BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Sc.(ANCS)-Hons-2024
Course Name – Database Management System
Course Code - BNC17201 (T)
(Semester I)

Full Marks : 40 **Time : 2:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 10=10

1. *Choose the correct alternative from the following :*

(i) Find the main purpose of an index in a database.

a) To store data
b) To speed up data retrieval
c) To delete data
d) To manage transactions

(ii) Identify the main purpose of a data model.

a) To create database tables
b) To define the structure and relationships of data
c) To enforce data integrity
d) To generate reports

(iii) What is a key difference between VARCHAR and CHAR data types?

a) CHAR is for fixed-length data, while VARCHAR is for variable-length data
b) VARCHAR can only store numbers, while CHAR can store text
c) CHAR is used for text, while VARCHAR is used for dates
d) VARCHAR is faster for data retrieval compared to CHAR

(iv) What is the role of a foreign key in a relational schema?

a) To uniquely identify records within the same table
b) To enforce a link between two tables
c) To store data in a foreign language
d) To ensure that a record can be deleted

(v) Choose which of the following is NOT a component of a relational schema.

a) Table name
b) Attribute names
c) Primary keys
d) SQL queries

(vi) Which of the following is an example of a weak entity?

a) Employee
b) Order
c) Department
d) Dependents

(vii) Distinguish between the HAVING clause and the WHERE clause in SQL.

a) HAVING filters before grouping, WHERE filters after grouping
b) HAVING filters after grouping WHERE filters before grouping
c) HAVING and WHERE are identical
d) HAVING and WHERE deletes tuples

(viii) Explain the purpose of using GROUP BY in SQL.

a) To filter tuples
b) To group rows based on conditions
c) To aggregate data across rows
d) To delete rows

(ix) What is query optimization in a DBMS?

a) Improving query speed
b) Improving query accuracy
c) Adding more queries
d) Deleting unused queries

(x) Determine the type of concurrency control that prevents conflicts by locking data items.

a) Time-stamping
b) Two-Phase Locking
c) Optimistic methods
d) Deadlock prevention

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Write down the purpose of structured query language. (3)
3. Describe the concept of a relationship in data models. (3)
4. Explain the role of the redo phase in database recovery. (3)
5. Describe the network data model. (3)

6. Explain the term "serializability" in the context of database transactions. (3)

OR

Explain the Set Difference (−) operation in Relational Algebra with an example. (3)

Group-C

(Long Answer Type Questions) 5 x 3=15

7. Explain Relational Schema. (5)
8. Explain Natural Join (⋈) in Relational Algebra with an example. (5)

9. Explain the concept of DBMS Three Level Architecture. (5)

OR

Explain the difference between fixed-length and variable-length character data types. (5)

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