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Paper Code : PEC-IT601B Distributed Systems
UPID : 006590

Time Allotted : 3 Hours   *Full Marks :70*

The Figures in the margin indicate full marks.
Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer *any ten* of the following :   [1 x 10 = 10]
   - (I)   What is information?
   - (II)   Give two important features of distributed database.
   - (III)   Define heterogeneous distributed database
   - (IV)   Why two-phase commit protocol is used?
   - (V)   What is the purpose of using timestamp mechanism?
   - (VI)   What is logical data independence in DDBMS?
   - (VII)   Mention names of two aggregate functions.
   - (VIII) What is atomicity of a transaction?
   - (IX)   What is horizontal partitioning?
   - (X)   What do you mean by affinity of attributes?
   - (XI)   What is serializable scheduling?
   - (XII)   What is the deadlock prevention method in DDBMS?

Group-B (Short Answer Type Question)

Answer *any three* of the following :   [5 x 3 = 15]

2. What is Static query optimization? Write down the Static query optimization Algorithm.   [5]
3. What is allocation? What are the factors affecting allocation? What is minterm predicate?   [5]
4. Describe peer-to-peer architecture with diagram.   [5]
5. Write down the Dynamic query optimization methods with example.   [5]
6. Briefly discuss two-phase commit protocol.   [5]

Group-C (Long Answer Type Question)

Answer *any three* of the following :   [15 x 3 = 45]

7. What is horizontal fragmentation? Give example.   [5+10]
   Write Phorizontal Algorithm and explain with proper example.

8. What is shared and exclusive lock?   [4+4+5+2
   Discuss the timestamp protocol in relation with Distributed Database System.   ]
   Explain the significance of semi-join program in context with DDBMS.
   What is mixed fragmentation?

9. Discuss on centralized, hierarchical and distributed deadlock detection.   [6+6+3]
   What is wait-die and wound-wait rule for deadlock avoidance?
   Draw the Communication Structure of Distributed 2PL.

10. Discuss about the communicational structure for distributed transactions.   [8+7]
    Discuss about the communication structure for commit protocols.

11. Compare Linear Join Tree and Bushy Join Tree.   [6+4+5]
    Discuss different issues in Multidatabase Query Processing.
    Explain hybrid query optimization.

*** END OF PAPER ***