

Code No: 07A51202

R07**Set No. 2**

III B.Tech I Semester Examinations, May 2011
DISTRIBUTED DATABASES
Information Technology

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain the simplification of vertical fragmentation relations. [6]
 (b) Give the grammar followed by the parse tree. [6]
 (c) Write a short note on semi-join operation. [4]
2. (a) What is meant by deadlock prevention? Explain the various approaches. [8]
 (b) Explain the basic timestamp method. [8]
3. Explain in detail integrity constraints in distributed databases. [16]
4. Give and explain an example transaction execution model in distributed Multi-DBMS. [16]
5. (a) What is a database profile? Explain its role in query optimization. [8]
 (b) Explain in detail optimization of general queries. [8]
6. (a) Explain the weighted majority locking approach. [8]
 (b) Compare catalog management in Distributed- INGRES and SDD-1 systems. [8]
7. (a) Discuss avoidance-based algorithms for DBMS cache consistency. [8]
 (b) Explain the hardware and software based schemes for pointer- swizzling. [8]
8. (a) Give a note on k-resilient system. [4]
 (b) List the capabilities of LTM required to build distributed transaction manager. [4]
 (c) Explain basic 2-phase commitment protocol. [8]

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Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
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1. What for catalogs are used? What is the content of catalogs? Discuss distribution of catalogs. [16]
2. Consider the two fund-transfer transactions T_i and T_j . Show all possible executions of the two transactions if 2-phase locking is used for concurrency control. [16]
3. Describe distributed grouping and aggregate function evaluation. [16]
4. Consider the following global, fragmentation and allocation schemata :
 Global schema: ITEM (ITEMCODE, NAME, PRICE)
 Fragmentation schema: $ITEM1 = SL_{PRICE > 500} ITEM$
 $ITEM2 = SL_{PRICE \leq 500} ITEM$
 Allocation schema: ITEM1 at sites 1, 2
 ITEM2 at sites 3, 4
 Write an application that requires item code from the terminal and output the name and price at various levels transparency [16]
5. Explain how to perform object management in distributed object DBMS. [16]
6. (a) Explain in detail recovery of distribution transactions in distribution databases. [10]
 (b) "Isolation is a less desirable property of a transaction". Support this statement. [6]
7. Is the join graph cyclic? Justify your answer. Explain optimization of join queries shown in figure 1. [16]

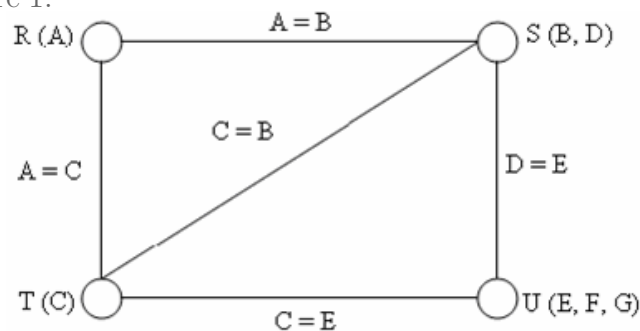


Figure 1

8. (a) Compare and contrast COM object model with CORBA.
 (b) What is the structure of a distributed multi-DBMS? Explain. [8+8]

Code No: 07A51202

R07

Set No. 1

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1. (a) Discuss the concept of data independence.
(b) Explain briefly various types of fragmentations. [8+8]
2. Discuss general queries and optimization methods for general queries. [16]
3. What is a schedule? Discuss the concept of serializability. Compare and contrast serializability in centralized databases and distributed databases. [16]
4. (a) Explain use of temporaries in multiple activations of parametric queries. [8]
(b) Discuss simplification of an operator tree using inference. [8]
5. (a) Explain the need of elimination of the PREPARE message. [5]
(b) Write about durability and isolation properties. [6]
(c) Explain k-resilient system. [5]
6. (a) Write a note on N-ary integration methods. [5]
(b) Give the structure of a distributed Multi-DBMS. [5]

Code No: 07A51202

R07

Set No. 1

- (c) Discuss the object models characteristics that are important in addressing interoperability. [6]
7. (a) Discuss about dynamic plan selection. [5]
(b) Explain path indexes. [5]
(c) Write a note on set matching in query execution. [6]
8. (a) Write about loosely synchronized checkpoints. [4]
(b) Discuss broadcasting a new state. [5]
(c) Give a note on weighted majority locking approach. [7]

FIRSTRANKER

Code No: 07A51202

R07**Set No. 3**

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Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Discuss briefly transformation of global queries into fragment queries. [16]
2. (a) Explain binary and n-ary integration methods with examples. [8]
 (b) Give a short note on push-based technologies. [8]
3. (a) Explain the problems in query optimization. [8]
 (b) Explain optimization methods for general queries. [8]
4. (a) What is log? List its content. Explain its role in recovery mechanism. [8]
 (b) Discuss the reference model of distributed transaction recovery. [8]
5. (a) Describe deadlock detection using centralized or hierarchical controllers. [8]
 (b) Explain occurrence of deadlock with conservative timestamps. [8]
6. (a) Explain storage models for object clustering. [6]
 (b) Discuss object query processor architecture. [6]
 (c) Give a short note on randomized search algorithm. [4]
7. (a) Explain catalog management of Distributed-INGRES and SDD-1 systems.. [8]
 (b) Discuss in detail Byzantine agreement. [8]
8. Consider the following global, fragmentation and allocation schemata :
 Global schema: CUSTOMER (CNO, CNAME, CCITY)
 Fragmentation schema: CUSTOMER1 = $SL_{CITY="DELHI"}$ CUSTOMER
 CUSTOMER2 = $SL_{CITY="MUMBAI"}$ CUSTOMER
 CUSTOMER3 = $SL_{CITY="RANCHI"}$ CUSTOMER
 Allocation schema: CUSTOMER1 at sites 1, 3
 CUSTOMER2 at sites 2, 4
 CUSTOMER2 at sites 1, 5
 Write an application that requires customer number from the terminal and output the name and city of the customer at level 3 transparency. [16]
