

<b>Course Code</b>	: 2305CS101	<b>Date</b>	: 04-12-2023
<b>Course Name</b>	: Database Management System	<b>Duration</b>	: 150 Minutes
		<b>Total Marks</b>	: 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 Database Management System.

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

**OR**

Define composite attribute, multivalued attribute, and derived attribute.

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

**OR**

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

- Q.3 (A)** List and explain types of Functional dependency. **4**
- (B)** Describe decomposition with the help of example. **3**

**OR**

Explain insert anomaly and delete anomaly with the help of example.

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

**OR**

Explain 3NF, 4NF with the help of example.

- Q.4 (A)** Explain query processing with the help of example. **4**
- (B)** Define transaction. Explain ACID properties of transaction. **3**

**OR**

Define 2 phase commit protocol.

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

**OR**

Describe schedule. Explain view serializability with the help of example.

- 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 'Jay'.  
3) Display name and city of all employees who are having salary>50000.  
4) Display name and city of all employees who are having salary>50000  
and whose department is either 'CE' or 'IT'.

**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 '001'
- 2) Display name of depositors whose branch name is '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.

**\*\*\***