MASTER OF COMPUTER APPLICATIONS (MCA) (REVISED)

Term-End Examination

June, 2020

MCS-043 : ADVANCED DATABASE

MANAGEMENT SYSTEMS

Time : 3 Hours   *Maximum Marks : 100*

Note : (i) *Question No. 1 is compulsory.*

(ii) *Attempt any* **three** *questions from the rest.*

1. (a) What is join dependency ? When a join dependency is referred as trivial ? Explain with the help of an example.   5

(b) What are views in DBMS ? Discuss their significance in DBMS. How views are created in SQL with the help of an example.   5

(c) What is query optimization ? Discuss the role of query optimization in Oracle.   5

(d) What is Audit Trail ? Give *four* benefits of Audit trail, in context of DBMS.   5

(e) What is shadow paging ? Give advantages and disadvantages of shadow paging.   5

(f) What are deadlocks ?   How are they detected ? Explain with the help of an example.   5

(g) What is XML ? What are the advantages of XML ? Create and XML schema for list of students and their marks.   5

(h) What are mobile databases ? List the characteristics and challenges in implementing mobile database. 5

2. (a) Discuss the following with the help of a suitable example for each : 10

(i) Triggers

(ii) Alerts

(iii) Cursors

(iv) Procedures

(v) Functions

(b) Compare and contrast Database Queries and Data Mining Queries. Give example for each. 5

(c) Explain K-means algorithm with the help of an example. 5

3. (a) Differentiate between clustering and classification in data mining.   5

   (b) Explain log based recovery scheme, using deferred database modification approach with the help of an example.   5

   (c) What is multilevel security ? What are typical security levels ?   5

   (d) What is Data Dictionary in DBMS ? Discuss its significance in DBMS. Give an example of a data dictionary entry.   5

4. (a) Explain the following :   10

      (i) Dynamic SQL

      (ii) OLAP and its types

      (iii) Spatial Database

      (iv) Semantic Database

(b) What are B-Tree Indexes ? How do B-Tree Indexes differ from R-Tree Indexes ? Give example for each.   5

(c) Compare and contrast the following :   5

(i)   JDBC and ODBC

(ii) ER Diagram and EER Diagram.

5. (a) What are Exclusive mode locks ? How do Exclusive mode locks differ from shared mode locks ? How are these locks used in transaction management ? Give suitable example to support your discussion.   8

(b) What is multivalued depedency ? How is 4NF related to multivalued dependency ? Is 4NF decomposition dependency preserving ? Justify your answer.   7

(c) Explain the role of the following files in Oracle :   5

(i) Control Files

(ii) Data Files

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