

- (d) Functional dependencies
- 1 Which of the following is based on multi valued dependency? (CO2) 1
- (a) First
 - (b) Second
 - (c) Third
 - (d) Fourth
- 1-e. Which SQL keyword is used to retrieve a maximum value? (CO3) 1
- (a) MOST
 - (b) TOP
 - (c) MAX
 - (d) UPPER
- 1-f. Which of the following is not a DDL command? (CO3) 1
- (a) UPDATE
 - (b) TRUNCATE
 - (c) ALTER
 - (d) None
- 1 What are ACID properties of transaction? (CO4) 1
- (a) Atomicity, Consistency, Isolation, Database
 - (b) Atomicity, Consistency, Isolation, Durability
 - (c) Atomicity, Consistency, Inconsistent, Durability
 - (d) Automatically, Concurrency, Isolation, Durability
- 1 Which of the following is not the method of deadlock handling? (CO4) 1
- (a) Deadlock prevention
 - (b) Deadlock detection
 - (c) Deadlock recovery
 - (d) Deadlock distribution
- 1-i. Which type of command is GRANT? (CO5) 1
- (a) Transaction Control Language (TCL) command
 - (b) Data Query Language (DQL) command
 - (c) Data Control language (DCL) command
 - (d) None of these

- 1-j. How many tier data warehouse architecture? (CO5) 1
- (a) Two
 - (b) One
 - (c) Four
 - (d) Three

2. Attempt all parts:-

- 2.a. What are the disadvantages of file processing system? (CO1) 2
- 2.b. Describe functional dependencies. (CO2) 2
- 2.c. Consider the following relation : 2
 EMP (ENO, NAME, DATE_OF_BIRTH, SEX, DATE_OF_JOINING, BASIC_PAY, DEPT) Develop an SQL query that will find and display the average BASIC_PAY in each DEPT. (CO3)
- 2.d. What is ROLLBACK and COMMIT in DBMS? (CO4) 2
- 2.e. What do you understand by the term IDS? (CO5) 2

SECTION B 30

3. Answer any five of the following:-

- 3-a. Give example of Simple, Composite, Single –valued and Multi-valued attributes of an entity. (CO1) 6
- 3-b. Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associated with each patient, a log of the various tests and examinations conducted. Also Reduce ER Diagram of Hospital to Relational Tabular Form? (CO1) 6
- 3-c. What is Normalization and denormalization. Why do we normalize database? (CO2) 6
- 3-d. Define partial functional dependency. Consider the following two sets of functional dependencies $F = \{A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow H\}$ and $G = \{A \rightarrow CD, E \rightarrow AH\}$. Check whether or not they are equivalent. (CO2) 6
- 3.e. Differentiate between Truncate and Drop command in SQL. How do you add a column to a table using SQL statement(s)? (CO3) 6
- 3.f. What is Two phase Locking (2PL)? Define shrinking phase and growing phase. (CO4) 6
- 3.g. What is the difference between Authentication and Authorization? (CO5) 6

SECTION C 50

4. Answer any one of the following:-

- 4-a. What is ER Diagram? Explain different Components of an ER Diagram with there Notation. 10

Also make an ER Diagram for Employee Project Management System. (CO1)

- 4-b. Explain the difference between 1-tier, 2-tier and 3-tier architecture in a DBMS with figure? (CO1) 10
5. Answer any one of the following:-
- 5-a. Explain 5NF and DKNF. Explain three conditions for Loss less decomposition with example? (CO2) 10
- 5-b. What are the purpose of DDL and DML language? What are the differences between SQL, MySQL, and SQL Server? (CO2) 10
6. Answer any one of the following:-
- 6-a. What are SQL operators ? Explain different SQL operators with example. (CO3) 10
- 6-b. What do you mean by B-Tree, give its properties. Explain deletion and Insertion operation in B-Tree with example? (CO3) 10
7. Answer any one of the following:-
- 7-a. Explain the method of testing the serializability. Consider the schedule S1 and S2 given below S1: R1(A),R2(B),W1(A),W2(B) S2: R2(B),R1(A),W2(B), W1(A) Check whether the given schedules are conflict equivalent or not? (CO4) 10
- 7-b. Write short note on:- 10
- a. Deadlock
 - b. Strict two phase locking
 - c. Rigorous two phase locking
 - d. Starvation (CO4)
8. Answer any one of the following:-
- 8-a. Write characteristics, goals and data view of Logical database. Also give its advantages and disadvantages? (CO5) 10
- 8-b. Explain SQL injection in detail. Give difference between Relational Database Management System (RDBMS) and Object Oriented database Management System (OODBMS). (CO5) 10