(29)

Examination Roll No.....

YMCA UNIVERSITY OF SCIENCE & TECHNOLOGY, FARIDABAD

B. TECH. COMPUTER ENGINEERING 4TH SEMESTER (UNDER CBS)

Database Management Systems (CE-202)

Time: 3 Hours Max. Marks: 60

Note: 1. It is compulsory to answer the questions of Part - A. Limit your answers within 20-40 word in this part.

2. Answer any four questions from Part - B in detail.

PART – A

Q1 (a) What are the responsibilities of a DBA? (2)

(b) What is redundancy? What are the disadvantages of having redundancy within a database? (2)

(c) What is the difference between a database schema and a database state? (2)

(d) Discuss the role of a high-level data model in the database design process. (2)

(e) What is a transaction? How does it differ from an update? (2)

(f) What role does the concept of foreign key play when specifying the most common types of meaningful join operations? (2)

(g) When is query language called relationally complete? (2)

(h) What undesirable dependencies are avoided when a relation is in 3NF? (2)

(i) How is the concept of serializability useful for concurrency control? (2)

(j) What is mixed fragmentation? Give an example. (2)

PART – B

Q2 (a) Differentiate between file processing system and database system. Explain various advantages of database system over file processing system. (5)

(b) Explain the three-tier client / server architecture. Where is it used? (5)

Q3 (a) What do you mean by E-R Model? Discuss the naming conventions and notations used for representing E-R diagram with the help of suitable examples. How an E-R model can be converted into a Relational model? (7)

(b) Explain Super Key, Candidate Key and Alternate Key using suitable example. (3)

Q4 Discuss and differentiate between hierarchical, network and relational data models. Also explain with examples some cases where hierarchical model is better than others, where network model is better than others and where relational model is better than others. (10)

Q5 (a) What do you mean by constraints? Discuss various types of constraints in SQL. (5)

(b) Explain with examples the following operations performed on relations: (5)
(i) SELECT (ii) PROJECT (iii) CARTESIAN PRODUCT (iv) JOIN.

Q6 (a) What do you mean by functional dependency? Distinguish between (i) Full and partial functional dependency (ii) Trivial and non-trivial functional dependency. (5)

(b) Discuss various hashing techniques. (5)

Q7 (a) Discuss in brief (i) Log Base Recovery, and (ii) Two Phase Locking scheme. (5)

(b) Explain various types of distributed databases.