This question paper contains **2** printed pages]

NEPKR—01—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

RESEARCH METHODOLOGY (Compulsory)

Paper NEPRM-1001

(Thursday, 16-4-2026) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—45

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

(2) Solve any *two* questions from Q. No. **2** to Q. No. **5**.

(3) Calculator and log table is allowed.

1. Write notes on : 5×3=15

(*a*) Research motive

(*b*) Need of research design

(*c*) Coding processing operation

(*d*) Statistical techniques in research

(*e*) Variables.

P.T.O.

2. (*a*) Explain in detail various steps involved in research process. 8

(*b*) What is research hypothesis ? Give their characteristics. 7

3. (*a*) Give an account on good research design. 8

(*b*) Describe types of research. 7

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

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

(*b*) Describe interview method for the collection of primary data. 7

5. (*a*) Calculate the chi-square (χ^2) value of the following data : 8

Fully Agree	Not Sure	Not Agree	Total
102	108	28	238

(*b*) Write an essay on case study. 7

This question paper contains **2** printed pages]

NEPKR—68—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

COMPUTER SCIENCE

Paper SCMPSC-401

(Computer Architecture and Microprocessor)

(Saturday, 18-4-2026) **Time : 10.00 a.m. to 12.30 p.m.**

Time—2½ *Hours* *Maximum Marks*—60

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

(2) Attempt any *three* from Q. No. **2** to Q. No. **6**.

1. Attempt the following : 15

(*a*) What is virtual memory ?

(*b*) Enlist features of 8086.

(*c*) Discuss Hardwired control.

(*d*) Explain the concept of registers.

(*e*) Explain address bus in 8085.

2. (*a*) Explain system modelling. 5

(*b*) Explain pin diagram of 8085 microprocessor. 5

(*c*) Discuss the Bus Interface Unit of 8086. 5

P.T.O.

3. (*a*) Discuss design methodology of Combinational cirtuits. 5

(*b*) Do as directed : 5

(*i*) Add two binary number, 11011 and 11101

(*ii*) Subtract $(10101010)_2$ from $(11001100)_2$.

(*c*) Explain the concept of associative memories. 5

4. (*a*) Discuss the concept of RISC processor. 5

(*b*) Explain architecture of 8086 microprocessor. 5

(*c*) Discuss the algorithm for binary addition. 5

5. (*a*) Explain interrupt and their types. 5

(*b*) Write an ALP to perform addition of two 8-bit numbers. 5

(*c*) (*i*) Multiply binary numbers, 1100 and 1010. 5

(*ii*) Divide $(110011)_2$ by $(10)_2$.

6. Write short notes on any *tthree* of the following : 15

(*a*) Flag register in 8085

(*b*) Micro programmed control unit

(*c*) Cache memory

(*d*) Features of 8086.

This question paper contains **2** printed pages]

NEPKR—168—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

COMPUTER SCIENCE

Paper–SCMPSC-402

(Python Programming)

(Tuesday, 21-4-2026) **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*) Attempt any *three* questions from Q. No. **2** to Q. No. **6**.

1. Attempt the following : 15

(*a*) Discuss various operators in Python.

(*b*) Explain list in Python.

(*c*) What is polymorphism ? Explain its types.

(*d*) What is exception ? Explain.

(*e*) Discuss Django template variables.

P.T.O.

2. (*a*) How do you raise exception in Python ? Explain with example. 5

(*b*) What is inheritance ? Explain types of inheritance. 5

(*c*) What is Tkinter ? Explain its purpose in Python. 5

3. (*a*) What is function ? How do you define and call the function in Python with suitable example. 5

(*b*) Write a Python program to print all the even numbers in the range. 5

(*c*) Explain Django framework. 5

4. (*a*) Discuss creating labels and button in Python. 5

(*b*) Discuss Python while loop with suitable example. 5

(*c*) How do you pass a query to MySQL ? Explain with example. 5

5. (*a*) Write a program to find largest element from the list. 5

(*b*) Discuss exception handling mechanism. 5

(*c*) How do you add info dialog box to the Python program ? Explain with example. 5

6. Write short notes on any *three* of the following : 15

(*a*) Django template tags

(*b*) Data types in Python

(*c*) Importing MySQL for Python

(*d*) Creating and importing module in Python.

