NOTE:
- There will be 20 Multiple Choice Questions (MCQs) of 1 Marks each and
- 8 descriptive questions of 4 Marks each, out of which students need to solve 5 Questions only.


Graph: Definition, walks, paths, trails, connected graphs, regular and bipartite graphs, cycles and circuits. Tree and rooted tree. Spanning trees, Eccentricity of a vertex radius and diameter of a graph. Central Graphs. Centre(s) of a tree. Hamiltonian and Eulerian graphs, Planar graphs.


Database Concepts: E-R diagrams and their transformation to relational design. Normalization-INF, 2NF, 3NF, BCNF and 4NF. Limitations of 4NF and BCNF.SQL: Data Definition Language (DDL), Data Manipulation Language (DML), Data Control Language (DCL) commands. Database objects like-Views, indexes, sequences, synonyms, data dictionary.

Big database: Big Data Processing Architectures, Big Data Technologies, Big Data Analysis, Big Data Analytics Software, Big Graph Search.

Data Mining: Issues, Data Mining Techniques, Data mining Tools, Classification, Clustering, Data Mining Metrics.

Information Retrieval and Web mining: Web Mining, Data mining with unstructured data, Text mining, Tools and Techniques.

Parallel and Distributed Computing: Task partitioning and load balancing in parallel distributed computing, Advanced scheduling methods, dynamic task scheduling, and loop scheduling, Load balancing methods (deterministic and stochastic algorithms, optimality analysis, methods using combinatorial optimization).

Information Systems: Use of Computers in Managerial applications, Technology issues and Data processing in organizations, Information systems, MIS and Decision making, System analysis and design, Internet and Internet-based applications, Advanced concepts of information system: Enterprise Resource Planning, the role of ERP systems in business processes, business intelligence tools.


