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14SCS13

First Semester M.Tech. Degree Examination, Dec.2014/Jan.2015
Advances in Database Management Systems

Time: 3 hrs. Max. Marks:100

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

1 a. Why are : i) Tuples in a relation not ordered
ii) Duplicate tuples are not allowed in a relation. **(04 Marks)**

b. Justify the following statements :
i) Handling NULL values is difficult
ii) Relation must have a key. **(06 Marks)**

c. List and explain the update operations on relations and constraint violations during there operations. **(10 Marks)**

2 a. What is the need for OO databases? List and explain the advantages of OODB approach. **(06 Marks)**

b. What is an object identifier (OID)? What primary characteristics an OID should process? Explain how OID differs from primary key. **(06 Marks)**

c. What are type constructors in OODBs? How are they used to create complex object structures? Represent the PROJECT entity of company database as complex object. **(08 Marks)**

3 a. Differentiate the following with respect to OO model with an example for each :
i) Overloading and overriding
ii) Structured and unstructured complex objects
iii) Polymorphism and dynamic binding
iv) Persistent object and transient object. **(08 Marks)**

b. Discuss the ODL and OQL concepts of ODMG model with an example for each. **(08 Marks)**

c. Write a note on nested relational features of oracle. **(04 Marks)**

4 a. What are the motivations behind parallel and distributed databases? **(05 Marks)**

b. Describe the three main architectures for parallel DBMSs. **(09 Marks)**

c. Differentiate pipelined parallelism and data-parallelism with example. What do we need to consider in optimizing queries for parallel execution. **(06 Marks)**

5 a. Define :
i) Distributed data independence
ii) Distributed transaction atomicity
iii) Homogeneous distributed databases
iv) Heterogeneous distributed databases. **(06 Marks)**

b. Describe the main architectures for distributed DGMSs. **(09 Marks)**

c. Discuss the data fragmentation and replication methods of storing data in distributed databases. **(05 Marks)**

6 a. What are decision support applications? Discuss the relationship of complex SQL queries, OLAP, data mining and data warehousing. **(06 Marks)**

b. Describe the multidimensional data model. Differentiate :
i) Measures and dimensions
ii) Fact tables and dimension tables. **(06 Marks)**

c. Discuss the SQL : 1999 ROLLUP and WINDOW features. **(08 Marks)**

7 a. Why are views important in data warehousing and OLAP? What are the main issues to consider in maintaining materialized views? Discuss how to use materialized views to answer a query. **(08 Marks)**

b. Define :
   i) Association rule
   ii) Support
   iii) Confidence
   iv) Sequential pattern. **(04 Marks)**

c. Describe an incremental algorithm for computing frequent item sets. **(08 Marks)**

8 a. What is a trigger? Explain the general model of a Trigger with an example. **(04 Marks)**

b. Briefly discuss the concepts and how querying is done in :
   i) Temporal databases
   ii) Spatial databases. **(08 Marks)**

c. Write a note on :
   i) Deductive databases
   ii) Multimedia databases. **(08 Marks)**

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