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| Course Code | : 2101CS201 | Date | : 29-05-2023 |
| Course Name | : Database Management System - I | 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)** Explain advantages of DBMS. **4**
- (B)** Explain data, database & information. **3**

OR

Explain Advantages of Database.

- (C)** Write roles of DBA. **7**

OR

Draw & write three level architecture of DBMS.

- Q.2 (A)** Write different types of Attributes. **4**
- (B)** Write various mapping cardinality with suitable example. **3**

OR

Write a note on generalization & specialization with suitable example.

- (C)** Draw an ER diagram for Library Management System. **7**

OR

Draw an ER diagram for Online Movie Ticket Booking System.

- Q.3 (A)** Solve & find closure of attribute $\{AB\}^+$ for given relation R (A, B, C, D, E, F) with the functional dependencies are $F = \{AB \rightarrow C, BC \rightarrow AD, D \rightarrow E, CF \rightarrow B\}$. **4**

- (B)** Write a short note on Anomalies in RDBMS. **3**

OR

Write a short note on Lossless and Lossy Join Decomposition.

- (C)** Explain 1NF, 2NF in detail & also discuss Functional Dependency. **7**

OR

Explain 3NF, 4NF & BCNF in detail.

- Q.4 (A)** Explain Query Processing Steps in detail with sketch. **4**
- (B)** Explain Materialization in Query Processing. **3**

OR

Explain Pipelining in Query Processing.

- (C)** Explain Evaluation of Expressions in Query Processing. **7**

OR

Explain various States of Transaction in detail with diagram.

- Q.5 (A)** Define Schedule & Write a note on Serial & Non-serial Schedule. **4**
- (B)** Explain Two Phase Commit Protocol. **3**

OR

Explain Two Phase Locking Protocol.

- (C)** Prepare SQL queries for given tables. **7**

T1 (Empno, Ename, Salary, Designation, Deptno)

T2 (Deptno, DeptName)

T3 (EDPID, PrjNo, Empno)

1. Display all employees' details with their department number & name.
2. Find all employees with their project number.
3. Retrieve department wise maximum salary.
4. Find all employees who have no department.
5. Find employee number & name in which who works for admin department & having salary greater than 10000.
6. Find all department names in which employee's name is ashok.
7. Display Employee name, salary & their designation.

OR

Prepare SQL queries for given tables.

Student (RollNo, Name, DeptCode, City)

Department (DeptCode, DeptName)

Result (RID, RollNo, Semester, SPI)

1. Display the name of students with their department name & code.
2. Display student's Roll Number, Name with Semester & SPI in which SPI is greater than 7.5.
3. List out the Roll Number, Department Name along with SPI of Student.
4. Display the Name of students whose DeptCode is 5, 6, 7, 10.
5. Display Department Wise Student Count.
6. Display Student Name & City of all the students.
7. Display all the student details with their Roll Number and Name ascending.
