XX-1000   Seat No._____

D. C. S. A. (Sem. II) Examination

April / May – 2003

Database Management Systems

Time : **3** Hours]   [Total Marks : **50**

Instructions : (i) Attempt both the sections in **separate** answer-books.

(ii) Figures to **right** indicate **full** marks of the question.

(iii) Assume suitable **data** wherever necessary.

SECTION - I

1 (a) List four significant differences between file   **9** processing system and a DBMS.

(b) What are the main functions of DBA ?

(c) What are the roles and duties of a DBMS.

2 (a) Define aggregation. Give example where this   **8** concept can be used ?

(b) Explain how tables are derived from E-R diagram.

OR

2 Consider an on-line bookstore where a customer can   **8** select books of his liking from the web-site and place them in the shopping cart. The bookstore maintains a database of all books it has along with information such as author and publisher. The stock of multiple copies of books are kept in various store houses located at different locations. The online bookstore also provides audio cassettes and books on CD which the customer can purchase. List down the various entities, attributes associated with each entity and draw the E-R diagram modelling the online bookstore.

3 Explain the following : (any **two**)   **8**

  (i)   1 NF, 2 NF, 3 NF

  (ii)   Weak Entities and Strong entities

  (iii)   Closure set of Functional dependencies.

SECTION - II

4 Consider the following tables :   **9**

Category

Cat_code	cat_desc
01	super_deluxe
02	deluxe
03	super fast
04	normal

route_header

route_id	route_no	cat_code	origin	destination	fare	distance	capacity
101	33	01	Madurai	Chennai	35	250	50
102	25	02	Trichy	Madurai	40	159	50
103	15	03	Thanjavur	Madurai	59	140	50
104	36	04	Chennai	Banglore	79	375	50
105	40	01	Banglore	Chennai	80	375	50
106	38	02	Chennai	Madurai	39	250	50
107	39	03	Hyderabad	Chennai	50	430	50
108	41	04	Chennai	Cochin	47	576	50

Write SQL queries for the under (take the above tables)

  (i)   Update the capacity of all buses terminating at Chennai to 60.

  (ii)   Find the average fare for each category.

  (iii)   Display all buses which terminate in Madurai, Banglore and Chennai.

  (iv)   Display the date 30 days from today and the day on which it falls.

  (v)   Find the total fare of all buses starting from Chennai.

(vi) Display distinct origin and distinct destination where the buses ply.

(vii) Convert the origin and destination to capital letters.

(viii) Display all the destinations right justified padded with spaces.

(ix) Insert a new category into category table.

5 Answer the following : **8**

(a) What are the three concurrency problems ?

(b) What is two phase commit ? How does it help in recovery ?

OR

5 (a) List down the various operators of relational algebra and discuss each one of them. **8**

(b) Explain the relational model.

6 Attempt any **two** : **8**

(a) What is three level ANSI/SPARC architecture ?

(b) How can the problem of concurrency be controlled ?

(c) Explain functional dependencies and trivial functional dependencies using proper example.

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