

(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: [10]

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

Q3: [10]

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

Q4: [20]

- 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: [10]

- 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: [10 X 2]

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