2124
M.E. (Computer Science and Engineering)
First Semester
CS-8102: Advance Databases
(For UIET Only)

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt <u>five</u> questions in all, including Question No. I which is compulsory and selecting two questions from each Section.

x-x-x

Q-1 Answer the following in brief:
  a. What is a multidatabase system? Describe its reference architecture.
  b. Discuss the four data allocation strategies.
  c. What is multiversion concurrency control? Explain how multiversion concurrencey control can be achieved based on time stamp ordering?
  d. Difference between SQL2 and SQL3
  e. Compare log-base recovery and shadow paging.

(5x2)

Section- A

Q-2 (a) Discuss the functions of ODL and OQL in object-oriented databases.
  (b) Is the following XML document well formed? Justify your answer:
```
<?xml version = "1.0" standalone ="yess" ? >
<employee >
        <name > Amit </name >
        <position > Professor </position >
</employee >
<employee >
        <name > Sumit </name >
        <position > Reader </position >
</employee>
```
(5,5)

Q-3 (a) What is UDTS? Give one example.
(b) Expand ODMG. When is it necessary?
(C) With the help of a diagram, explain the reference architecture of Distributed DBMS. How is this different from component Architecture of DDBMS?

(2,3,5)

Q-4 (a) Discuss the shadow paging recovery scheme.
 (b) Explain and discuss the architecture of Datawarehouse. Explain each term in detail.

(5,5)

Section- B

Q-5 (a) Consider the relation that is fragmented horizontally by Lcard number.
Student (name, address, marks, semester, Lcard-number)
Assume that each fragment has two replicas: one stored at L1 and other stored at L2. Describe the good processing strategy for the following queries at L3.
  (i)   Average marks of all students.
  (ii)   Find the highest marks obtained by student at L4
(b) How are recursive queries specified in SQL? Explain.

(6,4)

Q-6 (a) Elaborate about deductive, temporal, mobile and multimedia databases. Show the utility and usage of all four in emerging the database technologies.
(b) "2 Phase locking protocol uses waiting whereas time stamping method uses Roll back of Transaction, to avoid non serializable execution". By considering the same transaction schedule, compare the above two execution strategies for concurrent transactions.

(5,5)

Q-7 (a) Give differences in DTD and XML schema while specifying their syntax and example.
(b) Why do you need 3 Phase Commit (3PC) Protocol in case of distributed Databases? Explain the 3PC protocol with the help of a diagram.

(5,5)

x-x-x