

B. Tech Degree V Semester (Supplementary) Examination

July 2009

IT/CS 505 DATABASE MANAGEMENT SYSTEMS

(2006 Scheme)

Time : 3 Hours

Maximum Marks : 100

PART - A

(Answer ALL questions)

(All questions carry EQUAL marks)

(8 x 5 = 40)

- I. (a) List five functions of Data Base Management Systems.
 (b) Draw the three schema architecture of data base and explain the functions of each schema.
 (c) Differentiate between fixed length and variable length records.
 (d) List the advantages and disadvantages of ordered records over heap files.
 (e) Differentiate between Cartesian product and join operation in relational Algebra.
 (f) Explain the terms super key, candidate key, primary key and foreign key.
 (g) Explain *any five* characteristics of a data warehouse.
 (h) Explain ACID properties of transaction.

PART - B

(4 x 15 = 60)

- II. (a) Explain the concept of generalization and specialization with example. (7)
 (b) Explain in detail different categories of data models. (8)
- OR**
- III. (a) Describe *any five* advantages of database approach over file system approach. (5)
 (b) Identify relevant attributes and construct an ER diagram for a university which has many departments and each department has multiple instructors; one among them is the head of the department. An instructor belongs to only one department, each department offers multiple courses, each of which is taught by a single instructor. A student may enroll for many courses offered by different departments. (10)
- IV. (a) Differentiate between closed and open hashing. Discuss the relative merits of each technique in database application. (5)
 (b) Describe multilevel indexing with necessary diagram. How does multilevel indexing improve the efficiency of searching an index file. (10)
- OR**
- V. Differentiate between static and dynamic external hashing techniques. Explain the various hashing techniques used in both categories with necessary diagrams. (15)
- VI. (a) Write down Armstrong's inference rules. What do you mean by saying that "These rules are complete and sound"? Show other inference rules that can be derived from these rules. (7)
 (b) Explain four types of join operations with examples. (8)
- OR**
- VII. Define normalization. 1NF, 2NF, 3NF and BCNF with examples. (15)
- VIII. (a) Compare between deferred update and immediate update for database recovery with suitable example. (10)
 (b) Describe Binary Locking technique for concurrency control. (5)
- OR**
- IX. (a) Describe shadow paging recovery techniques with necessary diagram. (7)
 (b) Explain the following feature of object oriented database : (7)
 (i) Encapsulation (ii) Inheritance (iii) Polymorphism. (8)

