MCS-043

MCA (Revised)
Term-End Examination
June, 2018

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.*

1. (a) What are Cursors, Stored Procedures and Triggers ? Explain each with the help of an example code. 6

    (b) Differentiate between Logical and Physical Database design. 5

    (c) What is a View ? Explain any two strategies for implementing the Views. 4

    (d) What is Hash join ? How is Hash join between two relations computed ? Explain the algorithm and cost calculation for simple hash join. 6

    (e) Differentiate between a database management system and a data warehouse. What is the need for a data warehouse ? 4

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

(g) Differentiate between Centralized DBMS and Distributed DBMS. 5

(h) What is Timestamp Ordering ? Explain timestamp based protocol for serializable schedule. 5

2. (a) What is Data Mining ? How does Data Mining differ from OLTP ? Discuss Classification as a technique for data mining. 7

(b) What are Data Marts ? Briefly discuss the significance of data marts. 5

(c) What is XML ? How does XML differ from HTML ? What are the advantages of XML ? Create an XML schema for a list of students and their marks. 8

3. (a) Differentiate between Two-phase commit protocol and Three-phase commit protocol in distributed databases. "The three-phase commit protocol increases the system's availability and does not allow transactions to remain blocked until a failure is repaired." Justify the statement. 7

(b) What are Semantic Databases ? List the features of semantic databases. Explain the process of searching the knowledge in semantic databases. 6

(c) What is a Data Dictionary ? List some features of a data dictionary. What are the various approaches to implement a Distributed Database Catalogue ? 7

4. (a) What is Shadow Paging ? Illustrate with an example. Give the advantages and disadvantages of shadow paging. 5

(b) Define Multi-valued Dependency. What is Trivial Multi-valued Dependency ? State the fourth normal form. 5

(c) Explain any one clustering technique for data mining. 5

(d) What is Query Optimization ? Briefly discuss the techniques of Query Optimization with suitable examples. 5

5. (a) Explain the following : 8

   (i) Dynamic SQL

   (ii) OLAP

   (iii) Spatial Databases

   (iv) Temporal Databases

(b)   What are Mobile Databases ? List the
characteristics and challenges of mobile
databases.   5

(c)   Explain Join Dependency with the help of
an example. To which normal form does it
correspond ? "Functional Dependencies and
Multivalued Dependencies are special
types of Join Dependencies." Justify the
statement.   7

———