Roll No. | | | | | | | | | | |

Total No. of Questions : 09

Total No. of Pages : 02

MCA (Sem.–1)

ADVANCED DATABASE MANAGEMENT SYSTEM

Subject Code : PGCA-1953

M.Code : 79038

Date of Examination : 11-12-2023

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C. have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying TEN marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

SECTION-A

1. **Write short notes on :**

   a) What do you understand by Data Independence? Name its types.

   b) Define Conceptual view and Physical view of DBMS.

   c) What are weak entities? How are they represented in DBMS?

   d) Define Multi-valued Dependency. Give an example.

   e) Define Relational Calculus.

   f) What do you understand by Document Type Definition?

   g) Distributed DBMS Commit Protocols.

   h) What do you understand by Spatial Databases and its types?

   i) Define Distributed Query Processing.

   j) Given the relation ***R(ABCDEFGH)*** with the following functional dependencies.

   $F: \{CH \rightarrow G, A \rightarrow BC, B \rightarrow CFH, E \rightarrow A, F \rightarrow EG\}$

   List the all-possible **candidate keys** for the relation R.

SECTION-B

2. Explain about Database System Architecture with diagrams. Discuss its types.

3. a) What is meant by ER model? Explain the term relationship in ER model, Connectivity and Cardinality.

   b) Discuss the types of relationship in ER model with suitable examples.

4. a) Find the highest normal form of a relation ***R(V, W, X, Y, Z)*** with functional dependency set as :

   $\{WX \rightarrow Y, VX \rightarrow WZ, W \rightarrow Z\}$

   b) State the difference between 3NF and BCNF with proper examples.

5. What is Concurrency? Discuss different concurrency control techniques.

SECTION-C

6. What is Parallel Database? Compare inter and intra query parallelism.

7. What do you understand by the concept of distributed database? Discuss the various commit protocols in DDBMS.

8. Define the term Big Data and No SQL databases. What are the different types of NoSQL Databases? Discuss open source databases.

9. What is temporality in the context of databases, and why is it important in data management? What is the difference between valid time and transaction time in temporal databases?

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

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MCA (Sem.–1)

ADVANCED DATABASE MANAGEMENT SYSTEM

Subject Code : PGCA-1953

M.Code : 79038

Date of Examination : 19-06-2024

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C. have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying TEN marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

SECTION-A

1. **Write short notes on :**

   i. Define Data

   ii. Data Independence

   iii. Cardinality of Relation

   iv. Referential Integrity Constraints

   v. Relational Calculus

   vi. Cartesian Product

   vii. Distributed Database Storage

   viii. NoSQL Databases

   ix. Concurrency

   x. Distributed DBMS Commit Protocols.

SECTION-B

2. What is the need of DBMS also compare with traditional file-based system?

3. What is ER data model? Explain ER diagram with suitable example and their terminology.

4. What is the process of normalization? Explain type of normal forms and dependencies.

5. What is Concurrency? Discuss different concurrency control techniques.

SECTION-C

6. What are the types of parallel database? What are intra *vs* inter parallelism?

7. What are the concepts of distributed databases? How queries are processed in DDBMS?

8. What is Big data and its types? Discuss open source NOSQL databases.

9. What are the types of XML databases? What is an XML schema type?

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