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DECEMBER 2015

P/ID 16106/ KAF/PITB

Time : Three hours Maximum : 75 marks

PART A — (5 × 5 = 25 marks)

Answer ALL questions.

1. (a) Why distributed databases? Compare the features of distributed and centralized databases.

Or

(b) Describe the various types of accesses to a distributed database with a neat diagram.

2. (a) Diagrammatically illustrate and discuss operator tree of a query.

Or

(b) Discuss are the properties of Group-by operations.

3. (a) How do time and timestamps help effective handling of events in a distributed database?

Or

(b) Describe about serializability in a centralized database.

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4. (a) What is the architectural issues of a client/server system? Explain.

Or

(b) What is meant by query processing? Describe the query processing issues in detail.

5. (a) Compare shared-memory and NUMA architectures.

Or

(b) Discuss in detail about the database server approach.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

6. (a) Explain the Join operation and Union operation with relevant examples.

(b) Explain the different levels of distribution transparency provided by a DDBMS for the read - only applications.

7. Describe in detail about integrity constraints in a distributed database.

8. Let S denote the result of performing a unary operation over a relation R, and let T denote the result of applying a binary operation to two relations R and S. Apply selection operation and Cartesian product during optimization.

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9. Give the procedure for transforming global queries into fragment queries.

10. How centralized and hierarchical controllers are used to detect deadlocks? Explain.

11. Give a detailed description about two-phase locking as a distributed concurrency control method.

12. Discuss avoidance-based and detection-based algorithm to prevent the access of state cache data.

13. Explain the following with an example.

    (a) Horizontal class partitioning

    (b) Vertical class partitioning.

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