## Seventh Semester B. E. (Computer Technology) (CBS) Examination

## ADVANCED DATABASE SYSTEMS

Elective I

Time : Three Hours ]

| Max. Marks : 80

N. B. : (1) All questions carry marks as indicated.

(2) Solve Question 1 OR Questions No. 2.

(3) Solve Question 3 OR Questions No. 4.

(4) Solve Question 5 OR Questions No. 6.

(5) Solve Question 7 OR Questions No. 8.

(6) Solve Question 9 OR Questions No. 10.

(7) Solve Question 11 OR Questions No. 12.

(8) Due credit will be given to neatness and adequate dimensions.

(9) Assume suitable data wherever necessary.

(10) Diagrams should be given wherever necessary.

(11) Illustrate your answers wherever necessary with the help of neat sketches.


1. (A) What is concurrency control ? How can it be achieved in DDBMS ?  7

   (B) Distinguish between homogeneous and Heterogeneous Databases.  6    3

### OR

2. (A) Explain the various steps in distributed query processing.  7

   (B) What is Lightweight Directory Access Protocol ? Why is it needed ? Explain.  6

3. (A) What is I/O parallelism in distributed databases ? What are different partitioning techniques to achieve it ?    7

(B) Compare and contrast Interquery and Intraquery parallelism.    6

**OR**

4. (A) Write short notes on :—
   (i) Range - Partitioning Sort
   (ii) Parallel External Sort Merge.    6

(B) What are parallel join ? Discuss the following parallel join :—
   (a) Partitioned join.
   (b) Fragment – and – Replicate join.    7

5. (A)
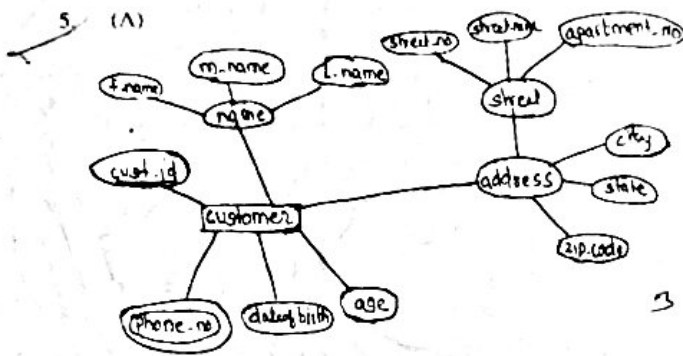


Consider an ER – Diagram given above which

contain composite, multivalued and derived attributes
   (a) Give an SQL schema definition corresponding to the ER Diagram.
   (b) Give constructors for each of the structured types defined above.    6

(B) How does the concept of an object in the object oriented model differ from the concept of an entity in the entity relationship model ?    7

**OR**

6. (A) How to implement Object Identity and Reference types in SQL ?    6

(B) What do you mean by persistent programming Languages ? Explain —
   (i) Persistence of objects and.
   (ii) Storage and access of persistence objects.    7

7. (A) Describe the following approaches of storing XML data in the relational format :—
   (i) Store as string.
   (ii) Tree representation.
   (iii) Mapping XML data to Relations.
   (iv) Native storage within a Relational Databases.    10

(B) Discuss the alternatives for storing XML data in non – relational data – storage systems.    4

**OR**

8. (A) Explain the Tree Model of XML.    4

14 + 3 = A - 18

21

35

(B) How to implement the following in XQUERY :

   (i) FLWOR Expressions,

   (ii) Joins,

   (iii) Nested Queries,

   (iv) Function and Types.      10

9. (A) Draw and discuss the various components of Datawarehouse Architecture.     7

   (B) Discuss the various pre – processing steps for building a datawarehouse.     7

**OR**

10. (A) What is Data Cube ? What different operations can be performed on data cubes ? Explain with examples.     7

   (B) What is Multidimensional Data Models for datawarehousing ? Explain star schema and snowflake schema.     7

11. (A) What is Locking ? Explain the types and levels of locking.     6

   (B) What is statistical database ? How statistical database auditing and control is performed ?     7

**OR**

12. (A) What are privileges in DBMS ? Explain various security issues based upon granting / revoking of privileges.     6

   (B) Explain the various security and integrity threats to the database management systems and discuss various defence mechanisms for it.     7