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12SCS13

First Semester M.Tech. Degree Examination, February 2013
Advances in Database Management Systems

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions.***

1 a. Briefly discuss the characteristics of relations that make them different from ordinary tables and files. **(10 Marks)**

b. What primary characteristics should an OID posses? Explain how the concept of OID differs from that of primary key in the relational model. **(10 Marks)**

2 a. Differentiate the following with respect to OO data model : i) Structured and unstructured complex objects ii) Ownership semantics and reference semantics. **(06 Marks)**

b. Bring out the differences, objects and literals in the ODMG model. **(05 Marks)**

c. Briefly describe the following OQL concepts with examples : Entry point in database, path expressions and named queries. **(09 Marks)**

3 a. Give an outline of the mapping from an EER schema into an ODL schema. **(10 Marks)**

b. What is the nested relational model? Illustrate an application where it is useful. Also comment on NEST and UNNEST operations in relational algebra. **(08 Marks)**

c. What is the fundamental difference between row - level and statement - level active rules? **(02 Marks)**

4 a. With examples, explain the range query and nearest neighbour query of spatial queries. List the applications of spatial databases. **(06 Marks)**

b. Define the terms scale - up and speed – up in parallel database systems. The shared – nothing architecture in attractive in parallel database systems – Justify. Explain this architecture with a neat diagram. **(10 Marks)**

c. Briefly explain two kinds of interoperation parallelism that can be exploited within a query. **(04 Marks)**

5 a. Describe Semijoins and Bloomjoins with respect to join of relations at different sites. **(07 Marks)**

b. Why synchronous replication is undesirable for updating distribution data? **(03 Marks)**

c. Explain the need for a commit protocol in a distributed DBMS. Describe 2PC. **(10 Marks)**

6 a. What is the fundamental difference between MOLAP and ROLAP systems? What is a star schema? Is it typically in BCNF? Why or why not? **(07 Marks)**

b. What is the role of the metadata repository in a data warehouse? Briefly discuss the functions of back end tools and utilities of warehouse. **(08 Marks)**

c. Why are views important in decision support environments? How are views related to data warehousing and OLAP? **(05 Marks)**

7 a. Define data mining. What is the necessity of data mining in database? **(04 Marks)**

b. What is the Apriori property? Describe an algorithm for finding frequent item sets. **(08 Marks)**

c. Give the difference between classification and clustering. With an example, explain how are decision trees constructed. **(08 Marks)**

8 a. Briefly discuss multimedia applications based on their data management characteristics. **(06 Marks)**

b. Describe an infrastructure – based mobile platform, with a neat diagram. **(07 Marks)**

c. Explain the characteristics of data in geographical information systems. **(07 Marks)**

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