BACHELOR OF COMPUTER APPLICATION
THIRD SEMESTER (SPECIAL REPEAT)
RELATIONAL DATABASE MANAGEMENT SYSTEM
BCA-304
[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_____ in DBMS, as the name suggests is a relationship between attributes of a table dependent on each other.
   a. Functional dependency
   b. Transitive dependency
   c. Multi-valued dependency
   d. Join dependency

2. At_____ phase of query processing, the query compiler translates the query specification into an executable program.
   a. Compile-time
   b. Run-time
   c. Optimizer
   d. Execution engine

3. DML is provided for:
   a. Description of logical structure of database
   b. Addition of new structures in the database
   c. Manipulation & processing of database
   d. Description of physical structure of database system

4. In an ER Diagram, foreign key is represented by:
   a. Oval
   b. Dotted oval
   c. Dotted underline
   d. Solid underline

5. The _____ in DBMS also known as Optimistic Concurrency Control Technique is a method to avoid concurrency in transactions.
   a. Lock-Based Protocol
   b. Validation based Protocol
   c. Two Phase Locking Protocol
   d. Timestamp-Based Protocol

6. "A relation that is in First Normal Form and every non-primary-key attribute is fully functionally dependent on the _____ key, then the relation is in Second Normal Form."
   a. Candidate
   b. Super
   c. Foreign
   d. Primary

7. The time taken to position the read-write head over the required track or cylinder is called_____.
   a. Rotational latency time
   b. Seek time
   c. Sequential I/O time
   d. Random I/O time

8. If A->B and B->C are two FDs then A->C is called _____dependency.
   a. Functional
   b. Fully functional
   c. Partial
   d. Transitive

9. In SQL, _____function has a special meaning that counts the number of rows of a relation.
   a. Count(fieldname)
   b. Count(*)
   c. Both a & b
   d. None of them

10. The concept of Bucket overflow is used in_____.
   a. Indexing
   b. Query Processing
   c. Hashing
   d. Views

11. "The transaction enters this state after the last statement of the transaction has been executed"- is the state of_____.
   a. Committed
   b. Aborted
   c. Partially committed
   d. Active

12. Address is an example for _____attribute.
   a. Composite
   b. Multi valued
   c. Both a & b
   d. Unique

13. The_____ is a desirable property of transaction.
   a. Isolation
   b. Atomicity
   c. Durability
   d. All of the above

14. A view is a_____ table that is one which actually does not exist.
   a. Physical
   b. Virtual
   c. Distinct
   d. Log

15. System generated error like integer overflow or divide-by-zero error is a _____ type of failure.
   a. Soft
   b. Hard
   c. Network
   d. Commit point

16. Select the valid type/s of data technique/s.
   a. Normalisation
   b. E R Modeling
   c. Both a & b
   d. None of the above

17. In_____ indexing, index record appears only for a few items, each item points to a block.
   a. Dense
   b. Sparse
   c. Secondary
   d. Clustering

18. An advantage of Database Management System is:
   a. Data is independent on programs
   b. Data redundancy increases
   c. Data is integrated & can be accessed by multiple programs
   d. All of the above

19. Dividing the whole table data into smaller chunks and storing them in different Data bases in the Distributed DBMS is called_____.
   a. Data replication
   b. Data fragmentation
   c. Data decentralization
   d. Network transparency

20. Rollback is used for _____ operation in a transaction.
   a. Commit point
   b. Redo
   c. Undo
   d. Savepoint

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(Descriptive)

Time : 2 hr. 30 mins.   Marks : 50

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

1. a) What is the significance of using an ER Diagram in a database?   2+3+5=10
    Write down the symbols used in ER Diagram.
    b) Draw an ER Diagram for Online Examination Management System.

2. a) Explain how Functional Dependency is also used in Multi valued   4+6=10
    dependency in an extended way.
    b) Consider an example of a table Product to explain all types of normal
    forms.

3. a) Why transaction processing is used?   2+4+4=10
    b) Explain all the properties of database transaction.
    c) Define the states of transaction along with a diagram.

4. Explain the significance of using the three-schema Architecture.   10
    Compare the schema with each other & find the differences among
    them.

5. a) Which concept of DBMS is similar to what we see in books?   4+6=10
    Explain why it is similar.
    b) Consider a situation to search the name of the countries based on the
    ascending order of their growth of industries based on a survey.
    Justify which method of searching is most suitable to retrieve the
    records in the fastest way.

6. a) Take an example, you are going to travel abroad with your family. 4+6=10
    So, the first thing is to book an airline ticket. Which technique of
    DBMS is most useful in this situation, justify and explain why?
    b) How serializability is used in DBMS, explain with proper example.

7. a) Why Keys play an important role in DBMS?   4+6=10
    b) Consider a table of Medicine with its related fields. Now identify the
    super key, candidate key, alternate key, primary key from the fields
    & justify with proper reason.

8. a) How the Aggregate Functions are used in SQL queries?   2+5+3=10
    b) Explain 5 aggregate functions using example.
    c) Write a query in SQL to display the emp_no, emp_name, emp_salary
    of those Employees whose salary is more than the average salary.

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