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18CS823

Eighth Semester B.E. Degree Examination, July/August 2022 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. What is NOSQL? Explain briefly about aggregate data models with a neat diagram. Considering example of Relations and Aggregates. (08 Marks)
- b. Briefly describe the value of Relational databases. (07 Marks)
- c. Explain briefly about impedance mismatch, with a neat diagram. (05 Marks)

OR

- 2 a. Write short notes on :

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| i) Consequences of Aggregate Orientation | ii) Key – value data model. |
| iii) Document data model | iv) Column family stores. |

(08 Marks)
- b. Explain about graph databases, with a neat diagram. (07 Marks)
- c. What are Schemaless databases? Explain. (05 Marks)

Module-2

- 3 a. What are the distribution models? Briefly explain two paths of data distribution. (10 Marks)
- b. Explain about Update consistency and Read consistency, with an example. (10 Marks)

OR

- 4 a. Write short notes on :

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| i) Single server | ii) Combining Sharding and Replication |
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(07 Marks)
- b. Explain the following :

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|--------------------------|-----------------|
| i) Relaxing consistency | ii) CAP theorem |
| iii) Relaxing Durability | iv) Quorums. |

(08 Marks)
- c. Define Version Stamps. Explain briefly about various approaches of constructing version stamps. (05 Marks)

Module-3

- 5 a. Explain with a neat diagram, the partitioning and combining in Map reduce. (10 Marks)
- b. Explain two stages Map- Reduce example, with a neat diagram. (10 Marks)

OR

- 6 a. Explain Basic Map – Reduce, with a neat diagram. (07 Marks)
- b. How are calculations composed in Map – Reduce? Explain with a neat diagram. (08 Marks)
- c. What are Key value Stores? 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. What are Document Databases? Explain with an example. List and explain any 2 features of document databases. (10 Marks)
- b. Elaborate the suitable use cases of document databases. When document databases are not suitable? Explain. (10 Marks)



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OR

- 8 a. Briefly explain scaling feature in document databases, with a neat diagram. (10 Marks)
b. Describe some example queries to use with document databases. (10 Marks)

Module-5

- 9 a. What are Graph databases? Explain with example graph structure. (08 Marks)
b. Briefly describe relationships in graph databases, with a neat diagram. (08 Marks)
c. Describe the Query features and transactions of graph databases. (04 Marks)

OR

- 10 a. Explain Scaling and Application level sharding of nodes with a neat diagram. (10 Marks)
b. Explain some suitable usecases of graph databases and describe when we should not use graph databases. (10 Marks)

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