Lagdu Singh Charitable Trust's (Regd.)
THAKUR COLLEGE OF ENGINEERING & TECHNOLOGY
Autonomous College Affiliated to University of Mumbai
Approved by All India Council for Technical Education(AICTE) and Government of Maharashtra(GoM)
Conferred Autonomous Status by University Grants Commission (UGC) for 10 years w.e.f. A.Y 2019-20
Among Top 250 Colleges in the Country where NIRF India Ranking 2020 in Engineering College category
Website : www.tcetmumbai.in
Estd. 2001

IN-SEMESTER EXAMINATION-I
S.E. (Semester-IV)
SUBJECT – NoSQL

Branch: Information Technology
Div.: ALL
Duration: 60 Minutes

Date:11/03/2025
Timing: 10:00 TO 11:00 AM
Maximum Marks: 20

Instructions –

1. All questions are compulsory.
2. Assume suitable data wherever necessary and state the assumptions made.
3. Diagrams / sketches should be given wherever necessary.
4. Use of logarithmic table, drawing instruments and non-programmable calculators is permitted.
5. Figures to the right indicate full marks.

Q.1		Answer any 5 of the following questions	Marks	Course Outcomes	Learning Levels
	a.	State the purpose of using NOSQL.	2	1	R
	b.	Discuss various types of NOSQL databases	2	1	U
	c.	Define the term Non-relational Database	2	1	U
	d.	Explain the term collection and document in mogodb.	2	2	U
	e.	How can MongoDB be used for building content management systems?	2	2	U
	f.	List the benefits for using column orientated database	2	3	R
	g.	differentiate between column family and super column family	2	3	R
Q.2	a.	Explain the command "FindAndModify".	5	2	U
		OR			

	b.	{
		"_id": ObjectId("5f7a24e01b42c905dcf2a6c0"),
		"username": "john_doe",
		"email": "john@example.com",
		"age": 30,
		"country": "USA",
		"interests": ["hiking", "reading", "photography"],
		"address": {
		"street": "123 Main St",
		"city": "New York",
		"zipcode": "10001"
		},
		"createdAt": ISODate("2020-10-04T08:30:00Z")
		}
		1. Find Users Older Than 25
		2. Find Users Who Live in New York
		3. Find Users with a Specific Zip Code
		4. Find Users with a Specific Interest and Age
		5. Find Users with Age Less Than or Equal to 30, Sorted by Age in Descending Order
			5	2	AN

Q.3	a.	Elaborate the working of Region Server.	5	3	A
		OR			
	b.	Explain Hbase architecture.	5	3	A

ISE-1 March 2024

ESE 2024

ESE 2024

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IN-SEMESTER EXAMINATION-II

S.E. (Semester-IV)

SUBJECT – NoSQL

Branch: Information Technology
Div.: ALL
Duration: 60 Minutes

Date:16/04/2025
Timing: 12:00 TO 01:00 PM
Maximum Marks: 20

Instructions –

1. All questions are compulsory.
2. Assume suitable data wherever necessary and state the assumptions made.
3. Diagrams / sketches should be given wherever necessary.
4. Use of logarithmic table, drawing instruments and non-programmable calculators is permitted.
5. Figures to the right indicate full marks.

Q.1		Answer any 5 of the following questions	Marks	Course Outcomes	Learning Levels
	a.	Discuss the basic data types available in Redis?	2	4	R
ISE 2 Apr 24	b.	Explain the concept of key-value storage in Redis.	2	4	R
ESE 24	c.	Discuss the key characteristics of graph databases?	2	5	R
	d.	Describe some of the features and benefits of Neo4j.	2	5	U
ISE2 Apr24	e.	Compare and contrast batch processing and real-time processing in the context of big data.	2	6	AN
	f.	Describe the relationship between scalability and expressivity in the context of NoSQL solutions.	2	6	R
	g.	Explain the concept of data volume and velocity in the context of big data.	2	6	U
Q.2	a.	Examine why Redis does not provide strong consistency with its architecture	5	4	AN
		OR			
	b.	Analyse Where does Redis fit in CAP theorem?	5	4	A
Q.3	a.	Illustrate how Neo4j can be used in credit card fraud detection system.	5	5	AN
		OR			
	b.	Explain the strategies available for scaling Neo4j to handle larger datasets or higher loads?	5	5	A

END SEMESTER EXAMINATION, MAY 2025
S.E. SEMESTER IV (CBCGS-HME 2023)

Branch:	**Information Technology (IT)**	**Q.P. Code:**	**E466RM253-2**
Subject:	**NoSQL**	**Duration:**	**2 hours**
Subject Code:	**PCC-IT 401**	**Max. Marks:**	**60**

Instructions: **1. All sections are compulsory**
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary and state the assumptions clearly.

Section-I **Short Answer Questions (Answer any 05 questions out of 06)** **(10 Marks)**
(Fundamental, Core Types)

Q. No.		Marks	CO	RBT Level	PI
1	State the purpose of using NOSQL.	2	1	R	1.6.1
2	Explain the purpose of MongoDB's aggregation framework.	2	2	A	2.6.1
3	Explain traditional RDBMS storage and column store approach.	2	3	U	2.6.5
4	Define key-value database, and how does it differ from traditional relational databases?	2	4	U	1.2.1
5	Explain the use cases of Neo4j.	2	5	R	2.8.4
6	Describe the relationship between scalability and expressivity in the context of NoSQL solutions.	2	6	R	1.5.1

Section-II **Descriptive Answer Questions (Answer any 04 out of 06)** **(20 Marks)**
(Descriptive, Comprehension Types)

1	Explain how Application tiers are used to simplify system design in NOSQL.	5	1	U	1.6.1
2	Explain various types of Indexing with syntax and example.	5	2	AN	2.6.4
3	Elaborate the working of Region Server.	5	3	A	3.8.3
4	Differentiate between Redis and RDBMS databases.	5	4	AN	2.6.4
5	How does Neo4j contribute to real-time recommendation engines?	5	5	AN	2.6.4
6	Explain the role of HDFS (Hadoop Distributed File System) in managing big data.	5	6	U	2.5.2

Section-III **Long Answer Question (Answer any 03 out of 05)** **(30 Marks)**
(Application, Analytical, Evaluation, Design Type)

1	Assume Sample Person Collection
	{
	name: "Midhuna Kaul",
	age: 23,
	place: "Mumbai",
	hobbies: ["Singing", "Reading Books"]
	}
	{
	name: "Rajendra Pal",
	age: 30,
	place: "Chennai",
	hobbies: ["Playing Cricket", "Appearing Competitive
		10	2	C	4.6.4

	Examinations"]
	}
	{
	name: "Manav Verma",
	age: 20,
	place: "Ahmadabad",
	hobbies: ["Swimming ", "Coding"]
	}
	1. Create above Person Collection with documents.
	2. Display name and age of the Person where the hobbies are either Swimming or Dancing
	3.Change the place as New Delhi whose age is 30
	4. Remove Person whose hobby is Coding
	5. Display documents of Person Collection in ascending order of age and name wise.				

2	Explain in detail each compression technique, including its underlying principles, advantages, and limitations, and illustrate how they contribute to optimizing data storage and retrieval in columnar databases.	10	3	AN	2.8.4
3	Explain all "Hash" commands with example.	10	4	R	2.5.2
4	Explain following Neo4j clauses with syntax and example 1. For each clause 2. string matching expression 3. union 4. case expression 5. order by	10	5	A	2.5.2
5	Describe how does Apache Flume facilitate the collection and processing of large-scale event logs?	10	6	R	2.7.2