

Course Code	: 2305CS101	Date	: 29-04-2024
Course Name	: Database Management System	Duration	: 150 Minutes
		Total Marks	: 70

Instructions:

1. Attempt all the questions.
2. Figures to the right indicates maximum marks.
3. Make suitable assumptions wherever necessary.

- Q.1 (A)** List and explain different types of NoSQL Databases. **4**
- (B)** Discuss three levels of Database System Architecture with the help of figure. **3**

OR

Clarify Data Dictionary and Data Warehouse.

- (C)** Explain the different roles of DBA. **7**

OR

Explain the advantages of NoSQL database.

- Q.2 (A)** Explain types of mapping cardinality. **4**
- (B)** Define Entity, attributes, and relationship. **3**

OR

Define weak entity set with example.

- (C)** Classify specialization and generalization. **7**

OR

Explain the steps to reduce an E-R diagram into database schema.

- Q.3 (A)** Explain Full Functional dependency and Partial Functional Dependency. **4**
- (B)** Describe decomposition with the help of example. **3**

OR

Explain multivalued dependency with the help of example.

- (C)** Explain 1NF, 2NF with the help of example. **7**

OR

Explain 3NF, BCNF with the help of example.

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|------------|------------|---|----------|
| Q.4 | (A) | Explain query processing with the help of example. | 4 |
| | (B) | Define transaction. Explain Transaction state diagram with diagram. | 3 |

OR

Define 2 phase locking protocol.

- (C)** Classify Immediate database modification and deferred database modification. **7**

OR

Describe schedule. Explain serial and non-serial schedule with the help of example.

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| Q.5 | (A) | Classify RDBMS and MongoDB. | 4 |
| | (B) | Define Collection, Document and Field in MongoDB. | 3 |

OR

Define Primary Key in MongoDB.

- (C)** Prepare a MongoDB query on following database. **7**
- Employee (person-name, street, city, salary, department)
Company (company-name, city),
- 1) Display name of all employees.
 - 2) Display city of employee whose name is 'Jeet'.
 - 3) Display name and city of all employees whose salary>50000.
 - 4) Display name and city of all employees whose salary>50000 and whose department is either 'CE' or 'ICT'.

OR

Prepare a MongoDB query on following database.

Job(job-id, job-title, minimum-salary, maximum-salary)

Employee(emp-no, emp-name, emp-salary, dept-no)

Deposit(acc-no, cust-name, branch-name, amount, account-date)

Borrow(loan-no, cust-name, branch-name, amount)

Department (dept-no, dept-name)

- 1) Display name of employees whose employee number is 'E001'
- 2) Display name of depositors whose branch name is not 'Kalawad Road'.
- 3) Display employee name(s) whose salary is between Rs. 20000 to 30000 and department no is between 5 and 10.
- 4) Update the salary of employee by 10% of their salary who is working in the department no 5.

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