

Total No. of Questions: 6

Total No. of Printed Pages:3

Enrollment No.....



Faculty of Science
End Sem Examination Dec-2023
BC3EL02 NoSQL Database

Programme: B.Sc.

Branch/Specialisation: Computer
Science

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1 i. Which of the following is a reason to use an SQL database? **1**
(a) It can easily store unstructured data.
(b) It's ACID-compliant.
(c) It can enable development in the cloud.
(d) All of these
- ii. NoSQL databases is used mainly for handling large volumes of **1**
_____ data.
(a) Unstructured (b) Structured
(c) Semi-structured (d) All of these
- iii. Which of the following represent column in NoSQL _____. **1**
(a) Field (b) Database (c) Collection (d) Document
- iv. Most NoSQL databases support automatic _____ meaning that **1**
you get high availability and disaster recovery.
(a) processing (b) scalability
(c) replication (d) all of these
- v. Which of the following is a document-oriented NoSQL Database? **1**
(a) CouchDB (b) OrientDB
(c) FlockDB (d) Hypertable
- vi. The document structure is more in line with how developers **1**
construct their ____.
(a) Network and security (b) Classes and objects
(c) Tables and relations (d) None of these

[2]

- vii. Which of the following NoSQL database store data in nodes and edges? **1**
 (a) Wide-column stores (b) Key-value databases
 (c) Graph databases (d) Document databases
- viii. _____ stores are used to store information about networks, such as social connections. **1**
 (a) Key-value (b) Wide-column
 (c) Document (d) Graph
- ix. Which of the following is not a metric used in the link building? **1**
 (a) Number of advertisements
 (b) Number of links
 (c) Domain Authority
 (d) None of these
- x. Which of the following is true about Elasticsearch? **1**
 (a) Elasticsearch is a real-time distributed and open source full-text search and analytics engine.
 (b) Elasticsearch is scalable up to petabytes of structured and unstructured data
 (c) Both (a) and (b)
 (d) None of these
- Q.2 i. Explain difference between scaling horizontally and vertically for databases. **2**
 ii. What are NoSQL databases? Name the different types of NoSQL databases. **3**
 iii. Compare NoSQL database with traditional RDBMS. **5**
- OR iv. Write a note on The CAP Theorem. **5**
- Q.3 i. What is column-family store. **2**
 ii. What are Aggregate Data Models? Explain relations and aggregates. **8**
- OR iii. Discuss about projecting fields to return from query on simple document and embedded documents. **8**
- Q.4 i. Explain Key-Value Store. **3**
 ii. Explain the concept of sharding with an example. **7**

[3]

- OR iii. Explain the importance of consistency and List the types of consistency. **7**
- Q.5 i. What is Graph Database? Write its components. **4**
 ii. Briefly explain Version Stamps on Multiple Nodes. **6**
- OR iii. Explain advantages, disadvantages and future of Graph Database. **6**
- Q.6 Attempt any two:
 i. Write short note on Web crawler. **5**
 ii. Write short note on Elastic Search. **5**
 iii. Discuss the working of a search engine. **5**

Scheme of Marking

No SQL database-BC3EL02(T)

- Q.1
- i) Which of the following is a reason to use an SQL database? **1**
(b) **It's ACID-compliant.**
 - ii) NoSQL databases is used mainly for handling large volumes of _____ data. **1**
(a) **unstructured**
 - iii) Which of the following represent column in NoSQL _____ **1**
(a) **Field**
 - iv) Most NoSQL databases support automatic _____ meaning **1**
that you get high availability and disaster recovery.
c) **replication**
 - v) Which of the following is a document-oriented NoSQL Database? **1**
a) **CouchDB**
 - vi) The document structure is more in line with how developers **1**
construct their ____.
b) **Classes and objects**
 - vii) Which of the following NoSQL database store data in nodes and **1**
edges?
c) **Graph databases**
 - viii) _____ stores are used to store information about networks, such **1**
as social connections.
d) **Graph**
 - ix) Which of the following is not a metric used in the link building? **1**
a) **Number of advertisements**
 - x) Which of the following is true about Elasticsearch? **1**
c) **Both A and B**
- Q.2
- i. Horizontal – 1 mark **2**
Vertical – 1 mark
 - ii. NoSQL definition – 1 mark **1+2**
Names of 4 types – 0.5 each, total 2 marks
 - iii. 6 Advantages of NoSQL over RDBMS – 3 marks **3+2**
4 Advantages of RDBMS over NoSQL – 2 marks
- OR
- iv. Short Note =5 marks

- Q.3
- i. Definition = 2 marks
 - ii. Aggregate Data Models definition = 2 marks
Relations + example = 3 marks
Aggregates + example = 3 marks
- OR
- iii. simple document =4 marks
embedded documents = 4 marks
- Q.4
- i. Definition = 3 marks
 - ii. Detailed concept of sharding = 5 marks
Example = 2 marks
- OR
- iii. importance of consistency = 3 marks
List the types of consistency = 4 marks
- Q.5
- i. Graph Database = 1 mark
Components = 3 marks
 - ii. Briefly explain Version Stamps on Multiple Nodes = 6 marks
- OR
- iii. Advantages=2 marks
Disadvantages = 2 marks
Future = 2 marks
- Q.6
- i. short note = 5 marks
 - ii. short note = 5 marks
 - iii. short note = 5 marks
