii) Draw neat and well labelled diagram wherever required.

- | | | |
|-------|--------------------------------------|----|
| 1. | Write brief notes on the following : | 15 |
| (i) | Working of compound microscope. | 3 |
| (ii) | Applications of laminar air flow. | 3 |
| (iii) | Beer-Lambert's law. | 3 |
| (iv) | Paper Electrophoresis. | 3 |
| (v) | pH meter. | 3 |

P.T.O.

- | | | |
|------|--------------------------------------------------------------|----|
| 2. | Describe in detail the following : | 15 |
| (i) | Principle and application of fluorescence microscope. | 8 |
| (ii) | Principle and application of scanning electron microscope. | 7 |
| 3. | Describe in detail the following : | 15 |
| (i) | Principle and applications of incubator. | 8 |
| (ii) | Principle and applications of Thin layer chromatography. | 7 |
| 4. | Describe in detail the following : | 15 |
| (i) | Principles and techniques fluorescence spectroscopy. | 8 |
| (ii) | Principles and techniques of atomic absorption spectrometry. | 7 |
| 5. | Describe in detail the following : | 15 |
| (i) | Principle and applications of Agarose gel electrophoresis. | 8 |
| (ii) | AFLP techniques. | 7 |

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NEPHR—58—2025

FACULTY OF SCIENCE

M.Sc. (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

BOTANY

(SBOTC-401)

(Diversity of Microbes)

(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)* Of the remaining attempt any *three* questions.
 - (iii)* Draw neat and labelled diagram wherever required.

1. Write brief notes on the following : 15
- (a)* Cell wall of gram –ve bacteria.
 - (b)* Symptoms of mycoplasm diseases of plants.
 - (c)* Characters of zoosporic fungi.
 - (d)* Economic importance of lichen.

P.T.O.

2. Write brief notes on the following :
- (a) Symptoms and control measures of downy mildew of grape. 8
 - (b) Planogametic and gametangial copulation in fungi. 7
3. Write brief notes on the following :
- (a) Classification of virus on the basis of host. 8
 - (b) General account on mycoplasma. 7
4. Write brief notes on the following :
- (a) Transduction in bacteria. 8
 - (b) Symptoms and control measures of citrus canker. 7
5. Write brief notes on the following :
- (a) Biological control of pest. 8
 - (b) Ectomycorrhiza. 7
6. Write brief notes on the following (any *three*) : 15
- (a) Crustose lichen
 - (b) Structure of Basidiospore
 - (c) Chemical composition of virus
 - (d) Endospore.

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NEPHR—107—2025

FACULTY OF SCIENCE

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

NOVEMBER/DECEMBER, 2025

(NEP-2020)

BOTANY

Paper SBOTC-1452

(Plant Resource Utilization and Biodiversity Conservation)

(Tuesday, 16-12-2025)

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) Of the remaining attempt any *three* questions.

(3) Draw neat and well labelled diagrams wherever necessary.

1. Write brief notes on :

15

(a) Plant as a source of Renewable energy

(b) Ecosystem diversity

(c) Principles of conservation

(d) River dam and tribal campaign

(e) Botanical Garden.

P.T.O.

2. Write brief notes on :
- (a) Plant as source of fibre. 8
 - (b) Role of Biotechnology in Industry. 7
3. Write brief notes on :
- (a) Give a detailed account on Hot Spots of Biodiversity in India. 8
 - (b) Describe the concept of Biodiversity. 7
4. Write brief notes on :
- (a) In situ conservation strategies. 8
 - (b) Current practices in genetic diversity. 7
5. Write brief notes on :
- (a) Role of CSIR in sustainable development. 8
 - (b) Social approaches for biodiversity conservation. 7
6. Write brief notes on (any *three*) :
- (a) Role of Biotechnology in agriculture 5
 - (b) Red data book 5
 - (c) Benefits and adverse consequences of Green Revolution 5
 - (d) Role of BSI in sustainable development. 5

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NEPHR—29—2025

FACULTY OF SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2025

BOTANY

SBOTC-1451

(Cell Biology, Genetics and Plant Breeding)

(Saturday, 13-12-2025)

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) Of the remaining attempt any three questions.

(iii) Draw neat and labelled diagram wherever required.

