



Course Code : 2101CS201

Date : 03-12-2024

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 Data, Database & Meta Data with the help of an example. **4**

(B) Write an advantage of DBMS. **3**

OR

Write an applications of DBMS in various fields.

(C) Write in detail roles and responsibility of DBA. **7**

OR

Draw & write three level architecture of DBMS.

Q.2 (A) Explain Specialization & Generalization with example. **4**

(B) Draw and write various symbols used in E-R diagram. **3**

OR

List and write about types of mapping cardinality.

(C) Draw E-R diagram for Bus Ticket Booking System. **7**

OR

Draw E-R diagram for College Management 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 $F = \{AB \rightarrow C, BC \rightarrow AD, D \rightarrow E, CF \rightarrow B, CD \rightarrow E\}$. **4**

(B) Discuss Lossy & Lossless Decomposition. **3**

OR

Explain Anomalies in brief.

(C) Explain 1NF and 2NF with example. **7**

OR

Explain 3NF, 4NF & BCNF in detail.

- Q.4** **(A)** Explain Query Processing Steps. **4**
 (B) Explain Pipelining in Query Processing. **3**

OR

Explain Materialization 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)** Explain types of lock in transaction. **4**
 (B) Define Schedule & Write a note on Serial & Non-serial Schedule. **3**

OR

Write a short note on Two Phase Commit Protocol.

- (C)** Demonstrate Having, Group by and Order by clause in SQL with example. **7**

OR

Prepare SQL queries for given tables

EMP (empno, ename, jobtitle, managerno, hiredate, sal, comm, deptno)

1. Find the Employees working in the department 10, 20, 30 only.
2. Find Employees whose names start with letter A or letter a.
3. Find Employees along with their department number with job titles in descending order.
4. Insert 1 row into EMP table.
5. Find the Employees who have no hire date.
6. Update Employee name to Dhara of name Vijay.
7. Display employees who are getting maximum salary in each job title.
