MASTER OF COMPUTER APPLICATIONS (MCA) (REVISED)

Term-End Examination

June, 2024

MCS–043 : ADVANCED DATABASE MANAGEMENT SYSTEMS

Time : 3 Hours   *Maximum Marks : 100*

Note : *Question No. **1** is compulsory. Answer any **three** questions from the rest.*

1. (a) Explain triggers and stored procedures with the help of an example code for each.

    5

    (b) Briefly explain logical and physical database design.   5

    (c) Explain the algorithm and cost calculation for simple hash join.   5

    (d) What is a Data Warehouse ? How a data warehouse differs from DBMS ? Describe the need of data warehouse.   5

(e) What is Data Marts ? Briefly discuss the significance of data marts.   5

(f) Describe "granularity of data" ? How does the granularity of data items affect the performance of concurrency control ?   5

(g) What are views in SQL ? Discuss the significance of views. Also, give an example query in SQL to create a view.   5

(h) What is OLTP ? How does OLTP differ from Data Mining ?   5

2. (a) What is shadow paging ? Illustrate it with an example. Give the advantages and disadvantages of shadow paging.   8

(b) What is Query Optimization ? Briefly discuss the techniques of query optimization with suitable example.   5

(c) What are Multimedia Databases ? Give features and challenges of multimedia database.   7

3. (a) Discuss Knowledge Discovery in Database (KDD) process. Also, mention all the tasks in KDD process with the help of a block diagram.   10

(b) What is the use of EER diagram ? How does EER diagram differ from ER diagram ? Also, discuss the constraints used in EER diagrams. 6

(c) Differentiate between two-phase commit protocol and three-phase commit protocol. 4

4. (a) Briefly discuss the key idea behind DKNF. Give suitable example in support of your discussion. 5

(b) Describe the term audit trail in database. Give advantages of audit trail. 5

(c) Describe log-based recovery process with suitable example. 5

(d) What are Semantic Database ? Explain the process of searching the knowledge in semantic databases. 5

5. Write short notes on the following : 4×5=20

(a) Embedded SQL

(b) Structural diagrams in UML

(c) Join dependencies and PJNF

(d) Multiversion two-phase locking

(e) ETL process of data warehouse

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