- | | | |
|-----|--------------------------------------|----|
| 1. | Write brief notes on the following : | 15 |
| (a) | Karyotype | 3 |
| (b) | Characters of multiple alleles | 3 |
| (c) | Gene frequency | 3 |
| (d) | Incompatibility | 3 |
| (e) | Crossing over. | 3 |

P.T.O.

2. Write brief notes on the following : 15
- (a) What is mitosis ? Describe procedure and significance of mitosis. 8
- (b) Structure and function of Golgi complex. 7
3. Write brief notes on the following : 15
- (a) Explain duplicate gene interaction with suitable example. 8
- (b) Blood groups in humans. 7
4. Write brief notes on the following : 15
- (a) Explain structural chromosomal aberrations. 8
- (b) Explain regulation of gene expression in eukaryotes. 7
5. Write brief notes on the following : 15
- (a) What is plant breeding ? Explain methods of plant breeding in crop plants. 8
- (b) Male sterility. 7
6. Write brief notes on the following (any *three*) :
- (a) Cell signaling 5
- (b) Chromosomal sex determination in humans 5
- (c) Gene pool 5
- (d) Objectives of plant breeding. 5

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SUBJECT CODE NO:- NEPHR-354-2025
FACULTY OF SCIENCE & TECHNOLOGY
EXAMINATION WINTER 2025
M.Sc. (FIRST YEAR) (SEM –II)
BOTANY

SBOTE 451 - PLANT ECOLOGY, ENVIRONMENTAL BIOLOGY & PHYTOGEOGRAPHY

[Time: 2:00 Hours]

[Max.Marks:45]

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

- N.B.
1. Question No.1 is compulsory
 2. Of the remaining attempt any two questions.
 3. Draw neat and labelled diagrams wherever required.

- | | | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.1 | Write brief notes on the following | 15 |
| | <ol style="list-style-type: none"> a) Pyramid of Number b) Community structure c) Ozone Layer and ozone hole. d) Shifting of poles. e) Deforestation. | |
| Q.2 | Write brief notes on the following | 15 |
| | <ol style="list-style-type: none"> a) Structure and function of Grassland Ecosystem. b) Explain nitrogen cycle. | |
| Q.3 | Write brief notes on the following | 15 |
| | <ol style="list-style-type: none"> a) Describe the types of Ecological succession. b) Explain concept of climax. | |
| Q.4 | Write brief notes of the following | 15 |
| | <ol style="list-style-type: none"> a) Explain phytoremediation. b) Describe urban problems related to water conservation. | |
| Q.5 | Write brief notes on the following. | 15 |
| | <ol style="list-style-type: none"> a) Explain forest types of India. b) Describe continental drift. | |

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NEPHR—259—2025

FACULTY OF SCIENCE

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

NOVEMBER/DECEMBER, 2025

BOTANY

Paper SBOTE-501

(Classical Angiosperm Systematics)

(Monday, 22-12-2025)

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

Time—2½ Hours

Maximum Marks—60

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

(2) Of the remaining, attempt any *three* questions.

(3) Draw neat and labelled diagram wherever necessary.

- | | |
|--------------------------------------------|----|
| 1. Write short notes on : | 15 |
| (a) Economic Importance of Family—Rutaceae | 4 |
| (b) Monophyly | 4 |
| (c) Taxonomic ranks | 4 |
| (d) Scope of plant taxonomy. | 3 |

P.T.O.

2. Describe in brief : 15
- (a) Describe in brief general evolutionary trends in Angiosperms. 8
- (b) Describe in brief species concept. 7
3. Explain in brief : 15
- (a) Explain in brief evolution of inflorescence in Angiosperms. 8
- (b) Explain in brief the type method. 7
4. Describe in brief : 15
- (a) Describe in brief general characters of family — Apocynaceae with its floral formula and floral diagram. 8
- (b) Describe in brief general characters of Family — Malvaceae with its floral formula and floral diagram. 7
5. Explain in brief : 15
- (a) Explain in brief family — Typhaceae with its economic importance. 8
- (b) Explain in brief family — Graminae with its economic importance. 7
6. Write brief notes on : 15
- (a) Interrelationship of Juncaceae 4
- (b) Reproductive morphology of Tiliaceae 4
- (c) Robert Thorne's classification 4
- (d) Analogy. 3