This question paper contains **2** printed pages]

NEPKR—286—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

COMPUTER SCIENCE

Paper–SCMPSC-403

(Advanced Java)

(Thursday, 23-4-2026) **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*) Attempt any *three* from Q. No. **2** to Q. No. **6**.

1. Attempt the following : 15

(*a*) What is Metadata ?

(*b*) What is Collection interface ?

(*c*) Define JDBC.

(*d*) Explain the Servlet Chaining.

(*e*) What is JavaBeans in JSP ?

P.T.O.

2. (*a*) How to creating the Threads in Java ? Explain in detail. 5

(*b*) Define ArrayList. Explain with suitable example. 5

(*c*) Explain an executing Query and Processing Results. 5

3. (*a*) Explain the Servlet Life cycle with diagram. 5

(*b*) How to deploying Simple Servlet ? Explain with suitable example. 5

(*c*) Describe the JDBC Architecture. 5

4. (*a*) Explain Thread Life Cycle. 5

(*b*) Describe Treemap and Treeset with example. 5

(*c*) Write a program to Display odd numbers between 1 – 100. 5

5. (*a*) Explain the Callable Statement with example. 5

(*b*) Describe the Thread Synchronization in Java. 5

(*c*) Write a simple Java program that draws a rectangle using the Graphics. 5

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

(*a*) HashMap

(*b*) Thread Priorities

(*c*) Concept of Servlets

(*d*) Sessions in JSP.

This question paper contains **3** printed pages]

NEPKR—34—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

(NEP Pattern)

COMPUTER SCIENCE

Paper SCMPSC-451

(Mobile Application Development with Kotlin)

(Friday, 17-4-2026) **Time : 10.00 a.m. to 12.30 p.m.**

Time—2½ *Hours* *Maximum Marks*—60

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

(2) Attempt any *three* questions from Q. No. **2** to Q. No. **6**.

(3) *All* questions carry equal marks.

(4) Assume suitable data if necessary.

1. Answer the following questions (**3** marks each) : 15

(*a*) Explain Kotlin program structure.

P.T.O.

(*b*) What is Functions ?

(*c*) Explain API Levels.

(*d*) What is JVM ?

(*e*) Describe ScollView in user interface design.

2. Answer the following questions : 15

(*a*) Explain default and named arguments in Kotlin.

(*b*) Describe data types in Kotlin.

(*c*) Explain when expression with suitable example.

3. Answer the following questions : 15

(*a*) Describe exception handling concept.

(*b*) Explain throw keyword collection.

(*c*) Describe HashSet.

4. Answer the following questions : 15

(*a*) Describe API levels and versions.

(*b*) Explain activity life cycle.

(*c*) Explain android project structure in detail.

5. Answer the following questions : 15

(*a*) Describe difference between Relative layout and Constraint layout.

(*b*) Explain time image and web view.

(*c*) Describe Explicit Intents.

6. Answer any *three* of the following questions : 15

(*a*) Explain any *two* looping statements in Kotlin.

(*b*) Explain Inheritance in detail.

(*c*) Describe android and its features.

(*d*) Explain Fragments (Navigation Drawer) in detail.

This question paper contains **3** printed pages]

NEPKR—118—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

COMPUTER SCIENCE

Paper SCMPSC-452

(Cloud Computing)

(Monday, 20-4-2026) **Time : 10.00 a.m. to 12.30 p.m.**

Time—2½ *Hours* *Maximum Marks*—60

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

(2) Solve any *three* questions from Q. No. **2** to Q. No. **6**.

(3) Assume suitable data, if necessary.

1. Attempt the following : 15

(*a*) What is Cloud Computing ? Discuss its benefits.

(*b*) Explain in brief Redundant cloud architectural style in cloud applications.

P.T.O.

(*c*) Explain the concept of resource bundling.

(*d*) Discuss the merits and demerits of virtualization.

(*e*) Explain the concept of Public and Private IP.

