

S. S. JAIN SUBODH P. G. COLLEGE, JAIPUR (Autonomous)
Assignment October, 2026
Programme - M.Sc. IT I Semester
Paper - MSIT101 (Programming Fundamentals)

Note: Attempt any four Questions selecting at least one question from each unit. Each Question Carries equal marks.

UNIT - I

1. Write short notes on
 1. Data Types
 2. C Tokens
 3. Basic Structure of a C Program
2. Explain all the Operators available in C programming language with a suitable example.

UNIT - II

3. What is an array? Write a program to find the maximum of an array of n elements.
4. What is a function? What are the different categories of a function? Explain all of them with the help of a suitable example.

UNIT - III

5. What is a structure? Write a 'C' Program to read and display data of n students using array of structures.
6. What is pointer? Write a 'C' Program to swap two numbers using pointers.

UNIT - IV

7. What is a File? Write a C program to input data into a file from keyboard and then display the contents of the file on the display screen.
8. What is Dynamic Memory Allocation? What are the different functions available in Dynamic Memory Allocation? Explain them.

S. S. JAIN SUBODH P. G. COLLEGE, JAIPUR (Autonomous)
Assignment October, 2026
Programme - M.Sc. IT I Semester
Paper - MSIT102(Database Management System)

Note: Attempt any four Questions selecting at least one question from each unit. Each Question Carries equal marks.

UNIT-I

Q1. Define DBMS. Explain the need and importance of a Database Management System.

Q2. Differentiate between the following (**any two**)-

- a. 2-Tier and 3-Tier Architecture
- b. Logical and Physical Data Independence
- c. Schema and Instance

UNIT-II

Q3. What is Relational Algebra? Explain any five relational algebra operations with suitable examples.

Q4. Discuss Normalization. Why it is needed? Explain 1-NF, 2-NF and 3-NF with example.

UNIT-III

Q5. Define SQL. Explain DDL and DML commands of SQL.

Q6. What is Transaction? Explain ACID properties of Transaction.

UNIT-IV

Q7. Define Deadlock. Explain Deadlock Prevention with example.

Q8. Write notes of Following (**any two**)-

- a. Distributed Database
- b. Client-Server Database
- c. Two-Phase Locking Protocol

S. S. JAIN SUBODH P. G. COLLEGE, JAIPUR (Autonomous)
Assignment October, 2026
Programme - M.Sc. IT I Semester
Paper - MSIT103(Fundamentals of Information Technology)

Note: Attempt any four Questions selecting at least one question from each unit. Each Question Carries equal marks.

UNIT – I

- 1). Explain the different generations and classifications of computers with suitable examples.
- 2). Explain different input and output devices such as keyboard, pointing devices, scanners, printers, plotters, monitors, projectors, and terminals.

UNIT- II

- 3). What is a Central Processing Unit (CPU)? Explain its major components and functions.
- 4). Explain the memory hierarchy of a computer. Differentiate between primary and secondary memory.

UNIT- III

- 5). What is an algorithm? Explain its characteristics and write an example of a simple algorithm.
- 6). What is a flowchart? Explain commonly used flowchart symbols with a suitable example.

UNIT- IV

- 7). What is the Internet? Explain its evolution and basic Internet terms.
- 8). What is a web browser and search engine? Explain their uses with suitable examples.

S. S. JAIN SUBODH P. G. COLLEGE, JAIPUR (Autonomous)
Assignment October, 2026
Programme - M.Sc. IT I Semester
Paper - MSIT104(Computer Architecture)

Note: Attempt any four Questions selecting at least one question from each unit. Each Question Carries equal marks.

Unit- I

1. What is Computer? Explain the Digital computer system with diagram.
2. Explain sequential circuit with diagram and truth table..

Unit- II

3. Explain the motherboard with RISC and CISC processor.
4. (a) What are the different types of System Buses explain with Diagram.
(b) Explain Expansion Slots :-ISA, MCA, EISA, PCI, AGP

Unit- III

5. Explain Input and Output devices in details.
6. Write short note on the following:-
 - a) Hard disk
 - b) Magnetic tape
 - c) Modem
 - d) Optical disk

Unit- IV

7. What is memory in computer organization? Explain in detail
8. Describe about the Addressing data transfer techniques.

S. S. JAIN SUBODH P. G. COLLEGE, JAIPUR (Autonomous)
Assignment October, 2026
Programme - M.Sc. IT / AI and Data Science / Cyber Security
I Semester
Paper - MSIT105 / MSAIDS105 / MSCS105 (Operating System)

Note: Attempt any four Questions selecting at least one question from each unit. Each Question Carries equal marks.

