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PRESIDENCY UNIVERSITY BENGALURU

SCHOOL OF ENGINEERING

MAKE-UP EXAMINATION - JULY 2024

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| **Semester : VI** | **Date : 9 July 2024** |
| **Course Code : CSE2024** | **Time : 1:30 PM – 4:30 PM** |
| **Course Name : NoSQL Databases** | **Max Marks :100** |
| **Program : B.Tech** | **Weightage : 50%** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

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| **PART A** | | | |
| **ANSWER ANY 4 QUESTIONS 4Q X 5M=20M** | | | |
| 1 | Define the BASE properties. | (CO 1) | [Knowledge] |
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| 2 | Discuss the Strengths of Document Databases | (CO 2) | [Knowledge] |
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| 3 | Define sharding in the context of MongoDB. | (CO 2) | [Knowledge] |
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| 4 | Explain the various types of Indexes used in MongoDB. | (CO 3) | [Knowledge] |
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| 5 | Discuss the concept of C store in Cassandra. | (CO 4) | [Knowledge] |
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| 6 | Differentiate between Delete and Truncate operation in Cassandra using example. | (CO 4) | [Knowledge] |
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| **PART B** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 10M=50M** | | | |
| 7 | Compare the ACID properties with the BASE principles used in NoSQL databases. | (CO 1) | [Comprehension] |
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| 8 | Describe what is meant by relaxing consistency in MongoDB and provide an example of when this might be beneficial. | (CO 2) | [Comprehension] |
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| 9 | Discuss the authentication mechanism used for MongoDB security. | (CO 3) | [Comprehension] |
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| 10 | Discuss the process of database cracking and how it dynamically adjusts indexes based on query patterns. | (CO 4) | [Comprehension] |
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| 11 | Identify how MongoDB ensures update consistency and why it is important for applications that involve concurrent data modifications | (CO 2) | [Comprehension] |
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| 12 | Discuss the role of partition keys and clustering columns in the Cassandra data model. How do they influence data distribution and query performance? | (CO 3) | [Comprehension] |
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| 13 | Compare the key-value store and the column-family store data models. What are the main differences and use cases for each? | (CO 4) | [Comprehension] |
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| **PART C** | | | |
| **ANSWER ANY 2 QUESTIONS 2Q X 15M=30M** | | | |
| 14 | Write the following queries:   1. Create a database. “Library “ 2. Create a collection of “ Books.” 3. Add 10 documents with the following fields- B\_id Bname, ISBN, Pages, Price, Author\_name 4. Display the book name with a price of more than 100rs. 5. Display the book name with more than 500 pages | (CO 1) | [Apply] |
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| 15 | Write the following queries:   1. Create a database. “Sports “ 2. Create a collection of “Players.” 3. Insert 5 records into the "Players" collection with details like Player\_ID, Name, Team\_ID, Age and Salary 4. Calculate the average age of players in the league. 5. Get the total salary of players for each team. | (CO 2) | [Apply] |
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| 16 | Write the steps and program for creating a transaction session to check the balance by inserting any two records in the database. | (CO 3) | [Apply] |
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