2. Attempt the following : 15

(*a*) Explain Cloud Models with example.

(*b*) Explain the taxonomy of virtual machines.

(*c*) Discuss the utility computing.

3. Attempt the following : 15

(*a*) Explain the policies and mechanisms for cloud resource management.

(*b*) Explain technologies for virtualization-based security enhancement.

(*c*) Explain the concept of full virtualization and para virtualization.

4. Attempt the following : 15

(*a*) Explain NIST cloud computing reference architecture.

(*b*) Explain the concept of AWS elastic computing.

(*c*) Distinguish system virtual machine and process virtual machine.

5. Attempt the following : 15

(*a*) Explain Amazon cloud services.

(*b*) Describe the types of Virtualization Techniques.

(*c*) Explain in brief AWS management console.

6. Attempt the following (any *three*) : 15

(*a*) Explain the features of Google Cloud.

(*b*) Explain in brief multi-tier architecture.

(*c*) Explain the concept of Application Scaling.

(*d*) What is the difference between on demand and spot instances pricing ?

This question paper contains **3** printed pages]

NEPKR—219—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

(NEP-2020 Pattern)

COMPUTER SCIENCE

Paper-SCMPSC-453

(NoSQL with MongoDB)

(Wednesday, 22-4-2026) **Time : 10.00 a.m. to 12.30 p.m.**

Time—2.30 *Hours* *Maximum Marks*—60

N.B. :— (*i*) First question is compulsory.

(*ii*) Solve any *three* questions from Q. No. 2 to Q. No. 6.

(*iii*) Assume suitable data if necessary.

1. Attempt the following : 15

(*a*) Discuss the emergence of NoSQL.

(*b*) What is Sharding ?

(*c*) Explain the concept of Partitioning and Combining.

(*d*) What is Event Logging ?

(*e*) What is Riak ?

P.T.O.

2. Attempt the following : 15

(*a*) Discuss the value of relational databases.

(*b*) Explain the impedance mismatch in NoSQL.

(*c*) Explain the CAP Theorem.

3. Attempt the following : 15

(*a*) Explain two stage map-reduce.

(*b*) Discuss the concept of Partitioning and Combining.

(*c*) Explain the key value databases.

4. Attempt the following : 15

(*a*) Explain the concept of Event Logging.

(*b*) What is document database ? Discuss the key features of document database.

(*c*) Explain Web Analytics.

5. Attempt the following : 15

(*a*) Describe the transactions in graph databases.

(*b*) Describe when to avoid graph databases.

(*c*) What is apache hbase ? Discuss its applications.

6. Attempt the following (any *three*) : 15

(*a*) Explain consequences of aggregate orientation in NoSQL.

(*b*) Explain version stamps.

(*c*) What is two stage map-reduce ? Explain with example.

(*d*) Explain the features of MongoDB.

This question paper contains **2** printed pages]

NEPKR—10—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

(NEP Pattern)

COMPUTER SCIENCE

(SCMPSC-501)

(Image Processing using Python)

(Thursday, 16-4-2026) **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*) Attempt any *three* from Q. No. 2 to Q. No. 6.

1. Attempt the following : 20

(*a*) Explain image representation.

(*b*) Discuss about edge detection of image.

(*c*) Explain feature extraction.

(*d*) Discuss about Hu moments.

P.T.O.

2. Answer the following :

(*a*) Discuss in detail Fourier transform. 10

(*b*) Explain MRI and CT image analysis. 10

3. Answer the following :

(*a*) Discuss about histogram equalization. 10

(*b*) What are the different noise reduction techniques ? Explain. 10

4. Answer the following :

(*a*) Discuss about scikit-image package in Python. 10

(*b*) How do you load and display images using OpenCV ? Explain. 10

5. Answer the following :

(*a*) Discuss texture analysis using gray-level co-occurrence matrix. 10

(*b*) Explain satellite image processing. 10

6. Attempt the following :

(*a*) Discuss about image acquisition and sampling. 10

(*b*) Explain region-based segmentation. 10

This question paper contains **2** printed pages]

NEPKR—69—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

(NEP Pattern)

COMPUTER SCIENCE

Paper SCMPSC-502

(Hibernate and Spring Framework)

(Saturday, 18-4-2026) **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) Attempt any *three* from Q. No. **2** to Q. No. **6**.

