53 (IT 402) DBMS

2017

DATABASE MANAGEMENT SYSTEMS

Paper : IT 402 (Back)

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* Answer in short : 3×5=15

   (i) What is the purpose of using Database Management System.

   (ii) What is logical data independence ?

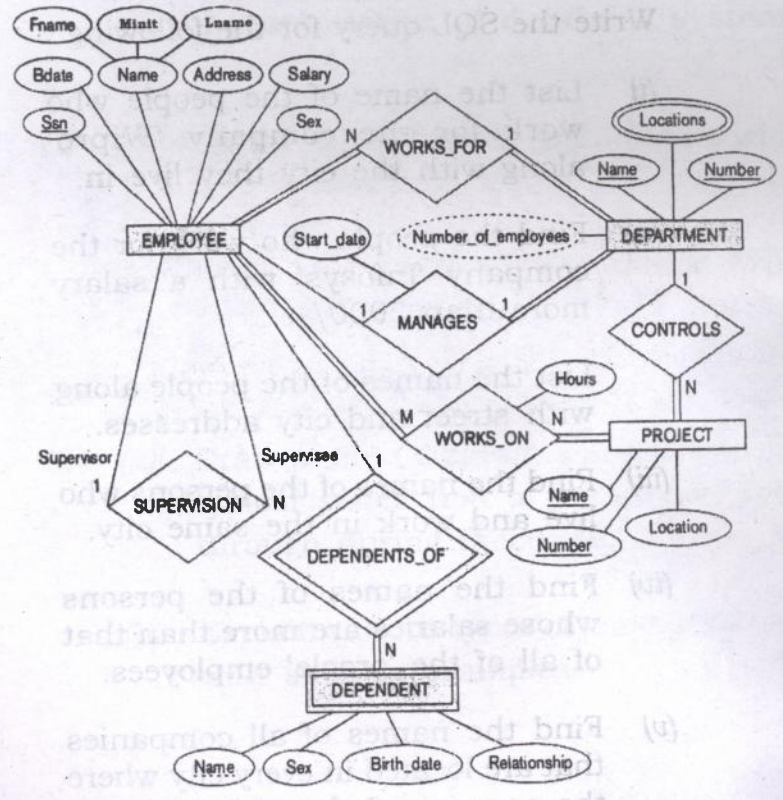   *(iii)* What do you mean by simple and composite attribute ?

(iv) What do you mean by referential integrity ?

(v) What is cardinality ratio in RDBMS ?

(b) Discuss briefly about the various characteristics of database system. 5

2. *(a)* Explain ANSI-SPARC Architecture with neat diagram. 10

(b) What is normalization ? Define 1NF, 2NF, 3NF and Boyce Codd Normal Form. 10

3. *(a)* Draw a state diagram and discuss the typical states that a transaction goes through during execution. 10

(b) Explain various types of join operations with suitable examples. 10

4. *(a)* Consider the following relations : 15
Works (Pname, Cname, Salary)
Lives (Pname, street, city)
Located_In (Cname, city)
Manager (Pname, Mgrname)
Where Pname = Person name, Cname = Company name and Mgrname = Manager name.
Write the SQL query for the following :

(i) List the name of the people who work for the company 'Wipro' along with the city they live in.

(ii) Find the people who work for the company 'Infosys' with a salary more than 5000/-.

List the names of the people along with street and city addresses.

(iii) Find the names of the persons who live and work in the same city.

(iv) Find the names of the persons whose salaries are more than that of all of the 'oracle' employees.

(v) Find the names of all companies that are located in every city where the company 'Infosys' is located.

(b) What are the physical logical and view level data abstraction ? 5

5. *(a)* Convert the following ER schema into relational schema. Also indicate the primary and foreign keys in relations. 15

The ER conceptual schema diagram for the COMPANY database.

(b) What is functional dependency ? Explain its types in details. 5

6. Write short notes on : *(any four)* 5×4=20

(i) Query Optimization

(ii) Relational Calculus

(iii) Role of DBA

(iv) Keys

(v) Specialization and Generalization.