2403128

UG (CBCS) (Second Year) Annual

EXAMINATION

B.Sc. COMPUTER SCIENCE

Database Management System

COMP202TH

Time : 3 Hours]   [*Maximum Marks : 50*

The candidates shall limit their answer precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 (Part A) is compulsory. All questions carry equal marks.

Part A

Compulsory Question

1. Attempt all parts. Answer the following MCQ's by selecting the most appropriate option :

$$10 \times 1 = 10$$

(i) The DBMS acts as an interface between .... and .... of an enterprise-class system.

    (a) Data, the DBMS

    (b) Application, SQL

    (c) Database application and the database

    (d) The user, the software

(ii) Which one of the following is not an example of DBMS ?

    (a) MySQL

    (b) Microsoft Access

    (c) IBM DB2

    (d) Google

(iii) Entity is a ....

    (a) Object of relation

    (b) Present working model

    (c) Thing in real world

    (d) Model of relation

(iv) The term attribute refers to a ...... of a table.

    (a) Record

    (b) Column

    (c) Tuple

    (d) Key

(v) A relational database consists of a collection of..... :

    (a) Tables

    (b) Fields

    (c) Records

    (d) Keys

Fill in the blanks :

(vi) ....is a combination of two of more attributes used as a primary key.

(vii) A set of possible data values is called......... .

(viii) The Full form of DDL is...... .

State whether the statement is True/False :

(ix) SQL is used to communicate with and manipulate databases, including tasks like querying data, updating records, and defining database structures.

(True/False)

(x) A primary key uniquely identifies each record in a table and must have unique values for each row. (True/False)

Part B

Unit I

2. (a) Discuss the characteristics of database approach. 5

(b) Describe the Architecture of DBMS. 5

3. What is a data model in the context of Database Management Systems (DBMS) and why is it essential for database design ? 10

Part C

Unit II

4. Define Entity-Relationship (ER) modeling in the context of database management systems (DBMS) and its significance in database design. 10

5. Discuss the concept of Enhanced Entity-Relationship (EER) modeling and its extensions to traditional ER modeling. What additional features does EER modeling introduce ? 10

Part D

Unit III

6. What is the relational data model in Database Management Systems (DBMS) and how does it differ from other data models ? 10

7. What are relational constraints in DBMS and why are they essential for maintaining data Integrity ? 10

Part E

Unit IV

8. Describe the process of mapping an Entity-Relationship (ER) diagram to a relational schema. What are the steps involved, and how are entities, attributes, and relationships represented in the resulting relational schema ?

   10

9. Explain the concept of normalization in the context of relational database design. How does normalization affect the mapping of ER diagrams to relational schemas ?   10