CBCS SCHEME

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18CS823

Eighth Semester B.E. Degree Examination, June/July 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. Describe the aggregate – oriented data model in NOSQL and its consequences in data design and query patterns. **(08 Marks)**

b. Discuss the concept of schema – less databases. How does the impact application design and database operations. **(06 Marks)**

c. Briefly describe the value of relational databases. **(06 Marks)**

OR

2 a. Illustrate with an example how materialized views are used in NOSQL to improve performance. **(08 Marks)**

b. Explain the attack on clusters in the context of distributed databasis. **(06 Marks)**

c. Compare key – value , document data and column – family stores with examples **(06 Marks)**

Module-2

3 a. What is sharding in NOSQL databases? Discuss its advantages and potential challenges. **(08 Marks)**

b. Compare Master – Slave and peer – to – replication in distributed databases. Highlight their usecases and limitations. **(06 Marks)**

c. Explain about update consistency and read consistency with an example. **(06 Marks)**

OR

4 a. Describe the CAP Theorem. How does it influence the design choice's in distributed NOSQL databases. **(08 Marks)**

b. Define Version stamp's in distributed databases. How do they help in resolving conflicts during current updates? **(06 Marks)**

c. Define Quorum's . Explain read Quorum's and write Quorum's with examples. **(06 Marks)**

Module-3

5 a. Explain with a neat diagram, the partitioning and combining in map reduce. **(10 Marks)**

b. How are calculations composed in Map – Reduce? Explain with a neat diagram. **(10 Marks)**

OR

6 a. Explain two stages Map – Reduce example, with a neat diagram. **(10 Marks)**

b. Explain Basic Map – Reduce with a neat diagram. **(05 Marks)**

c. What are key value store's? List out some popular key value database. Explain how all the data is stored in a single bucket of key value data store. **(05 Marks)**

Module-4

7 a. Explain consistency and availability in MongoDB with neat diagram for configuration of replica sets. **(10 Marks)**

b. What are Document databases? Explain with an example. List and explain any 2 features of document databases. **(10 Marks)**

OR

8 a. Explain Query features in detail with examples. **(10 Marks)**

b. Briefly explain scaling feature in document databases with neat diagram. **(10 Marks)**

Module-5

9 a. What are Graph databases? Explain with example graph structure with relationships. **(10 Marks)**

b. With a neat diagram, explain the three ways in which graph databases can be scaled. **(10 Marks)**

OR

10 a. Explain consistency , transactions availability and query features with examples in graph database. **(10 Marks)**

b. Explain some suitable usecase's of graph databases and describe when we should not use graph databases. **(10 Marks)**

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