Q. P. Code: 38884

(3 Hours)

Total marks : 80

Note:
- Question No. 1 is compulsory.
- Attempt any Three questions out of remaining questions.
- Make suitable assumptions whenever necessary.

Q 1: [5 X 4]
- a) What do you mean by Distributed Serializability?
- b) What are the objectives of distributed query processing ?
- c) Explain state transition diagram for 3PC.
- d) What are the different types of Fragmentation in distributed databases?

Q 2:
- a) Explain Two-phase Commit Protocol.. [10]
- b) Explain the reference Architecture of tightly coupled Federated MDBS. [10]

Q 3:
- a) Explain locking-based concurrency control protocols. [10]
- b) Explain the following transparencies in distributed database design. Data distribution transparency, transaction transparency performance transparency, DBMS transparency [10]

Q 4:

Consider the global schema: [20]
BOOKS(Book#, Primary_author, Topic, Total_stock, $price)
BOOKSTORE(Store#, City, State, Zip, Inventory_value)
STOCK(Store#, Book#, Qty)
1) Show 2 example of horizontal fragmentation.
2) Show 2 example of Vertical fragmentation.
3) Show 2 example of Derived fragmentation.

Q 5:

- a) Explain distributed Deadlock Prevention.. [10]
- b) Give the DTD or XML schema for an xml representation of the following nested-relational schema: [05]
  Emp = (ename, ChildrenSet **setof**(Children), SkillSet **setof**(Skills))
  Children = (name, Birthday)
  Birthday = (day, month, year)
  Skills = (type, ExamsSet setoff(Exams))
  Exams = (year, city).
- c) Write a query in XPath on the schema of (Q5 b) to list all skill types in Emp. [05]

Q 6:

Write notes on the following. **(any two)** [10 X 2]
- a) Component Architecture of Distributed DBMS.
- b) Phases of query processing.
- c) 2PC recovery protocols.
- d) Querying and transformation of XML data.

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