MCS-043

MCA (Revised)
Term-End Examination
June, 2021

MCS-043 : ADVANCED DATABASE MANAGEMENT SYSTEMS

Time : 3 hours   *Maximum Marks : 100*

Note : *Question number **1** is **compulsory**. Answer any **three** questions from the rest.*

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1. (a) What is the use of EER diagrams ? Discuss the constraints used in EER diagrams.   *5*

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

   (c) Draw a block diagram for information system life cycle. Briefly describe the key role of each phase.   *5*

   (d) Write the basic steps of Query processing. How can the cost of Query be measured ?   *5*

   (e) How are insert and delete operations performed in tree protocol ?   *5*

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

(g) What is XML ? What are the requirements for an XML document to be well-formed ? *5*

(h) Why is there a need for ODBC ? What are the components required for implementing ODBC ? *5*

2. (a) What is Multivalued dependency ? When is a multivalued dependency trivial ? *5*

(b) Differentiate between Stored procedures and Triggers. *5*

(c) What is a Data Dictionary ? What are the advantages and disadvantages of Data Dictionary ? *5*

(d) Compare Nested-loop Join with Block Nested-loop Join. *5*

3. (a) What is Hash Join ? Write an algorithm for Hash Join. *5*

(b) Why are multiversion schemes required ? Discuss Multiversion two-phase locking. *5*

(c) Briefly discuss the concurrency in Index structure. *5*

(d) What is Shadow Paging ? Give two disadvantages of shadow paging. *5*

4. (a) Describe the term Audit Trail in databases. What is the advantage of audit trail ? *5*

(b) Compare Heterogeneous Distributed Databases with Homogeneous Distributed Databases. *5*

(c) What is a Data Warehouse ? How does a Data Warehouse differ from Database ? What are the basic components of a Data Warehouse ? *5*

(d) What is a Data Mart ? What are the advantages of Data Mart over Data Warehouse ? *5*

5. (a) Compare Database processing with Data Mining processing. *5*

(b) How does Clustering differ from Classification ? Write K-means algorithm for clustering. *5*

(c) Write short notes on any *two* of the following : *2×5=10*

   (i) Security features of Oracle

   (ii) ETL tools

   (iii) OLAP

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