UNIT - I

1. What is Operating System. Explain its functions? What are different Types of Operating Systems?
2. Write short notes on
 - I. Assemblers/ Interpreters/ Compilers
 - II. Hierarchical/Layered Organization of OS

UNIT - II

3. i) What do you mean by Process. Explain process life cycle with suitable diagram?
ii) What is Scheduling? Explain different types of scheduling algorithms?
4. Explain what is Deadlock and conditions necessary for occurrence of Deadlock? What are mechanisms of Deadlock avoidance and recovery?

UNIT - III

5. Explain the concept of Memory Management techniques?
6. Explain concept of Virtual Memory with suitable diagram? What do you mean by Demand Paging explain?

UNIT - IV

7. Explain the following
 - i) Disk Structure ii) Access Methods iii) Sharable and Non Sharable Device
8. What do you mean by File and Directory Structure? What do you mean by file allocation methods?

S. S. Jain Subodh PG (Autonomous) College, Jaipur
M.Sc. (IT)- III Semester
.Net Technologies(MSIT301)
Assignment

Note- Attempt four questions, one question from each unit. Write answer in at least 500 words with good presentation. Each question carries equal marks.

Unit-I

1. Explain Architecture of the .Net framework with diagram.
2. What is namespaces explain with an example?

Unit-II

3. What is State Management in ASP.Net? Describe client side and server side techniques with suitable examples?
4. Write short note on with example:
(i) Page life cycle events (II) Rich Web Controls (III) Validation Controls

Unit-III

5. What is Web service? Discuss the steps involved in creating in web service in ASP.NET How the services are utilized other applications.
6. Write short note on with example:
(i) UDDI (II) SOAP (III) WSDL (IV)WebService Proxy

Unit-IV

7. Explain ADO.NET Object Model with examples.
8. Write short notes on:
(i) Write a Programme for Populating DropDownList&GridView Control from database.
(ii) .Net Data Providers
(iii) ExecuteNonQuery(), ExecuteScalar(), ExecuteReader()

S. S. Jain Subodh PG (Autonomous) College, Jaipur
M.Sc. (IT)- III Semester
Python Programming(MSIT302)
Assignment

Note- Attempt four questions, one question from each unit. Write answer in at least 500 words with good presentation. Each question carries equal marks.

Unit – I

1. Explain the basic features of Python programming language. Discuss standard data types, operators, and built-in functions with suitable examples.
2. Explain conditional and looping statements in Python in detail. Describe break, continue, and pass statements with appropriate examples.

Unit – II

3. Explain Lists and Tuples in Python in detail. Discuss their characteristics, creation, indexing, slicing, operators, built-in functions, and important built-in methods with suitable examples.
4. What are Dictionaries and Sets in Python? Explain dictionary keys, built-in functions and methods, set operations, comparison of sets, and set comprehensions with suitable examples.

Unit – III

5. What are Regular Expressions in Python? Explain the important symbols and characters used in regular expressions and describe how regular expressions are implemented in Python with suitable examples.
6. Explain exception handling in Python in detail. Discuss detecting and handling exceptions, raising exceptions, assertions, and standard exceptions with suitable examples.

Unit – IV

7. Explain Object-Oriented Programming in Python. Discuss the principles of object orientation, classes, objects, creating classes, instance methods, and class variables with suitable examples.
8. Explain inheritance and polymorphism in Python. Also discuss type identification and illustrate these concepts with suitable Python programs.

S. S. Jain Subodh PG (Autonomous) College, Jaipur
M.Sc. (IT)- III Semester
PHP Programming (MSIT303)
Assignment

Note- Attempt four questions, one question from each unit. Write answer in at least 500 words with good presentation. Each question carries equal marks.

Unit- I

1. Discuss various features of PHP in detail. Also explain different data types of PHP.
2. With the help of examples, explain various control statements of PHP.

Unit- II

3. Describe the process of defining a function in PHP, including parameter passing and returning values. Also explain scope of variables
4. With the help of suitable examples, Explain the different types of arrays in PHP.

