

Exam. Code : 105704

Subject Code : 1554

**B.Sc. (Information Technology) Semester—IV**  
**DATABASE MANAGEMENT SYSTEM & ORACLE**  
**Paper—I**

Time Allowed—3 Hours]

[Maximum Marks—75

**Note** :— There are **EIGHT** questions in the question paper. The candidates are required to attempt any **FIVE** of them. Each question carries 15 marks.

1. How a relational model is different from Hierarchical model and Network model? Explain. 15
2. (i) Briefly explain different keys used in the relational database system. 7  
(ii) What is the relationship between data, fields, record, file, database and database management system? 8
3. Explain why and how we can eliminate data redundancy from database systems? 15
4. Describe the different components of entity-relationship diagram with suitable examples. 15

5. Why concurrency control is required in database systems ?  
How concurrency control can be ensured in a database system ? 15

6. Consider the following relational database :-

employee (employee-name, street, city)

works (employee-name, company-name, salary)

company (company-name, city)

managers (employee-name, manager-name)

Give an expression in SQL to express each of the following queries :

- (i) Find the names and cities of residence of all employees who work for XYZ Bank.
- (ii) Find the names, street address and cities of residence of all employees who work for XYZ Bank and earn more than Rs. 10,000 per annum.
- (iii) Find the names of all employees in this database who live in the same city as the company for which they work.



- (iv) Find the names of all employees who live in the same city and on the same street as do their managers.
- (v) Find the names of employees and the names of their managers. 15
7. (i) Briefly explain the differences between PL/SQL and SQL. 9
- (ii) List the differences between DDL, DML and DCL. 6
8. Write short notes on the following :
- (i) Cursors
- (ii) ACID properties of a transaction.  $2 \times 7.5 = 15$