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(Pages 2)

Name.....................

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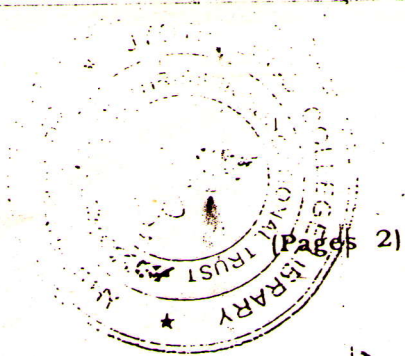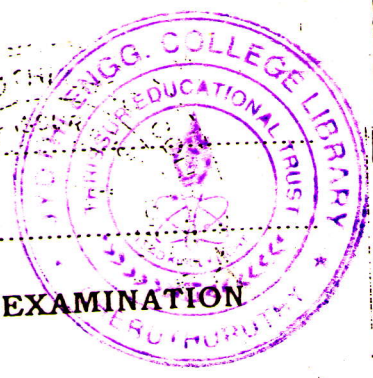
SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION JUNE 2004

IT/CS 2K 602—DATABASE MANAGEMENT SYSTEMS

Time : Three Hours

Maximum : 100 Marks

Question No.I is *compulsory*.

Answer one full question from each of II to V.

I. a) What is the difference between physical data independence and logical data independence ? Which is easier to accomplish ? Why ?

b) Discuss different classifications of DBMS.

c) Discuss different techniques for allocating file blocks on disks.

d) Discuss the characteristics of relations that make them different from ordinary tables and files.

e) List the different integrity constraints to be supported by any DBMS.

f) Explain the concept of news in SQL.

g) Describe the problem(s) which may be associated with a relation that is in 4 NF but not 5 NF with the help of an example. Define the term 5 NF.

h) Write short note on granularity of locking.

(8 × 5 = 40 marks)

II. a) (i) Explain the importance of data modelling in view of DBS.

(ii) Explain the following terms with an example :

(a) Attribute ;   (b) Primary key ;   (c) Foreign key ;   (d) Super key ;

(e) Total and partial participation.

(8 + 7 = 15 marks)

Or

b) Draw the ER diagram for a motor–vehicle servicing agency. The agency can provide maintenance, service to any type of vehicle (such as car, scooter, etc.) The company offers discounts if a person is a regular customer. If the customer is the employee of the agency than an additional special discount is given. The agency also keeps track of spare parts.

(15 marks)

III. a) (i) Suppose that wer are using extendible hashing on a file containing records with following search key values : 2, 3, 5, 7, 11, 17, 19, 23, 29, 31. Show the extendible hash structure for this file if the hash function is $h(x) = x$ mod 8 and buckets can hold three records. What happens if we delete the record with search key value is 2 ?

Turn over

(ii) Explain secondary indexing where index field is non-key field

(8 + 7 = 15 marks)

Or

b) (i) Explain the various methods to handle collison in hashing.

(ii) Write short note on primary and cluster indexing

(7 + 8 = 15 marks)

IV a) (i) Explain 1NF, 2NF and 3NF by taking suitable examples.

(ii) Explain co-related queries and nested queries in SQL with examples.

Or

(8 + 7 = 15 marks)

b) (i) State and prove Armstrong's inference rules. Why they are called sound and complete ?

(ii) Write a short note on Embedded SQL.

(8 + 7 = 15 marks)

V a) (i) Explain recoverable, avoiding cascading aborts and strict schedule by taking examples.

(ii) Explain how serializability can be achieved using time stamp ordering of transactions.

(8 + 7 = 15 marks)

Or

b) (i) Explain various operations in a transaction with transition diagram

(ii) Explain the concept of deferred update and immediate update of recovery management.

(8 + 7 = 15 marks)

[4 × 15 = 60 marks]