Unit- III

5. What are superglobal variables? Explain with appropriate examples.
6. Describe cookies & session management in PHP.

Unit- IV

7. Explain the key steps involved in working with files in PHP, including opening and closing files, copying, renaming, and deleting files. Discuss the different file opening modes and when to use each mode. Also Provide examples of reading and writing operations on files in PHP.
8. Write a note on “*Database Handling in PHP*”.

S. S. Jain Subodh PG (Autonomous) College, Jaipur
M.Sc. (IT)- III Semester
E-Commerce Application Development(MSIT304)
Assignment

*Attempt any Four questions, attempt at least one question from each unit.
Each Question Carries equal marks*

Unit - I

1. Define Ecommerce? Explain its advantage and disadvantages.
2. What is the difference between Traditional commerce and Ecommerce.

Unit - II

3. Explain Brokerage Model and Info-Mediary Model.
4. What do you mean by Competitive advantages? Explain competitive force of Portal's model.

Unit – III

5. What is EDI? Explain all types of EDI and its standards.
6. Explain following
 - a. Electronic Catalogs
 - b. Digital Libraries
 - c. E-governance
 - d. Firewall

Unit – IV

7. Explain all types of payment systems.
8. What do you mean by Payment Gateway?

S.S. JAIN SUBODH P.G. COLLEGE JAIPUR (AUTONOMOUS)

ASSIGNMENT - OCTOBER 2026

M.Sc. Information Technology (Software Engineering and Testing)

Course Code: MSIT305

Subject: Software Engineering and Testing

Maximum Marks: 40 Marks

General Instructions:

- Read all questions carefully.
- Answer all sections as directed. Each question comes with an internal choice (OR).

SECTION A: UNIT - III

(Software Requirements and System Design) 7 + 7 + 6 Marks = Marks: 20

Question 1(a) Explain the primary Requirement Engineering Tasks in detail. Discuss the core objectives of Requirement Analysis and how it bridges system engineering and software design. (7 Marks)

OR

(b) Compare Data Modeling and Flow-Oriented Modeling approaches. Explain how data objects, attributes, and relationships are structured during requirement analysis modeling.

Question 2 :(a) What is Object Oriented Analysis (OOA)? Discuss its fundamental principles and how use-case modeling, class-responsibility-collaborator (CRC) modeling, and behavioral modeling are performed.(7 Marks)

OR

(b) Explain the foundational System Design Concepts (such as abstraction, architecture, patterns, and information hiding). Discuss the key elements of Architectural Design and Data Design models.

Question 3 :(a) Define Interface Design in software engineering. Discuss the golden rules of user interface design and how human-computer interaction (HCI) principles are integrated. (6 Marks)

OR

(b) What is Component-Level Design? Describe the design guidelines for components, cohesion and coupling at the component level, and their significance in building reusable software elements.

SECTION B: UNIT - IV (Software Testing, SQA & Advanced Topics)

Questions × 5 Marks = 20 Marks

Question 4 :(a) Explain Software Testing Fundamentals. Describe the testing hierarchy through the testing strategies: Unit Testing and Integration Testing.(5 Marks)

OR

(b) Differentiate between Validation Testing and System Testing. Explain the role of recovery testing, security testing, stress testing, and performance testing.

Question 5 :(a) Compare and contrast Black-Box Testing and White-Box Testing approaches. State their primary advantages and limitations in uncovering logical vs. functional errors. (5 Marks)

OR

(b) Provide a detailed technical comparison highlighting the fundamental differences between Black-Box and White-Box testing methodologies, focusing on test case derivation techniques.

Question 6 :(a) Discuss Software Quality Assurance (SQA). Explain core quality concepts, the SQA group's responsibilities, and formal technical reviews (FTR). (5 Marks)

OR

(b) What is Software Reliability? Explain how software reliability differs from hardware reliability, and discuss metrics used to measure reliability and availability.

Question 7 :(a) **What are** Computer-Aided Software Testing (CAST) Tools? **Discuss how automation tools enhance testing efficiency, test management, and execution across the lifecycle. (5 Marks)**

OR

(b) Define **Software Reengineering**. Explain the reengineering process model (inventory analysis, document restructuring, code restructuring, data restructuring) and its role in maintaining legacy software.