2023/06

MASTER OF COMPUTER APPLICATION
SECOND SEMESTER (REPEAT)
DATABASE MANAGEMENT SYSTEM
MCA-201
[USE OMR SHEET FOR OBJECTIVE PART]

SET A

Duration: 3 hrs.

Full Marks: 70

(Objective)

Time: 30 mins.

Marks: 20

Choose the correct answer from the following:

1 ×20=20

1. The given Query can also be replaced with _____:OPs Concepts in Java
   SELECT name, course_id
   FROM instructor, teaches
   WHERE instructor_ID= teaches_ID;
   a. Select name, course_id from teaches, instructor where instructor_id=course_id;
   b. Select name, course_id from instructor natural join teaches;
   c. Select name, course_id from instructor;
   d. Select course_id from instructor join teaches

2. Which one of the following is a type of Data Manipulation Command?
   a. Create
   b. Alter
   c. Delete
   d. All of the above

3. In which one of the following, the multiple lower entities are grouped (or combined) together to form a single higher-level entity?
   a. Specialization
   b. Generalization
   c. Aggregation
   d. None of the above

4. The term "TCL" stands for:
   a. Ternary Control Language
   b. Transmission Control Language
   c. Transaction Central Language
   d. Transaction Control Language

5. Which one of the following commands is used for removing (or deleting) a relation forms the SQL database?
   a. Delete
   b. Drop
   c. Remove
   d. All of the above

6. The term "Data independence" refers to:
   a. Data is defined separately and not included in the programs
   b. Programs are not dependent on the logical attributes of the data
   c. Programs are not dependent on the physical attributes of the data
   d. Both b & c

7. The architecture of a database can be viewed as the:
   a. One level
   b. Two-level
   c. Three-level
   d. Four level

8. Which one of the following keyword is used to find out the number of values in a column?
   a. TOTAL
   b. COUNT
   c. SUM
   d. ADD

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9. A transaction is delimited by statements (or function calls) of the form..............
   a. Begin transaction and end transaction
   b. Start transaction and stop transaction
   c. Get transaction and post transaction
   d. Read transaction and write transaction

10. The_____ is essentially used to search for patterns in target string.
    a. Like Predicate
    b. Null Predicate
    c. In Predicate
    d. Out Predicate

11. Which of the following provides the ability to query information from the database and insert tuples into, delete tuples from, and modify tuples in the database?
    a. DML(Data Manipulation Language)
    b. DDL(Data Definition Language)
    c. Query
    d. Relational Schema

12. Which one of the following refers to the "data about data"?
    a. Directory
    b. Sub Data
    c. Warehouse
    d. Meta Data

13. Which of the following is a top-down approach in which the entity's higher level can be divided into two lower sub-entities?
    a. Aggregation
    b. Generalization
    c. Specialization
    d. All of the above

14. In a relation database, every tuples divided into the fields are known as the...............
    a. Queries
    b. Domains
    c. Relations
    d. All of the above

15. Which of the following commands is used to save any transaction permanently into the database?
    a. Commit
    b. Rollback
    c. Savepoint
    d. None of the above

16. Which of the following refers collection of the information stored in a database at a specific time?
    a. Independence
    b. Instance of the database
    c. Schema
    d. Data domain

17. Which one of the following refers to the total view of the database content?
    a. Conceptual view
    b. Physical view
    c. Internal view
    d. External view

18. The Database Management Query language is generally designed for the:
    a. Support end-users who use English like commands
    b. Specifying the structure of the database
    c. Support in the development of the complex applications software
    d. All of the above

19. Which one of the following commands is used to modify a column inside a table?
    a. Drop
    b. Update
    c. Alter
    d. Set

20. The database system must take special actions to ensure that transactions operate properly without interference from concurrently executing database statements. This property is referred to as:
    a. Atomicity
    b. Durability
    c. Isolation
    d. All of the mentioned

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(Descriptive)

Time : 2 hr. 30 mins.   Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. a) Explain ACID properties of Database.   5+5=10
    b) Explain Role of Database Administrator.

2. a) Write some advantages and disadvantages of DBMS.   4+6=10
    b) Draw an ER diagram for the following situation: "An academic
       institution is affiliated to a University. The institution possesses
       several departments, each department offers several courses. Each
       department has its own infrastructure, where several teachers teach
       several students." Transform your ER diagram into Schema Diagram.

3. a) Define the term Normalization. Explain BCNF.   5+5=10
    b) Write down the Armstrong's axioms in FDs.

4. What is Database Architecture? Explain the three tier Architecture of   2+8=10
    DBMS.

5. What is cardinality ratio? How do you convert an ER model into table   2+4+4=10
    in DBMS? Explain integrity rules.

6. What is concurrent transaction? How deadlock situation arises in   2+3+5=10
    concurrent execution? Describe the prevention protocol used in DBMS
    to avoid deadlock.

7. Describe the criteria of concurrent execution of two transactions in   5+5=10
    DBMS. Illustrate ACID properties of a transaction.

8. Define the following terms: 2×5=10
    a) Foreign key
    b) Super key
    c) PJNF
    d) Database schema
    e) TRC

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