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M.Tech 1st Semester (Computer Science)
CBCS Scheme
Examination, November-2023
ADVANCED DATA BASE MANAGEMENT
SYSTEM
Paper-MTCSE21C3

Time allowed : 3 hours] [Maximum marks : 100

Note: Question No. 1 is compulsory. Attempt any five questions by selecting at least any one question from each section.

1. Explain the following: -

- (a) Object Database and relational database
- (b) OQL.
- (c) Hash Join and Nested Join
- (d) Semantic query optimizing 4×5=20

Section-A

- 2. (a) What is data model? Discuss all type of data model. 10
- (b) Explain the Heuristics that should be applied for processing a query. 10
- 3. (a) What are the main strategies for implementing join operation? Explain all types. or Join operation. 10

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- (b) Discuss the Boyce-Codd normal form. Differentiate it with 3NF. Give an example also. 10

Section-B

- 4. (a) Explain 2-way locking protocol to ensure serializability. 10
- (b) Explain log based recovery scheme in terms of ease of implementation and overhead cost. 10
- 5. (a) Explain:
 - (i) Conflict Serializability and view Serializability 10
 - (ii) Pessimistic and optimistic concurrency control <https://www.mdustudy.com> 10
- (b) Compare and contrast deferred update and immediate update recovery protocols. 10

Section-C

- 6. (a) Describe different architectures for an object oriented DBMS. Also explain complex and structured data types. 10
- (b) What is the function of ODMG object definition language and object manipulation language? 10
- 7. (a) What are the advantages and disadvantages and disadvantages of extending the relational data model to incorporate object orientation. 10

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- (b) Explain distributed database with its components. Explain concurrency control in distributed environment. 10

Section-D

8. (a) What are the causes of data warehouse? Explain its architecture with reconciled data layer. 10
(b) How object identity, encapsulation, inheritance operations are specified in ORDBMS? 10
9. (a) Explain the significance of ORDBMS over RDBMS. Explain some operations performed in ORDBMS. 10
(b) Describe how star, snowflake and starflake schemas differs. Explain with example. 10

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