

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc(SS) DEGREE EXAMINATION DECEMBER 2025
(Ninth Semester)

Branch – SOFTWARE SYSTEMS (five years Integrated)

MODERN DATABASE SYSTEMS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 Which of the following techniques is used in parallel query optimization?
(i) Data partitioning (ii) Transaction locking
(iii) Query caching (iv) Data replication
- 2 In data modeling for big data, a key focus is on:
(i) Fixed schema flexibility (ii) Relational integrity
(iii) Normalization of tables (iv) Handling unstructured data
- 3 In Redis, data is primarily stored in:
(i) Distributed file systems (ii) In-memory data structures
(iii) Column families (iv) Disk-based tables
- 4 In a graph database like Neo4j, relationships are represented as:
(i) Edges (ii) Documents
(iii) Columns (iv) Keys
- 5 Which component in HDFS is responsible for managing metadata?
(i) Job Tracker (ii) Task tracker
(iii) Name Node (iv) Data Node

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a Elucidate the Distributed Query Processing and Optimization.
OR
b Explain about Data Model & its types.
- 7 a Explain the Basic Principles of NoSQL models.
OR
b Explain the challenges in Big Data.
- 8 a Enumerate about the Amazon DynamoDB NoSQL database service.
OR
b Explain about Apache Cassandra.

Cont...

- 9 a Explain' the Structure and features of Neo4j.
OR
b Elucidate about the Apache CouchDB.
- 10 a Illustrate about the Microsoft Azure in detail.
OR
b Justify about Automatic Schema Matching.

SECTION -C (30 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks

(5 x 6 = 30)

- 11 a Prepare and state the ANSI/SPARC Architecture.
OR
b Explain the Architecture of parallel databases.
- 12 a Determine the NoSQL data Models with example.
OR
b Classify the various types of NOSQL database.
- 13 a Illustrate the Hbase Architecture.
OR
b Evaluate the in-memory Key-value store in NoSQL.
- 14 a Explain about the MongoDB.
OR
b Justify in detail about the XML databases.
- 15 a Evaluate in detail about the Big data Application.
OR
b Explain the Integration of data warehouse.

Z-Z-Z END