JIIT NOIDA

DEPARTMENT OF COMPUTER APPLICATIONS

MSC (COMPUTER SCIENCE)

1. Analytical and Verbal Reasoning

- Quantitative Aptitude
- Logical Reasoning and Analytical Ability
- Data interpretation

2. Mathematics and Statistics

- Linear Algebra: Matrices, Eigenvalues & Eigenvectors
- Probability and Statistics: Random Variables, Probability Distributions, Bayes' Theorem, Descriptive Stats
- Calculus: Derivatives, Integrals, Gradient Descent Basics
- Discrete Mathematics: Logic, Sets, Graph Theory, Combinatorics
- Statistics: fundamentals, measurement of central tendency, sampling theory, sampling distributions, Matrix manipulation, Linear equation.

3. Data Structures and Algorithms

- Representation and operations on Arrays, Linked List, Stack, Queues, Circular queue, Priority queue
- Trees and Graphs
- Searching: Linear search, Binary search
- Sorting: Insertion Sort-Bubble sort-Merge Sort – Quick Sort-Heap sort.

4. Database Management Systems

- Structure of Relational Databases
- SQL: Overview of the SQL Query - Language - SQL Data Definition - Basic Structure of SQL Queries - Set Operations - Aggregate Functions - Nested Subqueries
- E-R Model: Overview of the Design Process - The Entity Relationship Model
- Normal Forms - Decomposition Using Functional Dependencies - Decomposition Using Multivalued Dependencies

5. Operating Systems:

- Introduction to Operating Systems Multiprocessing, Multi-Tasking, Multiprogramming
- Processes, threads, Inter-process communication
- Deadlock Avoidance, Prevention-Detection
- CPU scheduling
- Memory management paging, segmentation and virtual memory.

6. Computer Networks Data Communications

- Network Models: TCP/IP Protocol Suite , The OSI Model
- Transmission Media: Guided Media-Unguided Media
- IP Addressing & Routing