

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech. (CSE) (Sem.-5)**  
**DATABASE MANAGEMENT SYSTEMS**

Subject Code : BTCS501-18

M.Code : 78320

Date of Examination : 19-12-2023

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

**1. Explain briefly :**

- a) What do you mean by Data abstraction and Data independence?
- b) Differentiate between DDL and DML.
- c) Name few popular open source and commercial DBMS.
- d) What do you mean by query optimization?
- e) What is the role of indices in DBMS?
- f) What are the problems arising out of concurrency?
- g) What are the various types of database failures?
- h) What is intrusion detection in database systems?
- i) What are the features of logical database?
- j) What are web databases?

## SECTION-B

2. What are integrity constraints? Why they are important?
3. Between Hashing and B-trees, which method is preferable for storing indexes in a database?
4. Explain the concept of authorization and authentication.
5. **Write short notes on :**
  - a) Access control models
  - b) Distributed databases
6. What is difference between Object oriented vs. Object relation databases?

## SECTION-C

7. What is data model? State and explain various data models with suitable examples.
8. **Write notes on the following :**
  - a) Relational algebra
  - b) Normal forms
  - c) Query processing
  - d) Join strategies.
9.
  - a) What are the ACID properties of transactions?
  - b) Discuss the Lock-based and Timestamp-based protocol for concurrency control.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**