1. Attempt the following : 20

(*a*) Define ORM Framework.

(*b*) What is Hibernate Query Language ?

(*c*) Describe an introduction to Spring MVC.

(*d*) Explain the concept of Prototype Scope.

P.T.O.

2. Attempt the following :

(*a*) Explain Hibernate Architecture in detail. 10

(*b*) Demonstrate the Hello World example with explanation. 10

3. Attempt the following :

(*a*) Explain the Spring Architecture with diagram. 10

(*b*) Describe the Components of Spring MVC. 10

4. Attempt the following :

(*a*) Define Object. How to insert and retrieve the object suitable example ? 10

(*b*) Define Spring Boot. Describe Spring Boot Web App. 10

5. Attempt the following :

(*a*) Explain the Hibernate Session and Session Factory. 10

(*b*) Describe the Mapping with Annotations. 10

6. Attempt the following :

(*a*) Discuss on “CURD Operations”. 10

(*b*) Explain Dependency Injection in detail. 10

This question paper contains **2** printed pages]

NEPKR—169—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

(NEP 2020 Pattern)

COMPUTER SCIENCE

Paper SCMPSC-503

(Blockchain Technology)

(Tuesday, 21-4-2026) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—80

N.B. :— (*i*) Question paper consists of 6 questions, each question carries **20** marks.

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

(*iii*) Solve any *three* questions from Q. No. **2** to Q. No. **6**.

(*iv*) Draw well labelled diagram if necessary.

1. Attempt the following questions : 20

(*a*) What is Bitcoin ?

(*b*) Enlist Blockchain Challenges.

(*c*) What is a Transaction ?

(*d*) Explain Enterprise Blockchain.

P.T.O.

2. Attempt the following questions : 20

(*a*) Explain Layout of Solidity Source File.

(*b*) Explain Hyper ledger Aries.

3. Attempt the following questions : 20

(*a*) Blockchain Technology Mechanisms.

(*b*) Explain impact of Blockchain Technology on Cryptocurrency.

4. Attempt the following questions : 20

(*a*) Explain Ethereum Accounts.

(*b*) Explain Hyperledger Fabric.

5. Attempt the following questions : 20

(*a*) Explain Structure of Smart Contracts.

(*b*) Explain Future of Blockchain.

6. Attempt the following questions : 20

(*a*) Explain Transactional Blocks.

(*b*) Explain Decentralization and Hard Forks.

This question paper contains **2** printed pages]

NEPKR—290—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

(NEP Pattern)

COMPUTER SCIENCE

Paper SCMPSE-501

(Internet of Things)

(Thursday, 23-4-2026) **Time : 2.00 p.m. to 4.30 p.m.**

Time— 2.30 *Hours* *Maximum Marks*—60

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

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

(*iii*) Solve any *three* questions from remaining five questions (Q. No. **2** Q. No. **6**).

1. Answer the following questions (**5** marks each) : 15

(*a*) Explain the Enabling of IoT.

(*b*) What is Actuator ? Explain its characteristics.

(*c*) Describe the virtualization in IoT connectivity technologies.

P.T.O.

2. Answer the following questions : 15

(*a*) Explain the wireless sensor in IoT networks. 8

(*b*) Explain the communication cyber physical systems in IoT networking. 7

3. Answer the following questions : 15

(*a*) Describe the evolution of IoT. 8

(*b*) Describe the addressing strategies in IoT. 7

4. Answer the following questions : 15

(*a*) Explain the different characteristics of Actuators. 8

(*b*) Explain the Arduina in Microcontroller devices. 7

5. Answer the following questions : 15

(*a*) Explain processing topologies in IoT. 8

(*b*) Explain cloud models in IoT connectivity technologies. 7

6. Answer the following questions : 15

(*a*) Explain the challenges associated with IoT. 8

(*b*) Describe the emerging pillars of IoT. 7

Total No. of Printed Pages:02

SUBJECT CODE NO- NEPKR-45-2026

FACULTY OF SCIENCE AND TECHNOLOGY

EXAMINATION SUMMER 2026

M.SC. (SECOND YEAR) (SEM-IV)

RESEARCH PUBLICATION ETHICS

NEPRPE-1002

[Time: 2:00 Hours] **[Max. Marks:40]**

"Please check whether you have got the right question paper."

