

B. TECH (INFORMATION TECHNOLOGY)
THIRD SEMESTER END TERM EXAMINATION:
NOVEMBER, 2010

DATA BASE MANAGEMENT SYSTEMS

Time : 3 Hrs.

Maximum Marks : 70

Note: Attempt questions from all sections as directed.

SECTION - A (30 Marks)

Attempt any 5 questions.

* Each question carries 6 marks.

1. (a) What is the difference between physical and logical data independence? (3)
- (b) Discuss the advantages and characteristics of 2-tier and 3-tier architecture. (3)
2. (a) Describe the main components of DBMS with a neat sketch? (3)
- (b) Explain the structure of DBMS? (3)

P.T.O.

3. (a) What is Data Dictionary? Explain its function and components with a neat diagram. (10)
- (b) Describe the different types of database languages and their functions in database system. (10)
4. Discuss the roles of the following personnel in database environment:
- (a) Database administrator
 - (b) Application developer
 - (c) End-users (2+2+2)
5. Describe the basic features of Hierarchical data model and Discuss their advantages, disadvantages and importance to the end user and the designer.
6. What are multimedia database and explain different multimedia sources with example.

SECTION - B (20 Marks)

Attempt any 2 questions.

Each question carries 10 marks.

7. If a deadlock is avoided by a deadlock avoidance schemes, is starvation still possible? Explain your answer.

8. Most implementation of database systems use strict two phase locking. Suggest 3 reasons for the popularity of this protocol.
9. (a) Describe 3-NF, BCNF, Multivalued and 4NF with example? (5)
- (b) Differentiate between 3NF, BCNF and 4NF? (5)

SECTION - C
(Compulsory)

(20 Marks)

10. (a) Draw an E-R diagram that captures the below information

An enterprise database needs to store information as follows :

Employee (Emp_Id, Salary, Phone)

Departments (Dept_Id, Dept_Name, Budget)

Employee_children (Name, Age)

Employee 'work' in departments, each department is 'managed by' an employee. A child must be identified uniquely by 'name' when the parent (who is an employee) is known. Once the parent leaves the enterprise the information about the child is not required. (10)

P.T.O.

(b) Consider the following relational schema and write the queries in SQL, Relational Algebra, QBE and Calculus (Tuple and Domain)

Supplier (Sup_Id, Sup_Name, City)

Parts (Parts_Id, Parts_Name, Color)

Orders (Sup_Id, Parts_Id, Qty)

- (i) Display the names of the suppliers located in Delhi.
- (ii) Print the names of the RED parts that have been ordered from suppliers located in Mumbai, Kolkata and Jaipur. (10)