



**V Semester B.E. (CSE/ISE) Degree Examination, June/July 2017  
(2K11 Scheme)**

**CI51 : DATA BASE MANAGEMENT SYSTEM**

Time : 3 Hours

Max. Marks : 100

***Instruction : Answer **any 5** questions, selecting at least **two** from each Part.***

**PART – A**

1. a) Define DBMS. Compare DBMS v/s File system. **10**  
b) Discuss classification of DBMS. **10**
2. a) Explain ER model concepts. **10**  
b) Discuss ER-Relational Mapping procedure. **10**
3. a) Discuss JOIN and division operations of Relational Algebra. **10**  
b) Consider the following schema of a company database : **10**

Employees (eid: integer, ename: string, address: string, supereid: integer)

Departments (did: integer, dname: string)

Projects (pid: integer, pname: string, did: integer)

Works\_on (eid: integer, pid: integer, hours: integer)

Each employee has a supervisor (another employee) referenced by his/her supereid.

Projects are uniquely assigned to a department.

The works\_on relation records which employee works on which project for how many hours a week.

Formulate each of the following queries in Relational Algebra (RA).

- 1) For each employee, find his/her name and the name of his/her supervisor.
- 2) Find the pid of projects of department with dname = "Tools" for which at least two different employees work.

**P.T.O.**



4. a) For the above company database, write SQL statements for : 10
- 1) List the employee name and project name and determine the working hours spent on each project.
  - 2) Show the dname of each project and who's supervisor of it.
- b) Explain VIEWS in SQL. 10

### PART – B

5. Consider a relation for published books :  
 Book(BookTitle, Autorname, BookType, Price),  
 FD1:BookTitle → Publisher, BookType  
 FD2:BookType → Price  
 FD3:Autorname → AutoAffiliation
- a) What normal form is the relation in ? Explain your answer. 10
  - b) Apply normalization until you cannot decompose further. State the reason for decomposition in detail. 5
  - c) Explain Fifth Normal Form. 5
6. a) Explain RAID technology. 10
- b) Discuss different types of hashing techniques. 10
7. a) Discuss ORACLE architecture of commercial database systems, with a neat diagram of database system. 10
- b) Explain MS-Access features. 10
8. Write short notes on : (4×5=20)
- a) Multimedia DB
  - b) Parallel DB
  - c) Data mining
  - d) Digital libraries.

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