

S. S. Jain Subodh PG (Autonomous) College, Jaipur
M. Sc. IT (AI and DS) I Semester, October 2025
Programming Fundamentals (MSAIDS101)
Assignment

Note: Attempt any four Questions from any of the unit. Each Question Carries equal marks.

UNIT - I

1. Write short notes on
 - i. Data Types
 - ii. C Tokens
 - iii. 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)

M.Sc IT (AI and DS) OCT 2025

**Subject –Database Management System
(MSAIDS-102)**

ASSIGNMENT

Instructions to students: - Attempt any **four** questions.

UNIT-I

Q1. Explain different architectures of DBMS with neat diagrams. Also explain different views of Data Schemes and Instances.

Q2. Write short notes on following-

- a) Data Independence
- b) Entities and attributes
- c) Relationship set

UNIT-II

Q3. What is Normalization? Differentiate between 2NF and 3NF normal form in DBMS.

Q4. Write short notes on the following relational algebra operations-

- a) Join
- b) Cartesian Product
- c) Projection

UNIT-III

Q5. Write a short note on Structured Query Language. Explain its different data types and operators.

Q6. Create a table named as “Student” with the following attributes and also insert 10 records in the given table.

Stu_ID Number (2) Primary Key,
Stu_Name Varchar (10) NOT NULL,
Address Varchar (15),
Phone Number (10)

UNIT-IV

Q7. What is a Deadlock? Explain the deadlock detection and recovery techniques.

Q8. Write short notes on following-

- a) Distributed database
- b) Client-Server database
- c) Lock Based Protocols

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

Affiliated to University of Rajasthan, Jaipur

CIA-I M. Sc. AI DS Semester I Oct, 2025

Subject: Data Communication and Networking

Paper Code: MSAIDS103

Name of the Paper Setter: Dr. Ravi Shankar Sharma

Instructions to students: - Attempt any **four** questions.

Unit 1

Q1. What is Communication System? Explain the different components of data communication system.

Q2. Write short notes on:

(i). Synchronous and Asynchronous Transmission

(ii). Communication Channels

Unit 2

Q3. Differentiate between Twisted pair cable and Co-axial cable with the help of diagram.

Q4. What is Multiplexing? Explain the TDM and FDM.

Unit 3

Q5. Explain the functions of Transport Layer and Application layer in networking.

Q6. What is an Error? Explain error detection and correction methodologies.

Unit 4

Q7. What are the uses of Bridge, Router and Switch?

Q8. Differentiate between FTP, Telnet, DNS and DHCP.

S. S. Jain Subodh P. G. College, Jaipur

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M.Sc.IT (AI and DS) First Semester, October 2025

Subject: Computer Architecture (MSAIDS104)

ASSIGNMENT

Note: Attempt any four questions each from one 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. What are the different types of System Buses explain with Diagram.
4. (a) Explain the different types of RAM in Detail.
(b) Explain the motherboard with RISC and CISC processor

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.

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M.Sc.IT (AI & DS) Assignment October 2025

Subject: Operating System

Paper Code: MSAIDS105

Unit – I

Q1) Explain different types of Software ? Describe about Translators, Assemblers, Compilers and Interpreters?

Q2) What is Operating System? Explain functions, Evolution and Characteristics of Operating System?

Unit – II

Q3) a) What is Process? Explain Process lifecycle in detail?

b) What is Scheduling? Explain different types of scheduling algorithms with example?

Q4) Define Deadlock? Explain deadlock prevention and avoidance techniques?

Unit – III

Q 5) Explain different memory management techniques? How single partitioning differs with multiple partition allocation?

Q6) What do you mean by Virtual Memory? Explain demand paging with suitable examples?

Unit – IV

Q7) Explain disk storage structure and access method? Explain management of sharable and non-sharable devices?

Q8) Explain file organization and access mechanism? What do you mean by file protection and security?