REV-01
MCA/01/05

2024/06

SET A

MASTER OF COMPUTER APPLICATION
SECOND SEMESTER (REPEAT)
DATABASE MANAGEMENT SYSTEM
MCA-203

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1hr. 30 mins. **Full Marks: 35**

Objective

Time: 15 mins. **Marks: 10**

Choose the correct answer from the following: ***1×10=10***

1. The purpose of Database Management systems are to:
   a. Eliminate data redundancy
   b. Establish relationship among records in different files
   c. Manage file access
   d. All of these

2. Key to represent relationship between tables is called:
   a. Primary key
   b. Foreign key
   c. Secondary key
   d. None of these

3. In a relational model, cardinality is termed as number of:
   a. Tuples
   b. Attributes
   c. Tables
   d. Constraints

4. An un-normalized relation contains values:
   a. Atomic
   b. Non-atomic
   c. Classified
   d. None of these

5. Data encryption techniques are particularly useful for:
   a. Improving data integrity
   b. Protecting data communication systems
   c. Reduce storage space requirements
   d. All of these

6. The index consists of:
   a. A list of keys
   b. Pointers to the master list
   c. Both a & b
   d. All of these

7. Related fields in a database are grouped to form:
   a. Data file
   b. Data record
   c. Manu
   d. Bank

8. In relational algebra, Cartesian product is a .....operator.
   a. Unary
   b. Binary
   c. Ternary
   d. Logical

9. Which of the following SQL commands can be used to modify existing data in a database table?
   a. MODIFY
   b. UPDATE
   c. CHANGE
   d. NEW

10. Relational Algebra does not have.....

a. Aggregation
b. Division
c. Selection
d. Projection

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Descriptive

Time : 1 hr. 15 mins. **Marks : 25**

[Answer question no.1 & any two (2) from the rest]

1. What is DBMS? Discuss the benefits of DBMS. 5

2. a) Describe the three-schema architecture. Why do we need mappings among schema levels? 5+5=10
   b) Briefly explain how inner join operation differs from outer join.

3. a) When is a relation considered to be in 1NF? Define 2NF and 3NF considering only primary key. 5+5=10
   b) Define Boyce-Codd normal form. How does it differ from 3NF? Why is it considered a stronger form of 3NF?

4. What is the two-phase locking protocol? How does it guarantee serializability? 10

5. Discuss what is meant by each of the following terms: database authorization, access control, data encryption, privileged (system) account, database audit, audit trail. 10

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