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Question Paper Code	12308
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B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2023

Sixth Semester

Information Technology

20ITEL609 - NOSQL DATABASE TECHNIQUES

(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

	<i>Marks, K-Level,CO</i>
1. What do you understand by NOSQL databases?	<i>2,K1,CO1</i>
2. Explain “Polyglot Persistence” in NoSQL.	<i>2,K2,CO1</i>
3. Outline Master-Slave Replication.	<i>2,K2,CO2</i>
4. Why can't the document database used in case of queries against varying Aggregate Structure?	<i>2,K2,CO2</i>
5. How is keyspace created in Cassandra and what are the parameters used in creating a keyspace?	<i>2,K2,CO3</i>
6. Define HRegionServer in HBase.	<i>2,K1,CO3</i>
7. Give the structure of data in Key Value Store.	<i>2,K2,CO4</i>
8. Why can't Key Value database used to do multiple transactions?	<i>2,K2,CO4</i>
9. Formulate what are the things to be taken care when Cypher uses ASCII Art to represent patterns.	<i>2,K2,CO5</i>
10. Create a relationship with label Cricket Player, Country and property of name, DOB and POB for Player and name for Country.	<i>2,K2,CO5</i>

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Define NoSql and describe the four types of NoSQL database.	<i>13,K1,CO1</i>
OR	
b) Elaborate on the causes that led to the emergence of NoSQL.	<i>13,K2,CO1</i>
12. a) Define Replication and Sharding. Explain in detail the various styles of distributing the data.	<i>13,K2,CO2</i>
OR	
b) Describe the Query features of the document database.	<i>13,K3,CO2</i>

13. a) Discuss on Cassandra Query Language. *13,K3,CO3*
- OR**
- b) (i) Discuss brief how consistency is achieved in Cassandra? *7,K3,CO3*
(ii) How is Transaction done in Cassandra? *6,K3,CO3*
14. a) (i) Discuss the Use Cases of Riak database *7,K4,CO4*
(ii) Elaborate how Riak can be used in Shopping Cart ecommerce with an example considering the following datatypes, (Item in Product Inventory, Product Promotion (Banner Ad, Image, Video etc.), User Profile, Session Information) *6,K3,CO4*
- OR**
- b) Define Key Value Store. Illustrate about Riak database and explaining how data is queried in Riak. *13,K3,CO4*
15. a) Assess and write the query features of neo4j. *13, K3,CO5*
- OR**
- b) Explain the concepts of transaction, availability and scaling in Neo4j. *13, K4,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Consider a graph database with information about movies. The database has three types of nodes: Actor, Movie and Genre. The Actor nodes have several attributes, including "name" and "birth_year". The Movie nodes have several attributes including "title" and "year". The Genre nodes have several attributes including "name" and "description". The database has two relationships: ACTED_IN that goes from Actor to Movie nodes, and HAS_GENRE that goes from Movie to Genre nodes. *15,K3,CO6*
- Write Neo4J Cypher queries to complete the following tasks:
- (i) List all the movies in the dataset that simultaneously have the following two genres: Action and Fantasy.
- (ii) List the title of the movies and the year they were produced.
- (iii) List all the action movies in which Angelina Jolie has acted.
- (iv) List the title of the movies only.
- (v) List all the actors who have acted in Fantasy movies. List the name of the actor and the year they were born.
- OR**
- b) Briefly explain the following with examples *15,K3,CO6*
- (i) Create a node using Cypher
- (ii) Create a Relationship using Cypher
- (iii) Select data with MATCH using Cypher