

N. B. : (1) Question No. 1 is compulsory.

- (2) Answer any four questions out of remaining questions.
(3) Illustrate answer with sketches wherever required.
(4) Assume necessary data if required.

1. Design and implement a database that manages information about Hospital. Some information includes :
- (i) Permanent doctors get fixed salary. Personal information like name, address, date of birth, etc. required. Consulting doctors visits at fixed time everyday. Information like name contact number, specialization, charges etc are required.
 - (ii) Patients are admitted to the hospital. Personal information like name, address, relative's name and address patient's blood group, reason of admission, etc are required.
 - (iii) Patient are admitted to room of different types, per day charges depend on room type.
 - (iv) Various labs in hospital, where several tests conducted on patient each test has fixed charges.
- (a) Draw an extended E-R diagram for the system. 7
- (b) Design an object - oriented Schema 8
- (c) Take two typical queries and write them in OQL. 5
2. (a) How concurrency control and recovery is done in Distributed Database. 10
- (b) What is a datawarehouse ? Explain star and snowflake schema ? How they are constructed. 10
3. (a) Explain Data Mining with respect to Knowledge discovery in database. Also explain 'classification' in data mining. Discuss the 'decision tree classifier' technique for classification. 10
- (b) Explain object structure and type constructors. 10
4. (a) What is DTD ? Give the DTD for an XML representation of the following nested relational schema. 10
- Emp = (ename, Childrenset setof(children), Skillsetsetof(skills))
Children = (name, Birthday)
Birthday = (day, month, year)
Skills = (type, Examset, setof(exams))
Exams = (year, city)
- (b) What is difference between Persistent and Transient objects. How is persistence handled in typical object - oriented system. 10
5. (a) Describe different architecture for Parallel Database. 10
- (b) Explain mobile databases and multimedia databases. 10
6. (a) Consider a bank that has a collection of sites, each running a database system. Suppose the only way the databases interact is by electronic transfer of money between one another. Would such a system qualify as a distributed database ? Why ? 10
- (b) What are XML application ? Explain Querying and transformation of XML data. 10
7. Write notes on (any four) :— 20
- (a) Complex object
 - (b) OLAP
 - (c) Deductive Database System
 - (d) Features of SQL 3
 - (e) Geographic Information System (GIS)