02403

Printed Pages – 4 CS – 502

(Following Paper ID and Roll No. to be filled in your Answer Book)										
PAPER ID : 1004	Roll No.									

B.Tech.

FIFTH SEMESTER EXAMINATION, 2005-2006

DATA BASE MANAGEMENT SYSTEM

Time : 2 Hours *Total Marks : 50*

Note : *(i) Attempt **ALL** questions.*

(ii) In case of numerical problems assume data wherever not provided.

(iii) Be precise in your answer.

1. Attempt ***any four*** of the following questions : **(3x4=12)**

(a) Define the following terms :

(i) Database System

(ii) End User

(iii) DML

(iv) DDL

(b) Distinguish between a file processing system and a DBMS.

(c) What is the difference between logical data independence and physical data independence ?

(d) Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient, a log of the various tests and examination conducted.

OR

Draw E-R relationship diagram showing the cardinality for the following :

A operator can work on many machines and each machine has many operators. Each machine belongs to one department but a department can have many machines.

(e) When is the concept of a weak entity useful in data modelling ? Define the terms : owner entity type and weak entity type.

(f) What is the difference between procedural and non procedural DMLs.

Attempt ***any two*** of the following questions : **(7x2=14)**

(a) How does the relational calculus differs from relational algebra and how they are similar ? Explain with some suitable example.

(b) Consider the following scheme :

DEALER (DEALER_ID, DEALER_NAME, DEALER_ADDRESS)

PARTS (PART_ID, PART_NAME, COLOUR)

CATALOG (DEALER_ID, PART_ID, COST)

Write the following query in Relational Algebra and SQL :

(i) Find the name of the Dealers who supply red parts.

(ii) Find the name of Dealers who supply both yellow and green parts.

(iii) Find the name of the Dealers who supply all parts.

(c) Discuss the various update operations on relations and the type of integrity constraint that must be checked for each update operation.

3. Attempt *any two* of the following questions : **(6x2=12)**

(a) Write notes on the following :

(i) Functional Dependency or 4NF

(ii) Normal Forms

(b) Consider the scheme S = (V, W, X, Y, Z). Suppose, the following functional dependencies hold :

$Z \rightarrow V$

$W \rightarrow Y$

$XY \rightarrow Z$

$V \rightarrow WX$

State whether the following decomposition of scheme S is loss less join decomposition. Justify your answer :

(i) $S_1 = (V, W, X)$

$S_2 = (V, Y, Z)$

(ii) $S_1 = (V, W, X)$

$S_2 = (X, Y, Z)$

(c) What do you understand by fifth normal forms ? Explain with some suitable example.

:. Attempt *any two* of the following questions : **(6x2=12)**

(a) Write notes on the following :

(i) Dead lock

(ii) Two phase locking protocol

(b) What do you understand by serializability of schedules ? Explain with some suitable example.

(c) What is the transaction system ? How would you make recovery from transaction failures ? Explain with some suitable examples.

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