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

(ii) Solve any three questions from Question number 2 to 6

Q1. Write note on: **10**

a) Scope of philosophy.
b) Principles of good scientific practices.
c) Objective of publishing paper.
d) Open access publication.
e) International standard book number.

Q2. a) Write briefly on any two branches of philosophy. **5**
b) Explain common form of scientific misconduct. **5**

Q3. a) What constitute a violation of publication ethics? **5**
b) Mention various steps of Sherpa Romeo online resource to view detail of journal. **5**

Q4. a) What are the characteristics of predatory journals? **5**
b) What is i_{10} index? calculate the i_{10} index of following citation. **5**

Rank	Citation
1	29
2	26
3	15
4	14
5	12
6	11
7	11
8	09
9	06

Q5. a) Define publication ethics. Discuss unethical practices prevalent in research publications. **5**

b) What is plagiarism? Explain its types and importance in research. **5**

Q6. Explain: **10**

a) Types of ethics.

b) Salami slicing

c) Elsevier

d) Turnitin

This question paper contains **2** printed pages]

NEPKR—119—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

(NEP)

COMPUTER SCIENCE

Paper SCMPSC-551

(Web Application with MVC Core)

(Monday, 20-4-2026) **Time : 2.00 p.m. to 5.00 p.m.**

Time— 3 *Hours* *Maximum Marks*—80

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

(*ii*) Attempt any *three* questions from Q. No. **2** to Q. No. **6**.

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

1. Attempt the following : 20

(*a*) What is ASP.NET core MVC ?

(*b*) Explain Action method

(*c*) What is HTML helpers ? Explain.

(*d*) Explain client side validation.

P.T.O.

2. Answer the following questions : 20

(*a*) Explain the features of ASP.NET core MVC.

(*b*) Explain life cycle of ASP.NET core request.

3. Answer the following questions : 20

(*a*) Explain in detail action selector in ASP.NET core MVC.

(*b*) What is Razor view ? Explain in detail.

4. Answer the following questions : 20

(*a*) Explain Tag, Helper in ASP.NET core MVC.

(*b*) What is model binding in ASP.NET core MVC ? Explain.

5. Answer the following questions : 20

(*a*) Differentiate between server side validation and client side validation.

(*b*) What is Remote validation in ASP.NET core MVC ? Explain.

6. Answer the following questions : 20

(*a*) What is generic repository ? Explain.

(*b*) Explain in detail routing constraints.

This question paper contains **2** printed pages]

NEPKR—220—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

COMPUTER SCIENCE

Paper-SCMPSC-552

(Introduction to AI and ML)

(Wednesday, 22-4-2026) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—80

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

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

(*iii*) Solve any *three* questions from remaining five questions (Q. No. 2 to Q. No. 6).

1. Answer *all* of the following questions : 20

(*a*) Define AI. Explain evolution of AI.

(*b*) Explain types of search algorithms.

(*c*) Explain data set for machine learning.

(*d*) Explain the supervised learning in Machine Learning.

P.T.O.

2. Answer the following questions : 20

(*a*) Explain classification types of AI in detail.

(*b*) Explain techniques of knowledge representation.

3. Answer the following questions : 20

(*a*) Explain Machine learning life cycle.

(*b*) Explain types of learning.

4. Answer the following questions : 20

(*a*) Explain Artificial intelligence *vs* Machine learning.

(*b*) What is regression ? Explain assessing performance of regression.

5. Answer the following questions : 20

(*a*) Explain concept of rationality in detail.

(*b*) Explain machine learning life cycle.

6. Answer the following questions : 20

(*a*) Explain types of unsupervised learning algorithms.

(*b*) Explain types of reasoning and probabilities reasoning.