



CBGS SCHEME

18CS823

Eighth Semester B.E. Degree Examination, June/July 2024 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. Enlist the features of NOSQL database. (04 Marks)
- b. Summarize features of column family models. (08 Marks)
- c. Discuss advantages and disadvantages of schemalessness (08 Marks)

OR

- 2 a. Explain factors contributing to the emergency of NOSQL databases. (08 Marks)
- b. Explain Impedance mismatch with the help of suitable example. (07 Marks)
- c. Describe Materialized Views. (05 Marks)

Module-2

- 3 a. What is a role of quorum in maintaining the consistency? (06 Marks)
- b. Explain CAP theorem. (04 Marks)
- c. What is version stamp? What are the ways to create version stamps? (10 Marks)

OR

- 4 a. Explain single server, master slave and peer to peer distribution models. (12 Marks)
- b. With the help of suitable example explain write-write consistency and read-write consistency. (08 Marks)

Module-3

- 5 a. Consider the example of product sales data in each year. Describe MapReduce process to compare the sales of product for each month in 2011 to the prior year. (08 Marks)
- b. Identify the situations where i) Key-value store is ideal ii) Key-value store is not best solution. (06 Marks)
- c. Write short note on increment MapReduce process. (06 Marks)

OR

- 6 a. Explain the importance of partitioning and combining in the MapReduce process. (08 Marks)
- b. Explain key value store features with respect to consistency, transactions, query features, structure of the data and scaling. (12 Marks)

Module-4

- 7 a. Compare features of Oracle with MongoDB. (04 Marks)
- b. How to ensure consistency with availability in MongoDB? (12 Marks)
- c. Why are document stores not suitable for transactions or queries with varying aggregate structures? (04 Marks)

OR

- 8 a. Describe scaling and sharding in MongoDB. (08 Marks)
- b. Explain schema changes and incremental migration in MongoDB. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8=50, will be treated as malpractice.

- c. i) Write query in SQL and MongoDB to select orderID and orderDate for a customer with ID as IN_BL_12182. (02 Marks)
- ii) Write equivalent query in MongoDB for a given SQL query.
 select * FROM customerorder, orderItem, product
 where
 customerOrder.orderID = orderItem.customerOrderID
 AND orderItem.productID = product.productID
 AND product.name LIKE '%Refactoring%' (02 Marks)

Module-5

- 9 a. Describe the procedure to add indexing for the nodes in the NE04J database. (08 Marks)
- b. Consider Barbara is connected to Jill by two distinct paths; write query with explanation to
 i) Find all these paths and the distance between Barbara and Jill along those different paths.
 ii) Find shortest path between Barbara and Jill using pathfinder and Dijkstra's algorithm. (12 Marks)

OR

- 10 a. Explain Graph database. List out use cases of Graph database. (08 Marks)
- b. Write cipher queries to
 i) Find all outgoing relationships with the type of Friend and return the friends names of person "AAAAAA" for greater depth than one.
 ii) Find relationships where a particular relationship property exists. Filter on the properties of relationships and query if a property exists or not. (06 Marks)
- c. Describe the ways to scale in graph databases. (06 Marks)

* * * * *