

B.Tech Degree V Semester Examination

December 2004

IT/CS 505 DATABASE MANAGEMENT SYSTEMS

(2002 Admissions)

Time: 3 Hours

Maximum Marks: 100

- I. (a) Describe the three schema architecture. Why do we need mapping between the different schema levels? (10)
 (b) When is the concept of a weak entity set useful in data modelling? Define the terms owner entity type and weak entity type. (10)
- OR**
- II. (a) What is meant by the degree of a relationship? Discuss the condition under which a ternary relationship can be expressed by a number of binary relationships. (10)
 (b) A company database keeps track of employees, departments and projects. The company has a number of departments, each with unique name, number and a manager. Each department controls a number of projects with name, number and a starting date. Each employ has a name, address and birth date. An employee is assigned to a single department but works on several projects. Construct an E - R diagram for the company database. (10)
- III. (a) What is multilevel indexing? How does multi level indexing improve the efficiency of searching? (10)
 (b) Differentiate between fixed length, variable length spanned and unspanned records. (10)
- OR**
- IV. (a) How does B tree differ from B⁺ tree? Why is a B⁺ tree usually preferred as an access structure to a datafile? (10)
 (b) Describe internal and external hashing. (10)
- V. (a) Describe the various types of constraints that can be specified on a Relational Schema. (12)
 (b) Discuss various types of join operations. (8)
- OR**
- VI. (a) What is a view in SQL? How is it defined? Discuss the problems that may arise when one attempts to update a view. } (20)
 (b) Describe I, II and III normal forms with suitable examples. }
- VII. (a) Discuss the time stamp ordering protocol for concurrency control. (10)
 (b) How does granularity of data items affect the performance of concurrency control? What factors affect selection of granularity size of data items? (10)
- OR**
- VIII. (a) Describe shadow paging recovery technique. (10)
 (b) What are the types of privileges available in SQL? What is meant by granting and revoking privileges? (10)
- IX. (a) Write a short note on distributed query processing. (10)
 (b) Explain the need for 2 phase commit protocol. Describe the two phases in detail. (10)
- OR**
- (a) Give the general characteristics of Object Oriented Databases. What is the difference between persistent and transient objects? How is persistence handled? (10)
 (b) Explain the characteristics of a data warehouse. Describe the different steps of building a warehouse. (10)

