Q.P. Code: 24230

(3 Hours)

Total marks : 80

Note:

- Question No. 1 is compulsory.
- Attempt any Three questions out of remaining questions.
- Make suitable assumptions whenever necessary.

Q1: [5 X 4]

a) What are the different deadlock avoidance techniques ?
b) What are the approaches for global query optimization ?
c) Compare federated databases with non-federated databases.
d) What are the Concurrency Control Anomalies ?

Q2:

a) Explain Design issues of Distributed DBMS. [10]
b) Discuss Allocation of fragments in detail. [10]

Q3:

a) Explain ACID properties of transaction management . [10]
b) Discuss different types of Locking Mechanisms. [10]

Q4:

Consider the global schema: [20]
PATIENT(Number, name, UID, Amount_due, Dept, Doctor, Med_treatment)
DEPARTMENT (Dept, Location, Director)
STAFF (Staffnum, Director, Task).
1) Show 2 example of horizontal fragmentation.
2) Show 2 example of Vertical fragmentation.
3) Show 2 example of Derived fragmentation.

Q5:

a) Explain different Types of Failures in a Distributed Database System. [10]
b) Design XML DTD file and XML document file for the following relational
   schema: [10]
   customer(cname,cresidence,ctel)
   item(item-name,item-code)
   order-request(customer, set of product)
   ctel can be a residence number or a mobile number.

Q6:

Write notes on the following. (any two) [10 X 2]
a) Reference Architecture of Distributed DBMS.
b) Objectives of query processing.
c) 3PC recovery protocols.
d) Querying and transformation of XML data.

Q. P. Code:-22992

(3 hours) [Total Marks: 80]

NB:

1) Question No.1 is **compulsory**.
2) Attempt any **three** questions out of the remaining questions.
3) Make suitable assumptions wherever necessary.

1. a) Compare WCDMA and CDMA 2000. (5)
   b) What is the relationship between the Base Station and Mobile (5) Switching Centre? Discuss the role of EIR entity of GSM network.
   c) Why do Hidden and Exposed terminal problems arise? How would you (5) propose to solve it?
   d) Define footprint w.r.t satellite systems. Draw and explain how (5) communication within the footprint happens?

2. a) Explain power management in IEEE 802.11 infrastructure networks and (10) ad-hoc networks.
   b) Looking at the HLR/VLR database used in GSM how does this (10) architecture limit the scalability in terms of users, especially moving users? Explain the control channels of GSM.

3. a) How the agent can be discovered using Mobile IP? Give the overlay of (10) agent advertisement packet which includes mobility extension. Also, discuss how tunneling works for Mobile IP using IP-in-IP encapsulation.
   b) Draw and explain the architecture of TETRA and specify the standards (10) and services offered by TETRA.

4. a) Explain the various security issues involved in mobile computing. (10)
   b) Compare and contrast HIPERLAN2 and IEEE 802.11. (10)

5. a) Describe Bluetooth architecture and protocol stack. Also, discuss its (10) limitations.
   b) Explain the data rate enhancement with the help of GPRS network (10) model. What is the maximum data rate obtained by GPRS network?

6. Write short notes on the following :
   a) Dalvik Virtual Machine (DVM). (5)
   b) M-TCP. (5)
   c) Wireless Local Loop (WLL). (5)
   d) QoS in 3G. (5)

****

D22DB1B264D0DADCC265B273A94B56A2