This question paper contains 2 printed pages]

NEPHR—261—2025

FACULTY OF SCIENCE

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

NOVEMBER/DECEMBER, 2025

BOTANY

Paper SBOTE-503

(Seed Technology—I)

(Monday, 22-12-2025)

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

Time—2½ Hours

Maximum Marks—60

N.B. :— (1) *All questions carry equal marks.*

(2) *Question No. 1 is compulsory.*

(3) *Of the remaining attempt any three questions.*

(4) *Draw neat and labelled diagram wherever required.*

1. Write brief notes on :

- | | |
|---------------------------------|---|
| (a) Orthodox seeds | 4 |
| (b) Maintaining seed in storage | 4 |
| (c) S.B. Mathur | 4 |
| (d) Charcoal rot of Jowar. | 3 |

P.T.O.

2. (a) What is seed technology ? Describe history and development of seed technology. 8
- (b) Describe in detail sporogenesis in crop plants. 7
3. (a) What is seed deterioration ? Describe the causes of seed deterioration. 8
- (b) Describe the various approaches of seed storage. 7
4. (a) Describe the methods of detection of seed borne diseases. 8
- (b) Significance of seed infection. 7
5. (a) Explain in detail symptoms, causal organism and disease cycle of Loose smut of wheat. 8
- (b) Explain symptoms, causal organism and disease cycle of powdery mildew of pea. 7
6. Write short notes on :
- (a) Apomixis 4
- (b) Importance of seed viability 4
- (c) Rhizopus 4
- (d) Charcoal rot of Jowar. 3

This question paper contains 2 printed pages]

NEPHR—59—2025

FACULTY OF SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2025

(NEP 2020)

BOTANY

(SBOTC-502)

(Molecular Biology and Biostatistic)

(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) Of the remaining, attempt any three questions.

(iii) Draw neat and well labelled diagram wherever necessary.

1. Write short notes on :

- | | |
|-------------------------------------------|---|
| (a) Chemical properties of nucleic acids. | 5 |
| (b) Heterochromatization. | 5 |
| (c) Transduction in bacteria. | 5 |
| (d) Chi-square test. | 5 |

P.T.O.

2. Describe the following in detail :
- (a) Cot curves and Cot 1/2 values and its significance. 10
 - (b) Structure of nucleic acids. 10
3. Describe the following in detail.
- (a) Mechanism of eukaryotic DNA replication. 10
 - (b) Enzymes of DNA replication and their role. 10
4. Describe the following in detail :
- (a) Post-translational modifications. 10
 - (b) Mechanism of protein synthesis. 10
5. Describe the following in detail :
- (a) Binomial distribution with suitable example. 10
 - (b) Mean deviation and standard deviation. 10
6. Write short notes on :
- (a) Forms of DNA 5
 - (b) Structure and role of introns 5
 - (c) Conjugative plasmids 5
 - (d) ANOVA. 5

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 | |

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NEPHR—108—2025

FACULTY OF SCIENCE

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

NOVEMBER/DECEMBER, 2025

(NEP-2020)

BOTANY

Paper SBOTC-551

(Biochemistry and Plant Metabolism)

(Tuesday, 16-12-2025)

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

Time—3 Hours

Maximum Marks—80

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

(2) Of the remaining, attempt any *three* questions.

(3) Draw neat and labelled diagram wherever required.

1. Write brief notes on the following :

20

(a) Essential Amino acids

(b) Coenzymes

(c) Leghaemoglobin

(d) Classification of carbohydrates.

P.T.O.

2. Describe in detail : 20
- (a) Forces involved in stabilization of proteins.
 - (b) Transcription of protein.
3. Describe in detail : 20
- (a) Properties and classification of enzymes.
 - (b) Michaelis-Menten equation for determination of enzyme kinetics.
4. Describe in detail : 20
- (a) Mechanism of Biological Nitrogen fixation.
 - (b) Mechanism of Nitrification and denitrification.
5. Describe in detail : 20
- (a) β -oxidation of fatty acid.
 - (b) Chemistry and biological role of cellulose and chitin.
6. Write brief notes on the following : 20
- (a) General structure of amino acids
 - (b) Allosteric enzymes
 - (c) Ammonification
 - (d) Starch.