

PGDCA / MCA (I Year)

Term-End Examination

June, 2010

10302

CS-06 : DATABASE MANAGEMENT SYSTEM

Time : 3 hours

Maximum Marks : 75

Note : Question number 1 is compulsory. Attempt any three from the rest.

1. (a) A marketing company maintains information about salespersons, Areas and Products. Salespersons have a unique identification number, name, designation and area allocated to each one. Areas are divided with a number and names. Products have their number, name, cost, discount, and the areas where these product need to be marketized. Sales persons can sale any product in their areas, and maintains a monthly statement which shows the number of products sold, along with their cost, discount and date of delivery.
- On the basis of the above specification answer the following questions :
- (i) Design an ΣR diagram indicating attributes, keys and cardinality ratios. 10
- (ii) Derive the number of tables from the ΣR diagram. 5

- (iii) Create the BCNF normalized table and describe the integrity constraints (including referential integrity constraints) on these tables. 7
- Note : Make and state necessary assumptions, if any.
- (b) What are the different problems in relational databases from the view of organization of data (Discuss any three). How these problems can be overcome by using Object Oriented RDBMS. 6
- (c) "Data Independence means programs are not dependent on the physical attributes of data". Is it True or False ? Justify your answer. 2
2. (a) What are the main features of client server model ? Explain the stages involved in the development of an application using this model. 7
- (b) Why a B + tree is a better structure than B – tree for implementation of an indexed sequential file. Explain how using a B + tree increases the efficiency of processing in DBMS. 8
3. (a) What are the different technical and administrative criteria for evaluation of a DBMS ? Explain. 7

- (b) Explain the significance of multimedia and knowledge databases. Also, give two example for each. 5
- (c) Explain the role and functions associated with database administration. 3
4. (a) Explain the concept of functional dependency using a suitable example with the help of a dependency diagram. Why is it difficult to identify functional dependencies by just looking at a table ? Explain with an example. 8
- (b) What are the problems of file management system ? Explain, how does the database approach overcome these problems. 7
5. Consider the following relations :
- (a) Where primary keys are underlined : 10
- AIRBUS (Name, Start_Station, Dest_Station, ANumber)
- TICKET (PNRNO, Start_Station, Dest_Station, Fare)
- PASSENGER (Name, Address, PNRNO, ANumber)
- Write SQL Queries for the following :
- (i) Retrieve the name of passengers who are travelling from the Start_Station to the Dest_Station of the Airbus.

- (ii) Retrieve the names of all the passengers who have paid more than Rs. 50,000/- as fare.
 - (iii) Retrieve the name of the Airbuses travel between Delhi and Chennai as start_station and dest_station.
 - (iv) Insert a new Airbus named GOLIGHT, number G_1372 from Delhi to Bangalore.
 - (v) Cancel a ticket with PNRNO 7321523108, and passenger name Rajiv.
- (b) Discuss the advantages and disadvantages of data replication in distributed databases. Is there any use of data replication in relational databases ?

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