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FACULTY OF SCIENCE
B.Sc. (V Semester) Examination
DATA SCIENCE
Paper V (b)
(NoSQL Database)

Time: 3 Hours]

[Max. Marks: 80

Section A – (Marks: $8 \times 4 = 32$)

1. Answer any **eight** of the following:
- Why should we use impedance Mismatch?
 - What is NoSQL and what is the need of it?
 - What are aggregate-oriented databases?
 - What is single server?
 - Give a short note on quorums.
 - Give a brief note on business and system transactions.
 - What is a Key-Value store? Explain it with an example.
 - List the suitable use cases where Document databases are a good fit.
 - What is a document database? Explain it with an example.
 - What is a graph database? Explain it with an example.
 - List and explain suitable use cases for graph databases.
 - Explain problems for which column-family databases and graph databases are not the best solutions.

Section B – (Marks: $4 \times 12 = 48$)

Answer **all** questions.

2. (a) With a suitable examples give a brief note on graph databases and Schemaless Database.

Or

- (b) Give a brief note on Key-Value and Document Data Models.

[P.T.O.]

3. (a) Give a brief note on Read Consistency.

Or

(b) What is Relaxing Consistency? Briefly explain the CAP theorem.

4. (a) List and explain features of Key-Value store.

Or

(b) List and explain the features of document database.

5. (a) List and explain the features of graph database.

Or

(b) List and explain the features of column-family data store.

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Section A – (Marks: $8 \times 4 = 32$)

1. Answer any **eight** questions:
- Give a brief note on materialized views.
 - What is NoSQL and what is the need of it?
 - Give a brief note on Materialized views.
 - Why should we use version stamps on multiple nodes?
 - Give a short note on quorums.
 - What is relaxing durability?
 - List the suitable use cases where key-value stores are a good fit.
 - List the suitable use cases where document databases are a good fit.
 - List and explain problem spaces where document databases are not the best solution.
 - What is a graph database? Explain it with an example.
 - List and explain the problems where column-family databases are a good fit.
 - What is a column-family data store?

Section B – (Marks: $4 \times 12 = 48$)

Answer **all** questions.

2. (a) What are the benefits of relational databases? List and explain them.
Or
(b) Give a brief note on aggregates.
3. (a) Why we use partitioning and combining? Explain with an example.
Or
(b) List and explain composing Map-Reduce Calculations.
4. (a) List and explain features of Key-value store.
Or
(b) List and explain features of document database.
5. (a) List and explain the features of graph database.
Or
(b) List and explain the features of column-family data store.
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