CBCS SCHEME

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21CS745

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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