Jain College of Engineering & Research

Udyambag, Belagavi.

(Approved by AICTE, New Delhi, Affiliated to VTU Belagavi & Recognized by Govt. of Karnataka)

NBA Accredited Programs- ECE & ME

Program: Computer Science and Engineering(AIML)

CONTINUOUS INTERNAL EVALUATION-I

Semester: 4th **Date:** 08/04/2024

Course: Database Management System **Code: BCS403** **Max. Marks:** 50

Course Coordinator: Inchara K M **Duration:** 1 Hour 30 Min

Note: Answer any one full question choosing from each part.

Q. No.	Question	Marks	CO	PO	R.B.T. Level
	Part -A				
1 a)	What is Database? Explain the three-schema architecture with neat diagram.	8	1	5,6	L2
1 b)	What are the advantages of using DBMS? Explain.	9	2	5,7	L2
1 c)	Explain the following 1.Cardinality ratio 2. Participation 3 . Database state 4. Entity type	8	2	6,8	L2
	OR				
2 a)	Elaborate component modules of DBMS and their interactions.	8	1	5,6	L2
2 b)	Draw an ER diagram for HOSPITAL Management system with the following PATIENTS (Pssn, Lastname, First name, Phone No, Sex, DOB, Address) DOCTORS (Dssn, Lastname, First name, Phone No, Sex, DOB, Address) BEDS (Room No, Bed No, Type, Status, Price) ACCOUNTS(Date In, Date Out, Amount) Show all the types of Entities and Attributes. Explain Relationships, Participation constraints and Cardinality ratios with explanation.	9	2	6,7	L3
2 c)	What are the different types of database end users? Discuss the main activities of each.	8	2	9,10	L2
	Part -B				
3 a)	Explain the different types of Insert and Update operations on relational database.How basic operation deals with constraint violations.	10	2	5,7	L2
3 b)	Illustrate the relational algebra operators with examples for select and project operation.	8	2	5,6	L2
3 c)	Define the informal design guidelines of relational database schema.	7	4	7,8	L2
	OR				
4 a)	Consider the following Library Database Schema and write relational algebra expressions: MEMBER (MemberID, Name, Age, Address) BOOK_LOAN (LoanID, BookID, MemberID, LoanDate, DueDate) BOOK (BookID, Title, Author, Genre) (i) List all members who have borrowed books in the last 30 days. (ii) Retrieve the names of books that belong to the 'Science Fiction' genre. (iii) Find the members who have borrowed more than 3 books. (iv) Display all books borrowed by members who are under 18 years old and retrieve the names of members along with titles of book they borrowed.	10	2	5,6	L3

4 b)	Explain ER to Relational mapping algorithm with example for each step	8	2	5,7	L2
4 c)	Explain Functional Dependency and null values in a relation schema with example	7	4	5,6	L2

COURSE OUTCOMES (COs)	
1	Describe the basic elements of a relational database management system
2	Design entity relationship for the given scenario.
3	Apply various Structured Query Language (SQL) statements for database manipulation.
4	Analyse various normalization forms for the given application.
5	Develop database applications for the given real world problem.
6	Understand the concepts related to NoSQL databases.

REVISED BLOOMS TAXONOMY LEARNING LEVEL (RBT)					
L1: Remember	L2: Understand	L3: Apply	L4: Analyze	L5: Evaluate	L6: Create

PROGRAM OUTCOMES (POs)					
1	Engineering Knowledge	5	Modern tool usage	9	Individual and Team-Work
2	Problem Analysis	6	Engineer and Society	10	Communication
3	Design / Development Solutions	7	Environment and Sustainability	11	Project Management and Finance
4	Conduct Investigations of Complex problems	8	Ethics	12	Life-long Learning