

MCA (Revised)

Term-End Examination

00693

December, 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) Explain the process of Query optimization with suitable example. 5
- (b) What is the difference between Document Type Definition (DTD) and XML Schema ? Explain using an example. 5
- (c) Explain Data mining in the context of knowledge discovery in databases. 5
- (d) What is Join dependency ? Explain it with the help of an example. What is trivial join dependency ? 6

- (e) Consider a small institute in which students register for programmes run by the institute. A programme can be a full or part time programme or both. Every student necessarily registers in at least one programme and at most three programmes. Assuming suitable attributes, design an EER Diagram for the same. 4
- (f) Explain the reference architecture for distributed database management systems. 5
- (g) What are triggers ? Explain the utility of triggers in DBMS. Give suitable SQL code for triggers. 5
- (h) What is a System catalogue ? What is the information stored in catalogue of RDBMS ? 5
2. (a) Compare and contrast the following : 8
- (i) JDBC and ODBC
- (ii) B-Tree Indexes and R-Tree Indexes used in PostgreSQL.
- (b) What is multiversion two-phase locking ? Explain with an example. 6
- (c) What are the different type of security features, needed for a multilevel security system ? Explain the encryption technique for a multilevel security system. 6

3. (a) Describe the following with suitable example or a diagram : 15
- (i) Data Grid
 - (ii) Data Mart
 - (iii) Deadlock
 - (iv) Checkpoint
 - (v) Referential Integrity Constraint
- (b) What are views ? What is their significance in DBMS ? How are views created in SQL ? Explain it with the help of an SQL statement. 5
4. (a) Differentiate between the following : 15
- (i) Centralized and Distributed Databases
 - (ii) Clustering and Classification approaches in Data Mining
 - (iii) Star Schema and Snowflake Schema
- (b) What are deadlocks ? How are deadlocks detected ? Explain with the help of an example. 5

5. (a) What is semi-structured data ? Explain with the help of an example. What is the difference between a well formed XML document and a valid XML document ? 6
- (b) What is data warehousing ? Discuss various characteristics of data warehousing ? 5
- (c) What are multimedia databases ? Discuss the challenges of designing multimedia databases. 5
- (d) What is multi-valued dependency ? State the fourth normal form. 4
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