21CS745

USN

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
NOSQL Database

Time: 3 hrs. Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1   a. Discuss the key difference between NOSQL and Relational databases. **(10 Marks)**
    b. Provide strategies for optimizing data models to improve application performance. **(10 Marks)**

OR

2   a. Explain impendence mismatch problem in the context of data storage, and how does it affect application development. **(10 Marks)**
    b. Describe the concept of schemaless databases and their benefits. **(10 Marks)**

Module-2

3   a. Explain the concepts of Master – Slave and Peer- to – peer replication in distributed databases. **(10 Marks)**
    b. Discuss the importance of version stamp in esuring consistency across multiple nodes in a distributed database. **(10 Marks)**

OR

4   a. Discuss the challenges associated with achieving update consistency in a distributed database system. **(10 Marks)**
    b. Discuss read consistency in distributed databases, considering factors such as staleness and isolation levels. **(10 Marks)**

Module-3

5   a. Provide an example of composing Map-Reduce calculations to process and Analyze data. **(10 Marks)**
    b. Discuss the scalability characteristics of key-value databases. **(10 Marks)**

OR

6   a. Discuss key features of key value stores and their advantages. **(10 Marks)**
    b. Describe the basic structure of data in a key value databases. **(10 Marks)**

Module-4

7   a. Explain fundamental principles of document database. **(10 Marks)**
    b. Discuss the importance of SEO (Search Engine Optimization) in the context of blogging platforms. **(10 Marks)**

OR

8   a. Provide examples of common query operations performed on document databases and explain their significance. **(10 Marks)**
    b. Explain the importance of event logging in web applications with examples. **(10 Marks)**

Module-5

9   a.   Discuss the key features of graph databases that make them suitable for handling connected data.
(10 Marks)

   b.   Identify scenarios where using a graph database may not be appropriate what are the limitations.
(10 Marks)

OR

10   a.   Describe how transactions are handled in graph database. What are the ACID properties are implemented.
(10 Marks)

   b.   Provide examples of complex queries that can be efficiency executed in graph database.
(10 Marks)

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