

**BACHELOR OF COMPUTER APPLICATION**  
**Second Semester**  
**Relational Database Management System**  
**(BCA - 08)**

**Duration: 3Hrs.**

**Full Marks: 70**

**(PART-B: Descriptive)**

**Duration: 2 hrs. 40 mins.**

**Marks: 50**

**A. Answer any five questions of the following:**

**2×5=10**

1. Define Primary Key.
2. What is ER Diagram?
3. What is hashing?
4. What is referential integrity?
5. What is a transaction?
6. What is SQL?
7. What is concurrency problem?

**B. Answer any five questions of the following:**

**3×5=15**

1. Define the following:
  - a. Candidate Key
  - b. Foreign Key
  - c. Super Key
2. Define the 2NF rule.
3. What are the advantages of DBMS over file system?
4. What is the difference between a relation and a view.
5. What are ACID properties of a transaction?
6. How null values can be handled in SQL? Give an example.

PTO....

7. Consider the following relational schemas:

EMPLOYEE (EMPLOYEE\_NAME, STREET, CITY)

WORKS (EMPLOYEE\_NAME, COMPANYNAME, SALARY)

COMPANY (COMPANY\_NAME, CITY)

Give an expression in SQL for each of the queries below:

- i. Find the names of all employees who work for first Bank Corporation.
- ii. Find the names and company names of all employees sorted in ascending order of company name and descending order of employee names of that company.
- iii. Change the city of First Bank Corporation to 'New Delhi'.

**C. Answer any five questions of the following:**

**5×5=25**

1. What is Database Model? Discuss in brief the advantages of relational model.
2. What is a database? What are the advantages and disadvantages of using database system?
3. Briefly describe the distinct steps in the process of database design.
4. Distinguish between logical and physical data independence.
5. What is normalization? Differentiate between BCNF and 3NF.
6. Explain the strict two-phase locking protocol.
7. Discuss various types of security methods to be established in RDBMS.

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*(The figures in the margin indicate full marks for the questions)*

**Duration: 20 minutes**

**Marks – 20**

**(PART A- Objective)**

**Choose the correct answer:**

**1 x 20 = 20**

1. DBMS is a collection of \_\_\_\_\_ that enables user to create and maintain a database.
  - a) keys
  - b) Translators
  - c) program
  - d) Language Activity
2. The \_\_\_\_\_ is the software tool to store or access data.
  - a) table
  - b) DBMS
  - c) query
  - d) report
3. SQL stands for \_\_\_\_\_.
  - a) Standard Query Language
  - b) Structured Query Language
  - c) Simplified Query Language
  - d) Static Query Language
4. \_\_\_\_\_ defines rules regarding the values allowed in columns and is the standard mechanism for enforcing database integrity.
  - a) Column
  - b) Constraint
  - c) Index
  - d) Trigger
5. The advantage of a view is
  - a) Installation
  - b) Operation
  - c) No data integrity
  - d) Security

6. A database design should be \_\_\_\_\_ and \_\_\_\_\_ the redundancy.

- a) ambiguous, reduce
- b) ambiguous, increase
- c) Unambiguous, reduce
- d) difficult, increase

7. SQL is based on both \_\_\_\_\_ and \_\_\_\_\_

- a) rational algebra, relational
- b) rational algebra, relational arithmetic
- c) relational arithmetic, relational calculus
- d) relational sets, relational calculus

8. DCL stands for

- a) Data Control Language
- b) Data Console Language
- c) Data Control Level
- d) Direct Control Level

9. 4NF stands for

- a) Fourth Negative File
- b) Fourth Normal Fraction
- c) Fourth Normal Form
- d) Fourth Normal File

10. In the relational models, cardinality is termed as:

- a) Number of tuples
- b) Number of attributes
- c) Number of tables
- d) Number of constraints

11. Cartesian product in relational algebra is

- a) a Unary operator
- b) a Binary operator
- c) a Ternary operator
- d) not defined

12. The database schema is written in

- a) HLL
- b) DML
- c) DDL
- d) DCL

13. In an E-R diagram attributes are represented by

- a) rectangle
- b) square
- c) ellipse
- d) triangle

14. A logical schema
- a) is the entire database.
  - b) is a standard way of organizing information into accessible parts.
  - c) describes how data is actually stored on disk.
  - d) both (a) and (c)
15. Count function in SQL returns the number of
- a) values
  - b) distinct values
  - c) groups
  - d) columns
16. A DBMS query language is designed to
- a) support end users who use English-like commands
  - b) support in the development of complex applications software
  - c) specify the structure of a database
  - d) all of the above
17. Transaction processing is associated with everything below except
- a) producing detail, summary, or exception reports
  - b) recording a business activity
  - c) confirming an action or triggering a response
  - d) maintaining data
18. Which of the operations constitute a basic set of operations for manipulating relational data?
- a) Predicate calculus
  - b) Relational calculus
  - c) Relational algebra
  - d) None of the above
19. The statement in SQL which allows to change the definition of a table is
- a) Alter
  - b) Update
  - c) Create
  - d) Select
20. A 'tuple' is
- a) An attribute attached to a record
  - b) Another name for a table in an RDBMS
  - c) A row or record in a database table
  - d) Another name for the key linking different tables in a database

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