

U.S.N.

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E.

Branch: Computer Science and Engineering

Course Code: 21CS7PENSD

Course: NoSQL Database

Semester: VII

Duration: 3 hrs.

Max Marks: 100

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.			UNIT - I	CO	PO	Marks
	1	a)	Define the following: i) NOSQL ii) Document Databases iii) Graph Database iv) Big Data v) Scalability	CO1	PO1	10
		b)	Compare and contrast the storage architecture of RDBMS and Document Database with suitable examples.	CO1	PO1	10
			OR			
	2	a)	Define the following: NO SQL ii. MongoDB iii. Cassandra iv. HBase v. Redis	CO1	PO1	10
		b)	Create following records using MongoDB database. { "_id": ObjectId("5ce45d7606444f199acfb1e"), "name": {given: "Alex", family: "Smith"}, "email": "email1@example.com", "age": 31 } { _id: ObjectId("5effaa5662679b5af2c58829"), email: "email@example.com", name: {given: "Jesse", family: "Xiao"}, age: 27 } { _id: ObjectId("5effaa5662679b5af2c54567"), email: "email@example.com", name: {given: "Alen", family: "Maxwell"}, age: 27 ph:9844098440 } Write queries to do the following in MongoDB 1. To print the first document from the collection 2. To print the documents which consists of phone no.	CO2	PO2	5
		c)	Write a snippet for MongoDB Python database connectivity.	CO1	PO1	5
			UNIT - II			
	3	a)	With a suitable diagram discuss the Mongo DB Architecture.	CO1	PO1	10
		b)	Describe the Storing Data In and Accessing Data from Redis database.	CO1	PO1	10

		OR			
4	a)	Explain the distributed storage architecture of Hbase.	CO2	PO2	10
	b)	With a suitable example explain different user defined Indexing in MongoDB.	CO2	PO2	10
		UNIT - III			
5	a)	Mention the advantages of Google App Engine and write a sample code to connect it with python datastore API.	CO2	PO2	10
	b)	Consider MOVIELENS dataset with three Files • movies.dat - MovieID::Title::Genres • ratings.dat- UserID::MovieID::Rating::Timestamp • users.dat- UserID::Gender::Age::Occupation::Zip-code Write a map reduce function in MongoDB to calculate the average rating for each movie in the ratings collection	CO3	PO3	5
	c)	List and explain the Commands for managing SimpleDB domains. Write the commands for the following with respect to REST API usage in amazon simpledb. i) create a domain ii) Add items to the domain' iii) add another attribute-value pair to the domain iv) remove a domain v) replace an attribute-value pair with a newer one	CO2	PO2	5
		OR			
6	a)	Define Join. Explain joins in HIVE QL.	CO1	PO1	10
	b)	List and explain the Commands for managing Simple DB domains. Write the commands for the following with respect to REST API usage in amazon simpledb i) create a domain simpleddb create-domain domain1 ii) Add items to the domain' simpleddb put domain1 item1 key1=valueA key2=value2 anotherKey=someValue simpleddb put domain1 item2 key1=valueB key2=value2 differentKey=aValue iii) add another attribute-value pair to the domain simpleddb put domain1 item1 yetAnotherKey=anotherValue iv) replace an attribute-value pair with a newer one simpleddb put-replace domain1 item1 key1=value1 newKey1=newValue1 v) list all domains simpleddb list-domains	CO2	PO2	10
		UNIT - IV			
7	a)	Discuss the following: i) MongoDB wire protocol by listing its operations	CO2	PO2	10

		ii) Membase Architecture			
	b)	Demonstrate with a sample code to use the Django web framework in connecting NOSQL	CO3	PO3	10
		OR			
8	a)	Mention the need of MongoDB classes. Explain the below given MongoDB classes with examples I. Mongo ii. MongoDB iii. Mongo Collection iv. Mongo Cursor	CO1	PO1	10
	b)	Write queries for the following using PHP driver for MongoDB database. i. Connect to a database and create a collection of your choice. ii. List all the records of a collection. iii. Sort operation. iv. Retrieve last three records.	CO3	PO3	10
		UNIT - V			
9	a)	Demonstrate the following w.r.t MongoDB database i) Backing up a single database and single collection ii) Restoring a single database and single collection	CO2	PO2	10
	b)	Demonstrate the administration tools available to backup and restore the MongoDB system.	CO2	PO2	10
		OR			
10	a)	Demonstrate the MongoDB database access using PHP code with suitable example.	CO3	PO3	10
	b)	Demonstrate with an example how to create links between two different documents stored in various locations with and without using DBref in MongoDB with Py Mongo driver.	CO3	PO3	10
