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18CS823

Eighth Semester B.E. 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. Explain the characteristics of relational databases. **(05 Marks)**

b. Illustrate Aggregate orientation and its consequences. **(10 Marks)**

c. Explain the emergence of NOSQL. **(05 Marks)**

OR

2 a. Explain how data access can be modeled in NOSQL using key value store database. **(08 Marks)**

b. What are schemaless databases? Explain its features. **(07 Marks)**

c. Explain with a neat diagram a column-family store NOSQL database. **(05 Marks)**

Module-2

3 a. Explain the data distribution model using sharding. **(10 Marks)**

b. Explain the following :
(i) Update consistency   (ii) Read consistency   (iii) Quorum
(iv) Session consistency   (v) Replication consistency **(10 Marks)**

OR

4 a. Describe the CAP theorem with suitable example. **(08 Marks)**

b. What are version stamps? List and explain the various ways of implementing it. **(08 Marks)**

c. Explain master-slave replication with neat diagram. **(04 Marks)**

Module-3

5 a. Illustrate the map-reduce operation with neat diagram. **(10 Marks)**

b. What are key-value databases? Explain key-value store database with neat diagram. **(10 Marks)**

OR

6 a. Explain partitioning and combining in map-reduce with relevant example. **(08 Marks)**

b. Explain the situation when not to use key-value store database as a database. **(08 Marks)**

c. Explain scaling and transaction feature available in key-value database. **(04 Marks)**

Module-4

7   a. Explain document database with neat diagram.   (10 Marks)

     b. Explain the suitable use cases of document databases with relevant example.   (10 Marks)

OR

8   a. Explain the features of document database.   (12 Marks)

     b. Explain the situation, when not to use document database.   (08 Marks)

Module-5

9   a. Explain graph database with neat diagram.   (12 Marks)

     b. Explain consistency and availability feature of graph database.   (08 Marks)

OR

10   a. Explain the suitable use case of graph database with relevant example.   (08 Marks)

     b. Explain Query feature, transaction and scaling features of graph database.   (10 Marks)

     c. With relevant scenario, explain when not to use graph database.   (02 Marks)

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