Sub:- Distributed Database

(3 Hours)

QP Code : 5067

[Total Marks: 80]

N.B. : (1) Question **No. 1** is **compulsory**.
   (2) Answer any **three** out of the **remaining** questions.

Q.1   Consider following global schema of an company database who keep track of company's employees , department and projects.

EMP

ENO	ENAME	TITLE
E1	JOHN	Elect Eng
E2	SAM	Syst. Anal.
E3	TOM	Mech Eng
E4	SMITH	Programmer
E5	DAVID	Syst. Anal.
E6	GAYLE	Elect Eng.
E7	JACK	Mech Eng.
E8	HARRY	Sys Anal

ASG

ENO	PNO	RESP	DUR
E1	P1	Manage	12
E2	P1	Analyst	24
E2	P2	Analyst	6
E3	P3	Consultant	10
E3	P4	Engineer	48
E4	P2	Programmer	18
E5	P2	Manager	24
E6	P4	Manager	48
E7	P3	Engineer	36
E8	P5	Manager	40

PROJ

PNO	PNAME	BUDGET	LOC
P1	e-commerce	150000	Delhi
P2	Database	135000	Mumbai
P3	ERP	250000	Mumbai
P4	CAD/CAM	310000	Pune

PAY

TITLE	SAL
Elect Eng.	40000
Syst. Anal	34000
Mech Eng	27000
Programmer	24000

[a]   Perform Primary Horizontal Fragmentation (PHF) of relation PROJ with pname and budget of projects given their number issued at three sites and access project information according to budget one site accesses ≤200000 other accesses >200000.   [06]

[b]   Explain how the above resulting PHF fulfill the correctness rules of fragmentation.   [04]

[c]   Perform Derived Horizontal Fragmentation (DHF) of relation EMP with respect to PAY {p_1:sal>30000 and p_2:sal≤30000}   [06]

[d]   Explain how the above resulting DHF fulfill the correctness rules of fragmentation.   [04]

Q.2   [a]   Draw and Explain model of transaction management in DDB.   [10]
   [b]   Explain Following transparency for distributed database.   [10]
      (1) Network Transparency (ii) Replication Transparency (iii) Fragmentation Transparency

[TURN OVER

Q. 3   [a]   Draw and explain Layers of Query Processing in distributed database.   [10]

       [b]   What is query optimization? List distributed query optimization alogorithims   [10]
and explain any one from that.

Q.4   [a]   University databse contains information about the course and the Prfiessors   [10]
who teach the courses in each semster. Each course must also have information
about the number of student enrolled, room no. data and time (when and where
the cousre is conducted)
i) Write DTD rules for above XML documents.
ii) Create an XML schma for above XML documets.

       [b]   Describe any two method for deadlock detection in distributed database?   [10]

Q.5   [a]   Explain Timestamp-based councurrency control mechanisms in DDB.   [10]

       [b]   State the purpose of 2PC protocol. Explin 2PC in detail.   [10]

Q.6   Write Short notes on(Any Two)   [20]
a) Architecture of Heterogeneous database
b) Affinity Matrix
b) Design issue of Distributed Database.
c) Distributed Database Architecture

(3 Hours) [Total Marks : 80

N.B.: (1) Question **1** is **compulsory**.
    (2) Attempt **any 3** questions out of the rest.

1. (a) Draw and Explain Electromagnetic Spectrum for communication.   5
   (b) Explain Hidden station and exposed station problems in WLAN   5
   (c) Explain various types of handoffs in GSM network   5
   (d) Explain GSM Frame Hierarchy   5

2. (a) Explain synchronization in 802.11 MAC management layer for both   10
      Infrastructure as well Ad-hoc WLANs.

   (b) Explain GPRS architecture in detail. Compare it with GSM architecture   10

3. (a) Compare HIPERLAN-1, HIPERLAN-2 and 802.11 W-LAN   10

   (b) Explain the functioning of I-TCP and SNOOP-TCP , giving advantages and   10
      disadvantages of both.

4. (a) Why is Mobile IP packet required to be forwarded through a tunnel.   10
      Explain minimal techniques of encapsulation of Mobile IP packet

   (b) Explain functioning of Bluetooth Baseband layer   10

5. (a) Explain UMTS architecture. Explain UTRA -FDD and TDD modes   10

   (b) Explain how Mobile Terminated Call works detailing the role of   10
      HLR and VLR

6. Short Notes on **any 2**   20
   (a) Wireless Local Loop
   (b) Privacy and Authentication in GSM
   (c) Android framework