MCA (Revised)
Term-End Examination
December, 2016

01135

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 is a Data warehouse ? How is it different from a Database ? What are the characteristics of a Data warehouse ?   *5*

 (b) What are multimedia databases ? Discuss the challenges in the designing of multimedia databases.   *5*

 (c) How does Distributed DBMS differ from Centralized DBMS ? Explain the reference architecture of Distributed DBMS.   *5*

 (d) Discuss the term multilevel security in DBMS. What are the typical security levels ?   *5*

 (e) Explain 3-phase commit protocol. Why do we need 3-phase commit protocol in Distributed DBMS ?   *5*

(f) What is meant by the term 'ETL' ? Discuss the transformations required during the ETL process. *5*

(g) Explain shadow paging recovery scheme, with the help of a diagram. *5*

(h) What is a Datagrid ? Elaborate the structure of a datagrid ? What are the application areas of a datagrid ? *5*

2. (a) What do you understand by the term 'Database Tuning' ? What are the goals of tuning a database ? What is the requirement of tuning the database queries ? *8*

(b) What is multiversion concurrency control ? How can multiversion concurrency control be achieved by using time stamp ordering ? *7*

(c) How do you perform cost calculation for simple Hash-Join ? *5*

3. (a) What are mobile databases ? Discuss the characteristics of mobile databases. Give an application of mobile databases. *7*

(b) Explain the following : *8*

   (i)   PJNF

   (ii) SQLJ

   (iii) Audit Trail

   (iv) Deductive Database

(c) What do you understand by 'Transaction' in DBMS ? Discuss the properties of concurrent transactions performed in DBMS. *5*

4. (a) Differentiate between following : *10*

   (i)   XML and HTML

   (ii) JDBC and ODBC

   (iii) Clustering and Classification

   (iv) Serial schedule and Serializable schedule

(b) Explain "log based" recovery using immediate database modification scheme. Give suitable example for explanation. *5*

(c) Discuss the concept of exclusive locks and shared locks. How are these two locks used in transaction management ? Discuss with an example. *5*

5. (a) Define the term Data mining. How is data mining different from Knowledge Discovery in Databases (KDD) ? Explain the steps of KDD with the help of an example. *7*

(b) How are object oriented databases different from relational databases ? Write an ODL syntax to create a class Employee that also references the Project class. *5*

(c) Explain the role of Query optimizer in Oracle. *3*

(d) What are web databases ? Discuss the steps required in creating a web database. *5*

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