MCSE-203

M.E./M.Tech., II Semester

Examination, June 2013

Advanced Concept in Data Bases

Time : Three Hours

Maximum Marks : 70

Note: Attempt any five questions. All questions carry equal marks.

1. a) Give a detailed system architecture of DBMS. Explain various mappings of it.
   b) Explain the following constraints associated with ER model and the way they are represented :
      i) Cardinality constraints
      ii) Participation constraints
      iii) (Min, Max) constraints

2. a) Relational calculus is said to be a declarative language, in contrast to algebra, which is a procedural language. Explain the distinction.
   b) Describe how we can obtain a lossless join decomposition of a relation into BCNF. Give an example to show that there may not be a dependency preserving decomposition into BCNF.

3. a) What is the goal of query optimization? Why is optimization important?
   b) How is the cost of a plan estimated? What is the role of the system catalog? What is the selectivity of an access path, and how does it influence the cost of a plan.

4. a) Discuss general strategies of query processing?
   b) What are web databases? How databases are accessed through web?

5. a) What is a commit protocol and why is it required in a distributed database? Describe and compare. Two phase and three phase commit. What is blocking and how does the three phase protocol prevent it?
   b) Compare the relative merits of centralized and hierarchical deadlock detection in a distributed DBMS.

6. a) What are the new kinds of data types supported in object database systems? Give an example of each and discuss how the example situation would be handled if only an RDBMS were available.
   b) Explain briefly:
      i) Object oriented Data model.
      ii) Object Data Management Group.

7. a) What is a star schema? Is it typically in BCNF? Why or why not?
   b) What is the role of information visualization in data mining.

8. Write short notes:
   i) Data mining Techniques
   ii) Spatial databases
   iii) Mobile databases
   iv) Semantic Analyzer.

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