Code No: 07A51202 **R07** **Set No. 2**

III B.Tech I Semester Examinations,November 2010
DISTRIBUTED DATABASES
Information Technology

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain database interoperability in the COM/OLE environment. [8]
   (b) What is meant by schema integration? Explain in detail. [8]
2. Discuss optimistic methods for distributed concurrency control with suitable examples. [16]
3. Explain briefly a framework for transaction management. [16]
4. Explain in detail a model for query optimization. [16]
5. (a) List and explain the rules which define the result of applying the operations of relational algebra to qualified relations. [10]
   (b) Explain operator graph of a semi join operation. [6]
6. (a) Discuss page servers as a client/server architecture for distributed systems. [8]
   (b) Explain granularity locking and Orions granularity. [8]
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: SUPPLIER (SNUM, NAME, CITY)
   Fragmentation schema: SUPPLIER1 = $SL_{CITY=\text{“}BANGALORE\text{”}}$ SUPPLIER
   SUPPLIER2 = $SL_{CITY=\text{“}HYDERABAD\text{”}}$ SUPPLIER
   Allocation schema: SUPPLIER1 at site 1
   SUPPLIER2 at site 1, site 2
   Write an application that moves a supplier whose number and city are given at the terminal to the other city at level 3 transparency. [16]

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Code No: 07A51202 **R07** **Set No. 4**

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

Answer any FIVE Questions
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1. Explain the query processing methodology in object DBMS. [16]
2. Explain briefly a framework for query optimization with suitable illustrations. [16]
3. (a) Give the classification of reliability algorithms. [4]
   (b) Explain the problem with basic 2-phase commitment protocol. [5]
   (c) Discuss the reference model for distributed concurrency control. [7]
4. (a) Two schemas can be related in four possible ways. Explain them with examples. [8]
   (b) Describe query processing steps in Multi database systems. [8]
5. Consider the global schema and generate the fragmentation schema using various types of fragmentation.
   EMP (EMPID, NAME, ADDRESS, CITY, DESIGNATION)
   DEPT (DEPTID, DEPTNAME, BUDGET, MGRNUM)
   WORKSFOR (EMPID, DEPTID, SALARY). [16]
6. (a) Discuss distributed deadlock prevention approaches. [8]
   (b) List and explain the rules applied by basic timestamp mechanism. [8]
7. (a) Explain how 3-phase commitment protocol eliminates the blocking problem of the 2-phase commitment protocol. [8]
   (b) Is redundancy a desirable feature for distributed database? Justify your answer. [8]
8. Determine common sub-expressions in the following global query and simplify the global query. Explain the process of simplification in detail.
   ($SL_{DEPTNUM=10}$ DEPT NJN ($SL_{PNUM=\text{“}P1\text{”}}$ SUPPLY DF $SL_{PNUM=\text{“}P2\text{”}}$ SUPPLY))
   UN ($SL_{DEPTNUM=10}$ DEPT NJN $SL_{PNUM=\text{“}P1\text{”}}$ SUPPLY). [16]

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Code No: 07A51202 **R07** **Set No. 1**

III B.Tech I Semester Examinations,November 2010
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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
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1. (a) Discuss the steps of delivery schedule generation algorithm. [8]
   (b) Explain the CORBA architecture. [8]
2. Give and explain reference architecture for distributed databases. [16]
3. (a) Explain search space and transformation rules for query processing. . [8]
   (b) Discuss in detail object identifier management. [8]
4. (a) Explain in detail the RESPONSE algorithm. [8]
   (b) Discuss the effect of commuting joins and unions in general query optimization. [8]
5. Consider the DWFG
   Site1 Site 2
   T2———→T2→T3
   ↑
   T1←———-T1←T3.
   Detect the deadlock using various algorithms. [16]
6. (a) Discuss failure classification. [6]
   (b) Compare and contrast centralized and hierarchical structures. [6]
   (c) What is meant by sub-transaction? Explain. [4]
7. (a) Explain the enhancement of the primary copy approach. [6]
   (b) Why redundancy is introduced in a distributed databases? [6]
   (c) Write about commission errors and omission errors. [4]
8. Compute the following expression, using the algebra of qualified relations. Explain in detail the process of computation.
   $PJ_{R3.T}$ SL_b ((([R1: c] CP [R2: NOT b]) UN ([R1: c] JN_F [R2: NOT b])) DF ([R3: d] JN_F [S2: a])). [16]

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Code No: 07A51202 **R07** **Set No. 3**

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

Answer any FIVE Questions
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1. (a) Explain object query processor architecture. [8]
   (b) Discuss the important issues of query processing in object DBMSs. [8]
2. Describe distributed grouping and aggregate function evaluation. [16]
3. Explain the architectural aspect of distributed transaction. [16]
4. (a) Explain the database integration process. [8]
   (b) Discuss the database interoperability in the COM/OLE environment. [8]
5. (a) Explain the state diagrams for the 3-phase commitment protocol. [8]
   (b) Describe inconsistency resolution in distributed databases. [8]
6. (a) Discuss the estimation of the profiles of the results of algebraic operations-union, difference, Cartesian product. [8]
   (b) Explain basic SDD-1 algorithm. [8]
7. Let objects x and y be stored at site1 and objects w and z be stored at site 2. Determine for each of the following executions, whether the execution is serializable or not. Justify your answer.

Execution1:	Execution2:
S1: Ri(x)Rj(x)Wi(x)Wj(y)	S1: Ri(y) Rj(x) Wj(x)
S2: Ri(z)Rj(z)Wj(z)Wi(w)	S2:Wi(z)Ri(w)Rj(w)Wi(w).

   [16]
8. Consider the following global, fragmentation and allocation schemata : Global schema: SAILOR (SID, SNAME, AGE, RATING)
   Fragmentation schema: SAILOR1 = $SL_{RATING>5}$ SAILOR
   SAILOR2 = $SL_{RATING<=5}$ SAILOR
   Allocation schema: SAILOR1 at sites 1, 2
   SAILOR2 at sites 3, 4
   Write an application to change rating of sailor with id 232 from 4 to 6 at levels of 1, 2 and 3 of transparency. [16]

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