

Course Name : BSCIT

Subject Name : Database Management System

Subject Code : BSCITRMA-201

Date : 22-02-2026

Time : 11:30AM TO 01:45PM

Max Marks : 70

Section A

Q.-1. Answer the following (Attempt any three)

(30)

- (1) Explain the Database Management System (DBMS) in detail. Discuss the key characteristics and benefits of using a DBMS.
- (2) Discuss the different types of Data Models (Hierarchical, Network, and Relational) with their advantages and disadvantages.
- (3) What is the Entity-Relationship (E-R) Model? Explain the concepts of Entity, Attribute, and Relationship with appropriate diagrams.
- (4) What is Normalization? Explain 1st Normal Form (1NF), 2nd Normal Form (2NF), and 3rd Normal Form (3NF) with examples.
- (5) Describe the SQL Data Manipulation Language (DML). Explain the INSERT, UPDATE, and DELETE statements with syntax and examples.

Section B

Q.-2. Write short notes on any four of the following topics.

(20)

- (1) Define Database and list its essential properties.
- (2) What is a File-based System? Briefly explain.
- (3) What is the difference between DELETE and TRUNCATE commands?
- (4) Write a short note on Armstrong's Axioms of Reflexivity, Augmentation, and Transitivity.
- (5) Explain the First Normal Form (1NF) with a brief example.
- (6) Differentiate between Conceptual Schema and Internal Schema.

Section C

Q.-3. Select the correct response for each of the following questions

(10)

(1) What is a database?

- | | |
|--|-----------------------------|
| A) A shared collection of related data | B) A collection of programs |
| C) A set of hardware components | D) A network of computers |

(2) The separation of data definition from the application programs is known as:

- | | |
|------------------------------|-------------------|
| A) Data Redundancy | B) Data Integrity |
| C) Program-Data Independence | D) Data Security |

(3) A subset of the database defined and dedicated for particular users is called a:

- | | |
|-----------|---------|
| A) Table | B) View |
| C) Schema | D) Row |

(4) ideally, in a database approach, each data item is stored in how many places?

- | | |
|--------------------|-------------------------|
| A) Multiple places | B) Two places |
| C) Only one place | D) Any number of places |

(5) What is a "Domain" in the Relational Model?

- | | |
|--------------------------------|---|
| A) A row in a table | B) A set of atomic values allowed in a column |
| C) A connection between tables | D) A type of database user |

(6) Which Normal Form prohibits multivalued attributes or repeating groups?

- | | |
|----------------------------|-----------------------------|
| A) First Normal Form (1NF) | B) Second Normal Form (2NF) |
| C) Third Normal Form (3NF) | D) BCNF |

(7) Which SQL clause is used to filter rows returned by a SELECT statement?

A) GROUP BY

B) ORDER BY

C) WHERE

D) FROM

(8) Which type of join returns only the rows where there is a match in both tables?

A) Left Join

B) Right Join

C) Inner Join

D) Full Join

(9) A Left Outer Join returns all rows from the left table and:

A) All rows from the right table

B) Matched rows from the right table

C) No rows from the right table

D) Only NULL values

(10) Which property ensures that no duplicates are entered in a column?

A) Not Null

B) Unique

C) Default

D) Check

Section D

Q.-4. Decide whether the statements given below are True or False.

(10)

- (1) Metadata is data that defines and describes the data and relationships between tables in a database.
- (2) Data redundancy ensures that each data item is stored in only one place in the database.
- (3) A centralized database system stores the DBMS and database at a single site.
- (4) A domain is a set of atomic values used to model data in a relational model.
- (5) An entity is an object in the real world with an independent existence, such as a person or a place.
- (6) Referential integrity requires that a foreign key must have a matching primary key in the parent table or it must be null.
- (7) Armstrong's axioms are inference rules used to find all functional dependencies in a database.
- (8) A cross join returns the Cartesian product of two tables.
- (9) Requirements gathering is a process of consulting with stakeholders to determine what they want from a system.
- (10) Data redundancy refers to a situation where the same data is stored in multiple places within a database.
