

**MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL**

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 ***