

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 $(5 \times 1 = 5)$

- 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 $(5 \times 3 = 15)$

- 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